

Advances in
EXPERIMENTAL SOCIAL PSYCHOLOGY

VOLUME 45





VOLUME FORTY FIVE

ADVANCES IN EXPERIMENTAL SOCIAL PSYCHOLOGY

SERIES EDITORS

MARK P. ZANNA
PATRICIA DEVINE
JAMES M. OLSON
ASHBY PLANT

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ADVANCES IN EXPERIMENTAL SOCIAL PSYCHOLOGY

EDITED BY

PATRICIA DEVINE

*Psychology Department
University of Wisconsin
Madison, USA*

ASHBY PLANT

*Department of Psychology
Florida State University
Tallahassee, FL, USA*



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CONTRIBUTORS

Monica Biernat

Department of Psychology, University of Kansas, Lawrence, KS, USA

Amy Canevello

Department of Psychology, University of North Carolina, Charlotte, North Carolina, USA

Priyanka B. Carr

Department of Psychology, Stanford University, Stanford, California, USA

Jennifer Crocker

Department of Psychology, The Ohio State University, Columbus, Ohio, USA

Carol S. Dweck

Department of Psychology, Stanford University, Stanford, California, USA

Andrew J. Elliot

Department of Clinical and Social Science in Psychology, University of Rochester, Rochester, New York, USA

Peter Glick

Department of Psychology, Lawrence University, Appleton, WI, USA

Markus A. Maier

Department of Psychology, University of Munich, Munich, Germany

Corinne A. Moss-Racusin

Department of Psychology, Yale University, New Haven, CT, USA

Julie E. Phelan

Langer Research Associates, New York, NY, USA

Aneeta Rattan

Department of Psychology, Stanford University, Stanford, California, USA

W. Steven Rholes

Department of Psychology, Texas A&M University, College Station, Texas, USA

Laurie A. Rudman

Department of Psychology, Rutgers University, New Brunswick, NJ, USA

Jeffrey A. Simpson

Department of Psychology, University of Minnesota, Minneapolis, Minnesota, USA

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STEREOTYPES AND SHIFTING STANDARDS: FORMING, COMMUNICATING, AND TRANSLATING PERSON IMPRESSIONS

Monica Biernat

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Department of Psychology, University of Kansas, Lawrence, KS, USA

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Abstract

Stereotypes may function as standards against which we judge individual members of stereotyped groups. This is the basic premise of the shifting standards model (Biernat, Manis, & Nelson, 1991), from which a complex set of predictions is derived: Members of negatively stereotyped groups may be judged, communicated about, and treated more or less positively than members of contrasting social groups, depending on the judgment or decision at hand. The chapter reviews research documenting a “signature” shifting standards effect, whereby judgments of targets on common-rule scales *assimilate* to stereotypes but show null or *contrastive* effects in subjective language. This idea is elaborated in the context of communication, whereby members of negatively stereotyped groups may be described relatively favorably in subjective language (because of lower standards), at the same time that both “interpreters” and communicators leave the communicative exchange with stereotype-consistent views. Standards themselves may also have different implications—either leniency or stringency for members of negatively stereotyped groups—depending on whether they reference minimum expectations or confirmatory requirements. Despite the apparent positivity that results when targets are evaluated against low standards, the use of shifting standards may contribute to the maintenance of stereotypes over time and to confusion and inconsistency in the feedback targets receive. The chapter concludes with a consideration of the role of motivation in moderating shifting standards effects, and possible means of reducing the tendency to shift standards.

1. INTRODUCTION AND OVERVIEW

Consider the following scenarios: A female employee is described as “highly competent,” but her employer nonetheless ranks her below a comparable male coworker. A Black job applicant must jump through fewer hoops than his White counterparts to be considered for a job, but more hoops to actually be hired. A female softball player receives elaborate praise for hitting a single but finds herself locked out of prime batting and fielding positions. A Black student’s transcript elicits more positive commentary than a White student’s, but the Black student is remembered as having a worse GPA.

In each of these cases, members of groups stereotyped as deficient in some attribute, such as workplace competence or academic or athletic skill, experience conflicting and complex outcomes: Both positivity and negativity in the judgments, evaluations, and behavioral treatment they receive from others. The reasons why this might occur are the focus of this chapter, in which I review two decades of research on the *shifting standards* model, which articulates the role stereotypes play as we judge members of stereotyped groups (Biernat, 2003, 2009; Biernat, Manis, & Nelson, 1991).

The model is actually based on a phenomenon outside the stereotyping domain. It begins with the observation that in everyday language, we routinely use adjectives such as “small” and “large” or “fast” and “slow” to mean different things, depending on the object being described. For example, no one would be surprised to learn that a “large” birthday present fits comfortably in a “small” car, or that a “slow” online purchase is likely faster than a “fast” trip to the shopping mall. Similarly, objects and events might be described with different adjectives depending on the category to which they belong. When Harry Potter first meets Hermione Granger’s pet in J. K. Rowling’s *The prisoner of Azkaban*, he remarks, “it was either a *very big* cat, or *quite a small* tiger.”

Indeed, the meaning of adjectives is almost always ambiguous without knowing more about the standard or referent used to make the judgment (Huttenlocher & Higgins, 1971; Kraut & Higgins, 1984). When it comes to descriptions of people, one referent may be the “average person,” but a more specific standard may provide additional disambiguation. Consider a person described as “tall,” another described as “aggressive,” and still another described as “pretty smart.” What do these descriptors really mean? How objectively tall is the “tall” person? And what did the individuals do to earn the “aggressive” and “pretty smart” labels?

These questions may be answered differently depending on the sex or race or other social category membership of the target at hand. For example, “tall” for a man means something objectively taller than “tall” for a woman (Roberts & Herman, 1986), an “aggressive” man may have engaged in quite different behaviors than an “aggressive” woman, and a “fairly smart” student may have performed differently on a scholastic test if Black versus White, or if college age versus kindergarten age. This is because we have different expectations, or stereotypes, about men versus women, Blacks versus Whites, kindergarteners versus college students, and these expectations inform what we mean by the adjectives we use.

In this way, social category membership of the person being described matters for making and interpreting judgments. Important social categories, including those based on gender, race, and age, imply differences between groups. These perceived group differences—stereotypes—may act as expectations or standards against which we judge individual group members. This is the basic premise of the shifting standards model (Biernat, 2003; Biernat et al., 1991), the focus of this chapter. Because of shifting standards, a female chief of staff may be described as highly competent, a hit from a female softball player may generate more enthusiasm than the same hit from a male, and a Black student may receive more praise than a White student for an identical transcript. In each case, the target is being judged relative to lower expectations or standards for their group.

By a standard, I refer to “a criterion or rule established by experience, desires, or authority for the measure of quantity and extent, or quality and

value” (Higgins, 1990, p. 302). A *social standard* in particular may be thought of as “any attribute of a person or of a collection of people that serves as a point of comparison for an individual” (Miller & Prentice, 1996, p. 800). From the perspective of the shifting standards model, social categories (e.g., based on gender, race, or age) may provide the “point of comparison” against which judgments of individuals are made. Thus, when faced with a judgment question about an individual target—how competent is this person? how aggressive? how emotional?—we may use within-category standards as referents. To the extent that the judgment dimension is relevant to a stereotype, the standard may shift depending on who is being judged.

For example, on the dimension of emotionality, individual men may be judged relative to (low) standards of emotionality for men and individual women relative to (high) standards of emotionality for women. As a result, the judgments of men and women may not be directly comparable: A target person who displays the same behavioral manifestation of emotionality—crying during the film *Sophie’s Choice*—may be judged *more emotional* if a man than a woman, because of the lower standard of emotionality against which the man is compared. Additionally, a man and a woman might each be described as “highly emotional,” but this may indicate an objectively stronger perception of emotionality in the case of the woman because she surpassed a higher standard to earn that description.

In these examples, judgment appears to be counter-stereotypical (men judged more emotional than women), or nonstereotypical. But such patterns are deceptive in that they are belied by underlying stereotype-consistent impressions of the targets. We may label a Black student “smart” while nonetheless thinking of him as objectively *less* smart than a comparable White student. One theme of this chapter is that language processes—even when they appear favorable to members of stereotyped groups—may nonetheless contribute to the maintenance of stereotypes over time. The production and communication of subjective language about others, and the process by which others interpret or “translate” these judgments, are the focus of this chapter.

I begin with a review of evidence documenting the use of stereotype-based shifting standards in social judgment. I consider how both gender and race may affect the standards used to evaluate individual group members on stereotyped dimensions, and how subjective impressions of others may appear counter-stereotypical at the same time that underlying perceptions are stereotypical. In this work, I also address whether the tendency to shift standards is a marker of prejudice—does the use of shifting standards signal negativity toward groups?

In the next section, I move from intrapersonal to interpersonal processes, focusing on how shifting standards affect the way we communicate our impressions to others and how those communications are understood or interpreted. I offer a schematic model of how communicators and

“interpreters,” both relying on cultural stereotypes as common ground, engage in exchanges that may serve to reinforce stereotypical impressions of others. The self may be a target of communications as well, as when we receive subjective feedback on a performance (“great job!”). I address whether these communications are interpreted with reference to social category memberships. For example, when told one did a “fair job” on a leadership task, do women understand that feedback to be objectively worse than do men, because gender stereotype lead women to interpret “fair” relative to a lower standard?

I next consider the setting of judgment standards and suggest that judges may be either lenient or harsh in the standards they set for members of groups stereotyped as deficient in some relevant attribute. For example, because of low expectations, the Black job applicant described in the opening paragraph of this chapter may appear more impressive during an initial screening process than a comparable White applicant (for whom expectations are higher). But because of low expectations, more evidence may be required from the Black actor to really document that he has the ability to perform the job and should be hired. In this way, members of negatively stereotyped groups may receive both favorable and less favorable treatment than their positively stereotyped counterparts, depending on the judgment at hand.

The chapter ends with a consideration of some shortcomings of the shifting standards model. Key here is that the model is largely cognitive in emphasis, highlighting the effects of mental representation on judgments of and communications about others. However, motivational processes are certainly at play when we evaluate and communicate about others, and these may either enhance or reduce the tendency to shift standards. I offer some speculation about how specific motives may matter for the judgment process.

The shifting standards model is built on a simple idea about the relativity of judgmental language and the role of stereotypes in producing and interpreting this language. But I hope that this chapter demonstrates the breadth and complexity of effects that can be derived from this simplicity. Members of negatively stereotyped groups may be judged, communicated about, and treated more or less positively than members of contrasting social groups, all depending on the judgment or decision at hand. At minimum, this inconsistency creates a confusing situation for the target. Perhaps most significantly, it contributes to a situation in which stereotypes may be maintained and reinforced, even when it *appears* they are not.



2. SHIFTING STANDARDS IN SOCIAL JUDGMENT

The tendency to shift standards is possible because of the subjectivity of language. The meaning of adjectives is “slippery” and context dependent, and therefore, “good” or “competent” or “emotional” can mean something

different depending on who is being described (Dunning, 1993; Huttenlocher & Higgins, 1971). Thus, an individual man and woman might each be judged “good at math,” but the evaluator might nonetheless perceive these targets differently: If women are evaluated relative to a lower math standard, the “good at math” man might actually be perceived as better at math than the woman.

But consider the case of language that does not afford these shifts. Height, for example, can be estimated in feet and inches, strength in pounds one can lift, competence in a score on a standardized test. Such language is objective, or perhaps more accurately described as “common rule” in nature. Elsewhere, we have noted that “the defining feature of common-rule scales . . . is that their units maintain a constant meaning across contexts” (Biernat, 2003, p. 1020). For Eiser (1990), the critical feature of such scales is that they have “an external reference independent of subjects’ perceptions” (p. 15). Judgments made on such scales should not be amenable to shifts in meaning.

2.1. The signature shifting standards pattern

Indeed, we have suggested that the use of shifting standards can be detected by comparing social judgments made on common-rule scales with judgments made on subjective rating scales. Shifting standards are evident if *common-rule* judgments reveal stereotype-consistent patterns, whereas subjective judgments of the same targets reveal reductions or reversals of this effect.

This signature shifting standards pattern was revealed in an early study on height judgments (Biernat et al., 1991). Participants were asked to judge a series of photographs of men and women (who had been matched for height) and to estimate their heights, either in common-rule units (feet and inches) or in subjective ratings (*short* to *tall* judgments). Common-rule judgments revealed clear evidence of gender stereotyping—men were judged taller than women—but subjective height judgments significantly reduced this effect.

In another early study, participants judged the “financial success” of male and female targets, either in common-rule units (dollars earned per year) or in subjective rating units (*financially very unsuccessful* to *financially very successful*; Biernat et al., 1991, Study 2). Men were judged to earn more money than women, but subjectively, women were judged *more financially successful* than men. Similar results emerged for judgments of weight, but not for judgments on dimensions irrelevant to gender stereotypes (e.g., studying time and movie-going frequency; Biernat et al., 1991, Study 3). In all of these examples, judgments show dramatically different patterns, depending on the units in which they are rendered: The same women may be seen to both earn less money than men and be more financially successful than men.

These conflicting findings may frustrate researchers (“sometimes I find stereotypical judgments, but sometimes I find counter-stereotyping effects!”), as well as the targets of judgment (“am I perceived as financially secure or not?”). But they are understandable if we consider that subjective descriptions—because they are vulnerable to group-based shifts in meaning—may mask stereotypical perceptions.

Height, money, and weight are dimensions where stereotypes about men and women happen to be accurate—on average, men *are* taller, earn more money, and weigh more than women. But evidence of shifting standards has also emerged in domains where gender stereotypes are less accurate and more socially relevant. For example, [Biernat and Manis \(1994\)](#) examined the stereotypes that men are more competent in the workplace than women, women are more verbally able than men, Whites are more verbally able than Blacks, and Blacks are more athletic than Whites. In each study, participants either made subjective judgments of targets or used common-rule metrics (e.g., letter grades for work product and verbal ability). Common-rule judgments revealed evidence of gender- and race-based stereotyping, but in every case, subjective judgments reduced these effects.

In another study, participants considered the resume of a male or female applicant for a masculine (“chief of staff”) or feminine job (“executive secretary”); [Biernat & Kobrynowicz, 1997](#)). The resumes and job descriptions were identical across condition; only the names and job titles varied. Judgments of the applicant were made either in subjective rating units or in common-rule judgments (e.g., estimated score on standardized tests of ability). When the job was masculine, men were judged more competent than women in common-rule units, but less competent than women in subjective units—a contrast effect. The converse occurred in the case of the feminine job: Women were judged more competent than men in common-rule units, but less competent than men in subjective units. These results suggest that participants were thinking, “she would make a good chief of staff, for a woman” and “he would make a good secretary, for a man,” at the same time they felt the man would make a better chief of staff and the woman a better secretary.

This signature pattern—assimilation to stereotypes in common-rule judgments but null or contrast effects in subjective ratings—provides evidence that judges do indeed apply differential gender- and race-based standards when they judge individual group members on stereotyped attributes. Other labs have reported similar effects. For example, [Bosak, Sczesny, and Eagly \(2008\)](#) found that men were judged slightly more “agentic” than women on a common-rule assessment (trait test scores), whereas women were judged more “agentic” than men on subjective rating scales (though a comparable effect did not emerge when judging communal traits—in this case, both common-rule and subjective judgments assimilated to gender

stereotypes). In a study of expectations and stereotypes based on “baby-facedness,” [Berry and Zebrowitz-McArthur \(1988\)](#) found that baby-faced defendants who committed intentional offenses were sentenced more severely than analogous mature-faced defendants. However, this contrast effect appeared only on the subjective sentencing decision (rated from “minimum” to “maximum”). In forced-choice judgments of *guilt* (yes or no), baby-faced defendants received the benefits of the benign stereotype associated with their group—they were less likely than mature-faced defendants to be found guilty of intentional crimes.

A recent meta-analysis documented this pattern as well, by considering 947 effect sizes from 234 studies in which targets were judged on dimensions such as competence, leadership, employment, and criminality, using subjective and/or common-rule scales ([Manning et al., 2011](#)). When judging targets on dimensions that favored high status group members (e.g., judging men and women on hireability for “masculine” jobs), stereotypical judgments (in this example, men judged more favorably than women) were significantly stronger on common-rule ($d=0.47$) than on subjective response scales ($d=0.19$). Similarly, when judging targets on dimensions for which low status groups were more highly stereotyped (e.g., judging Blacks and Whites on criminality), stereotypical judgments were again stronger (in this example, Whites judged *less* criminal than Blacks) on common-rule ($d=-0.28$) than subjective response scales ($d=-0.05$).

Additional research has demonstrated that these different patterns of judgment effects on common-rule and subjective response scales are not due to methodological confounds, such as number of response options (which tend to be greater on common-rule scales), or relative difficulty of scale use ([Biernat et al., 1991](#)). For example, even when number of response options is equated between subjective and common-rule scales, evidence of shifting standards emerges ([Biernat et al., 1991, Study 3](#)). And based on the possibility that difficult or cognitively effortful tasks might prompt greater stereotyping (e.g., [Gilbert & Hixon, 1991](#); [Pendry & Macrae, 1994](#)), we examined whether common-rule judgments were more difficult to make than subjective judgments. We found no evidence that common-rule judgments were more difficult, or that perceived difficulty of making judgments was responsible for shifting standards effects ([Biernat et al., 1991, Study 3](#)).

One line of research did document that cognitive busyness can exacerbate shifting standards patterns on both common-rule and subjective judgments: That is, heightened stereotyping on common-rule scales but greater reductions or reversals of stereotyping patterns on subjective rating scales ([Biernat, Kobrynowicz, & Weber, 2003](#)). For example, when judging men’s and women’s heights in feet and inches, men were judged taller than women, but particularly by those under time pressure (brief exposure to targets). At the same time, subjective height judgments revealed

a contrast effect (women judged subjectively taller than men), again particularly by judges under time pressure (Biernat et al., 2003, Study 1). This suggests a paradoxical effect of cognitive load—increasing evidence of contrast effects in subjective social judgments. From a shifting standards perspective, this pattern makes sense, as busyness may increase reliance on stereotypes as standards against which subjective judgments are made, leading to both assimilative and contrastive effects. Stereotype use also tends to increase with age (von Hippel, Silver, & Lynch, 2000), but one study found equal evidence of shifting standards in height judgments (stronger stereotyping effect on common-rule than subjective ratings) in younger and older adults (Hoessler & Chasteen, 2008).

The tendency to shift standards—as demonstrated in the signature pattern of greater evidence of stereotyping on common-rule than subjective judgments—appears to be a robust phenomenon, perhaps exacerbated by cognitive busyness. This pattern suggests that null or contrast effects that emerge in subjective ratings are *response-based*, not perceptual. Consider a case where targets are judged to be equal in subjective units—for example, Black and White targets judged equally “athletic.” How are these “ties” resolved in paired choice or rank-ordering tasks? Resolutions tend to align with stereotypes: For example, Blacks are *ranked* as better athletes than their comparably rated White counterparts (Biernat & Manis, 1994, Study 3).

In short, the lack of stereotyping effects, or even the reversal of stereotyping effects, on subjective response scales does not mean that stereotypes are inoperative, but rather that stereotypes have affected the standards against which others are evaluated. Underlying perceptions tend to be stereotype consistent, even when subjective language masks these effects. This issue will be reconsidered as communication effects are discussed below.

2.2. Shifting standards and prejudice

Is the tendency to shift standards a good or bad thing? On the one hand, stereotypes must be operative for evidence of shifting standards to emerge. For example, standards do not shift on judgment dimensions for which no gender stereotypes exist (e.g., movie-going frequency; age; Biernat et al., 1991). Some studies have also found that individual differences in stereotype endorsement moderate the tendency to shift standards, with greater evidence of shifting standards by those who explicitly endorse the stereotype (Biernat & Manis, 1994). To the extent that stereotypes reflect bias, we might then suggest that the tendency to shift standards is a “bad” thing.

On the other hand, the tendency to shift standards may reflect benevolence or even positivity toward groups or individuals. Consider, for example, the admissions committee member who describes an ESL (English as a second language) student’s verbal GRE score of 450 as “really good”

(compared to expectations regarding English skills of ESL students). In these cases, the tendency to shift standards seems “nice” and even beneficial to the individuals involved. This is not to deny that benevolence can also be a sign of paternalistic or patronizing attitudes (e.g., Eagly, 2004; Glick & Fiske, 2001; Jackman, 1994), but nonetheless, this perspective suggests a more positive view of what the tendency to shift standards may reflect.

In one line of research, we explicitly addressed whether the tendency to shift standards is related to implicit and explicit markers of prejudice and stereotypes (Biernat, Collins, Katzarska-Miller, & Thompson, 2009). We created an individual difference measure of the tendency to shift standards when judging Black and White individuals on the dimension of academic competence. This measure captured the difference between judgments of Whites and Blacks in common-rule units, minus the difference between judgments of Blacks and Whites in subjective units. The greatest tendency to shift standards is revealed among those individuals who see a large *common-rule* difference favoring *White* targets, but a large *subjective* difference favoring *Black* targets.

Across three studies, this measure was uncorrelated with explicit racial prejudice, implicit racial prejudice (as measured using the Implicit Association Test; Greenwald, McGhee, & Schwartz, 1998, and a priming/lexical decision task; Wittenbrink, Judd, & Park, 1997), and various indicators of stereotyping. However, the tendency to shift standards predicted an important behavioral indicator of racial discrimination—reduced funding of a campus “Black Student Union.” That is, those who shifted standards most in their judgments of Black and White students’ academic ability were the most likely to defund a Black student organization. These effects were not driven by merely judging Whites more favorably than Blacks—the race difference favoring Whites in common-rule judgments—or by showing contrast effects in subjective judgments—the race difference favoring Blacks in subjective judgments. Rather the difference between these two forms of judgment—a difference that captures the tendency to shift standards—predicted racial discrimination.

These studies demonstrate that the tendency to shift standards based on race is distinct from other race-relevant attitudes and beliefs. We suggest that it may provide a subtle or indirect indicator of the extent to which people *apply* group-based beliefs to individual targets (see Brauer, Wasel, & Niedenthal, 2000) and in this sense does not fit neatly into the dichotomy of “implicit” and “explicit” markers of prejudice that is common in modern thinking about prejudice measurement (see Correll, Judd, Park, & Wittenbrink, 2010 for a review). In the context of judging race and academic ability, the use of shifting standards reflects a “bad” tendency: Those who engage in shifting standards are more likely to engage in racial discrimination. However, more research is needed to understand whether and when shifting standards may have more benign consequences.

3. SHIFTING STANDARDS IN COMMUNICATION AND ITS TRANSLATION

At the heart of the shifting standards phenomenon is the subjectivity of language, and the use of stereotype-based standards to produce that language. These processes have added importance when we move from the intrapersonal to interpersonal domains. Thus far, I have discussed how an individual evaluator makes judgments of others, but these individuals also communicate their judgments and have conversations about others, with others. A large proportion—perhaps 70%—of conversation we engage in is about other people (see Foster, 2004), and much of this communication—whether in written form, as in letters of recommendation, or in everyday verbal conversation—uses subjective language. For example, I might tell you about a “really bright” student in my class, or about the “very aggressive” salesperson I encountered at the store. I have suggested that such descriptions might result from the use of shifting standards based on race, sex, or other social categories.

The question in a communicative context is whether the audience of my communication understands the group-based referent I may have used to produce such judgments. For example, if my “bright student” happens to be African American, or my “very aggressive” salesperson happens to be a woman, does the listener assume that I used low standards to make my judgments (low standards of academic ability in the case of African Americans, low standards of aggression in the case of women)? Does the audience walk away from these communications with a view of the student as less academically accomplished, and the salesperson as less aggressive, than would have been the case if the same words described a White student or a man?

3.1. Translation effects

Some evidence suggests that audiences of subjective descriptions do indeed interpret subjective language relative to category-specific standards. In one early study, participants listened to an audio recording of a man or woman self-describing as a “very good parent” or an “alright parent” (Kobrynowicz & Biernat, 1997, Study 2). Participants were then asked to “translate” what this description meant, by providing objective behavioral estimates of parenting behaviors. For example, participants estimated how frequently the parent made meals for the child, changed diapers, gave baths, said “I love you,” etc. The data revealed a main effect of parenting quality—“very good” parents were assumed to engage in such behaviors more frequently than “alright parents,” but also a main effect of target sex: Moms were assumed to engage in these behaviors more frequently than dads. That is,

the same subjective description of parents was translated to mean *more objective involvement in parenting* when the target was female rather than male. We assume this reflects the stereotype of mothers as more involved in childcare than fathers (see also Bridges, Etaugh, & Barnes-Farrell, 2002). Because of this stereotype, more extensive behavioral involvement was required of a mother than a father to earn the same subjective label. In an analogous study relevant to stereotypes about race and math performance, translators judged targets who were “really good at math” or “pretty bad at math” to be objectively better (e.g., have higher math GPAs) if they were Asian than Black (Kobrynowicz & Biernat, 1997, Study 3).

In other series of studies, participants read excerpts from or full letters of recommendation written about male or female applicants to a Ph.D. program in physics (selected as a masculine-stereotyped domain; Biernat & Eidelman, 2007). The description of the student as “reasonably good” was interpreted to mean a less impressive objective record if the target was a woman than a man. That is, participants estimated that the letter writer (a physics professor) viewed the “reasonably good” female student as having a lower GPA than the “reasonably good” male student. This pattern was particularly pronounced when the letter writer was described as sexist, an attribute that led to an inference that the writer had particularly low standards for judging women’s competence in physics. A nonsexist professor was assumed to see no difference in the objective records of male and female “reasonably good” students.

These data suggest that people may indeed translate subjective language about others with reference to group stereotypes. Thus, despite the fact that similar language may be used to describe targets—for example, a male and a female employee are both “competent”—listeners interpret competence relative to stereotyped expectations.

3.2. Communication chains

Do similar effects emerge in an actual communication exchange, when an individual communicator offers a subjective description of a target individual, which is then interpreted by a yoked audience member? We addressed this question in a study in which “communicators” were offered the transcript of a college student, whom they were led to believe was either Black or White, and asked to communicate their impression of the student to a peer (Collins, Biernat, & Eidelman, 2009). Consistent with a shifting standards account that Black students would be compared to a lower standard of academic performance than White students, the content of these communications was more favorable when the student was Black than White. The objective academic record appeared “better” if it belonged to a Black student. (Of course, this pattern is also consistent with a motivated attempt to appear nonprejudiced, a point we will address below.)

How were these communications understood by the peer audience? To each communication, we yoked two “interpreters,” whose task was to read the subjective descriptions and “back-translate” by making inferences about the objective academic record (e.g., GPA) of the student who was described. For each communication, one of these interpreters was told the target’s race, and the other was not. The question was whether interpreters would “correct” for the positivity of the communications about Black students, downgrading their estimates of his GPA. If this occurred, it should be limited to conditions when race was known.

We found that among those interpreters who were told the target’s race, GPA estimates were *lower* when the student was Black than White. That is, despite having just read a *more favorable* subjective description of the Black student, interpreters left the exchange believing the Black student to have a *worse* academic record than the White student. This effect did not emerge among interpreters who were ignorant of the target’s race, or among a set of control participants who simply made estimates about the GPA of a “Black student” or “White student” (no communication control).

This set of results, which is summarized in [Fig. 1.1](#), points to the role of shared cultural stereotypes—in this case, racial stereotypes about academic performance—between communicator and audience. It was only when

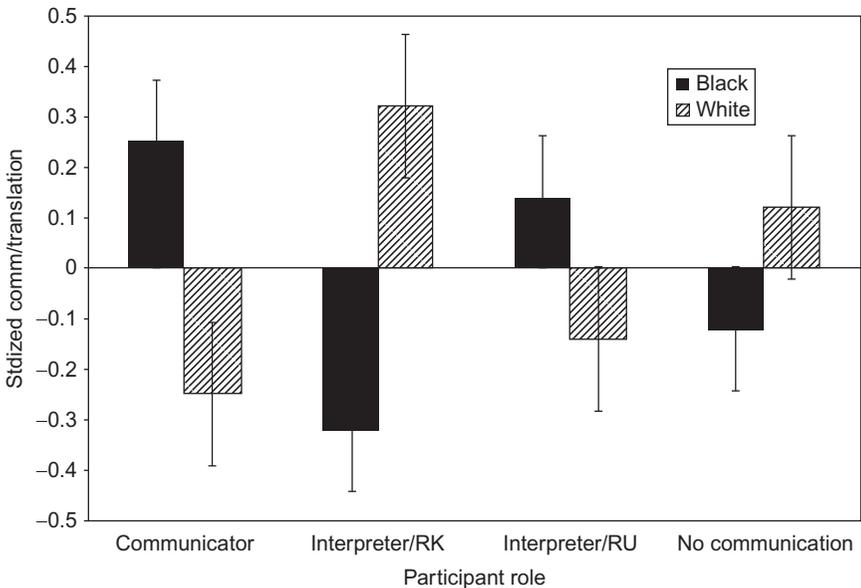


Figure 1.1 Effects of target race on communicator and interpreter positivity, from [Collins et al. \(2009\)](#). Notes: RK, race known; RU, race unknown. “No communication” is a control condition in which *Ps* simply estimated the likely GPA of a Black or White student.

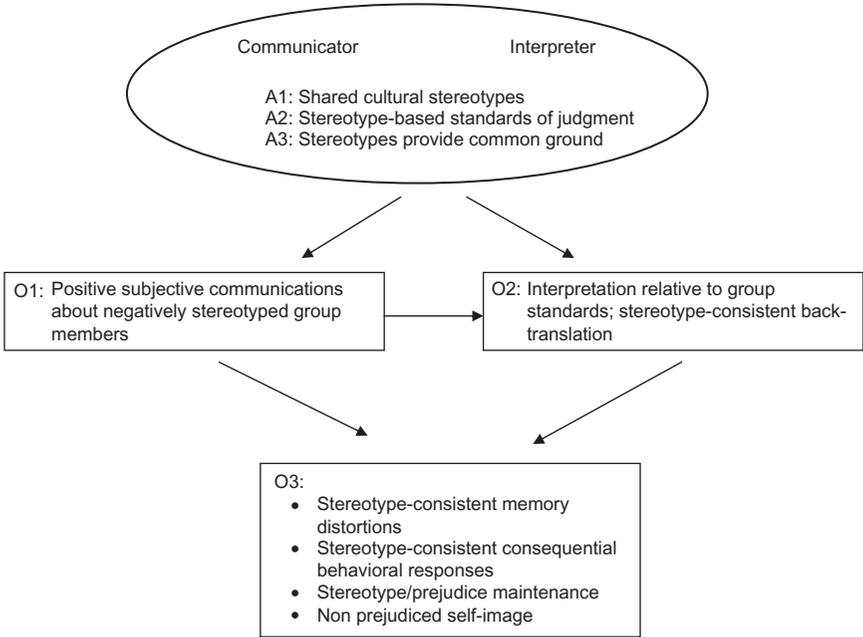
both parties in the communication knew the target individual's race that Black students were described subjectively more positively, and this communication was interpreted, in turn, to indicate a worse academic record. Without knowing the target's race, interpreters took the communication at face value, viewing a positive subjective description as indicating a generally positive GPA. We suggest that the shared cultural stereotype about race created a situation in which both communicator and interpreter used lower standards to evaluate Black than White students.

The fact that interpreters judged Black students more negatively than White students argues against the alternative possibility that concern about appearing prejudiced was driving our effects. Even more strongly arguing against this possibility was an additional finding: Just moments after providing more favorable communications about Black than White students, communicators misremembered the Black student as having a *lower GPA* than the White student (Collins et al., 2009). Thus, communicators began with identical performance records of the Black and White student, then communicated more positively about the Black student, but left the situation remembering the Black student as having a worse record! Interpreters also left the setting with a more negative view of the Black student, despite having read relatively favorable comments about him. We think this is a remarkable set of findings that speaks to the complexity and tenacity of stereotyping effects. In spite of the surface positivity toward Black targets evident in subjective communications, the communicative exchange ultimately strengthened racial stereotyping in both interactants.

3.3. Processes of communication based on stereotype-based standards

Figure 1.2 offers a schematic of the processes we believe are at work as communications about stereotyped others occur. The figure depicts one communicator and one interpreter in just one iterative exchange, as a means of modeling the kinds of research paradigms I have thus far implemented in my research. It lays out a set of outcomes for both the communicator and interpreter, some of which are evident in the interpersonal exchange of impressions of others, and others as downstream effects, including stereotype maintenance. Of course, most communicative exchanges are more dynamic and interactive, with communicators and interpreters switching roles over time (see Clark, 1985; Grice, 1975). Nonetheless, this simplified depiction may offer an initial, basic framework that may later be applied in more complex situations.

The model presented in Fig. 1.2 is based on three basic assumptions. First, I assume that communicators within a culture share stereotypes of social groups. Much past research suggests that stereotypes based on race, gender, and age are consensually shared (e.g., Devine, 1989; Devine &



Notes: A = assumption; O = outcome

Figure 1.2 A shifting standards-based model of communication and social judgment. Notes: A, assumption; O, outcome.

Elliot, 1995; Martin, 1987; Hummert, 1999). This is not to deny individual variability in the content of stereotypes or in the extent to which they are endorsed. Nonetheless, I assume that many stereotypes regarding prominent social categories are known and shared by individuals within a given cultural context. The second assumption has been highlighted throughout this chapter: Stereotypes activate differential standards of judgment. These two assumptions are depicted in Fig. 1.2 as A1 and A2.

The third assumption (A3) is that successful communication relies on shared knowledge as common ground. Communication follows a set of rules including the maxims of quantity (make your contribution informative), quality (make your contribution true), and cumulation (add to the base of existing knowledge; see Clark, 1985; Grice, 1975). Perhaps most importantly, there must be common knowledge or common ground among communicators for appropriate coordination and understanding to occur. Research on decision-making groups suggests that discussion tends to focus on information that is shared among group members rather than known by only a few group members (Stasser & Titus, 1985). Because of their shared nature, stereotypes can provide common ground (Clark & Shober, 1992) or

a “shared reality” (Hardin & Higgins, 1996) that provides the backdrop for communications about people. These three basic assumptions form the starting point of the communication model depicted in Fig. 1.2: Communicators and interpreters in a given context share stereotypes and therefore use within-category standards of judgment as they evaluate others on stereotyped dimensions.

Because of the use of differential standards based on consensually held stereotypes, communications will be *more favorable* about targets who belong to groups that are negatively, rather than positively, stereotyped in a given setting (see Outcome Box 1 in Fig. 1.2). This is the pattern documented in Collins et al. (2009), in which White communicators offered more favorable impressions of a Black than White student, based on identical credentials. Despite this positivity in communications, interpreters implicitly understand that the communicator likely used lower standards to evaluate the negatively stereotyped group member (the Black student in this case; see Outcome Box 2). Thus, the figure describes interpreters “correcting” for lower standards and judging the positively described target *more negatively* (e.g., the Black student judged to have an objectively weaker record than the White student, despite his having been described more favorably).

Additional hypothesized downstream consequences of the communicative process are also presented in Fig. 1.2, in Outcome Box 3. Communicators and interpreters might be susceptible to at least four additional effects: They may have stereotypic memory for the target of the communication, they may ultimately treat the target of judgment more stereotypically, their stereotypes and prejudicial attitudes may be reinforced or strengthened, and at the same time, they may maintain nonprejudiced self-images.

We demonstrated the memory effect in Collins et al. (2009), in which communicators remembered the Black target as having a lower GPA than the White target, despite having just offered a more favorable communication about him. Additionally, we suggest that had a behavioral response been required—for example, an admissions or hiring decision—stereotype-consistent treatment would result (e.g., the Black target less likely than the White target to be admitted to graduate school).

This latter hypothesized effect has not been tested directly, as communicators in Collins et al. (2009) were not asked to render any behavioral decision about the target, or to report on their self-images. But we have begun to address the role of the communication process *per se* in producing the memory outcomes suggested above. For example, in data not reported in our published paper (Collins et al., 2009), communicators’ ratings of the Black target on a set of subjective performance descriptions (e.g., “this person’s GPA is strong”) were somewhat *negatively* correlated with memory for his GPA ($r = -0.15$, $n = 20$, ns). But when communicators considered White targets, this correlation was *positive* ($r = 0.43$, $n = 20$, $p = 0.05$).

In other words, it was among those who communicated most positively about the Black target that his GPA was remembered as being the lowest; this disconnect did not occur when the target was White. Still, it will be necessary in future research to test whether communicating about, versus merely judging, a target produces the same pattern.

The use of naturally occurring, rather than experimentally prompted, language may also offer some insight into how communication contributes to stereotypical perceptions of targets. Performance evaluations of employees are a kind of communicative event in which one can examine how narrative descriptions map onto bottom-line judgments of individual targets. In one study, we accessed the actual performance evaluations received by male and female junior attorneys working in a Wall Street law firm (Biernat, Tocci, & Williams, 2011). These evaluations included numerical ratings that mattered for the possibility of promotion in the firm (only those attorneys who received nearly perfect scores were headed toward partnership), and thus map onto the kind of consequential behavioral response we refer to in Box O3 of Fig. 1.2. Additionally, evaluators offered open-ended commentary about the target attorney, a kind of subjective communication which we coded for the use of positive performance words.

Analogous to the race data reported in Collins et al. (2009), we found that open-ended communications were more favorable toward *female* than male attorneys: Evaluators used more positive performance words to describe women than men. At the same time, however, bottom-line, consequential evaluations—the numbers that mattered for promotion—favored men. Thus, despite communicative positivity,¹ evaluators ultimately reported stereotypical perceptions of targets: Male attorneys were perceived as more competent than female attorneys, and more likely to be headed toward partnership. Further, whereas open-ended positivity predicted consequential judgments of male attorneys, these judgments were uncorrelated in the case of women—another “disconnect” between the subjective impression conveyed of the target and the underlying perception. Along with the findings of Collins et al. (2009), these data are consistent with the premise that positivity toward members of negatively stereotyped groups may be prompted by the use of lower judgment standards, a contrast effect. But other outcomes—bottom-line evaluations, memory—assimilate to stereotypes. Members of negatively stereotyped groups may therefore find themselves at the receiving end of compliments, but not valued outcomes and resources (see Biernat & Vescio, 2002; Vescio, Gervais, Snyder, & Hoover, 2005).

¹ The use of positive performance words was computed using Linguistic Inquiry Word Count (LIWC) software (Pennebaker, Francis, & Booth, 2001). This category of words, referred to as “positive emotion words” in LIWC, may also indicate vague as opposed to specific characterizations of others and may characterize deceptive language more generally. For an excellent discussion of what such words signify, see Pennebaker (2011).

Outcome Box 3 of Fig. 1.2 also outlines an additional effect of communicative exchanges on both communicators and interpreters: the maintenance of stereotypes and prejudicial attitudes. Because communication about others occurs against the backdrop of shared cultural stereotypes and the use of shifting standards, and because both communicators and interpreters leave the exchange with a stereotypical view of the target, their overarching stereotypes about and attitudes toward the target group may be maintained. A number of researchers have found that communication may contribute to stereotyping. For example, when both stereotype-inconsistent and stereotype-consistent information are known about an individual, communication about that person tends to focus on the stereotypic attributes (Brauer, Judd, & Jacquelin, 2001; Clark & Kashima, 2007; Lyons & Kashima, 2003; Ruscher & Hammer, 2006). Stereotypes that persist over time also tend to be high in “communicability”; they are the focus of people’s conversations (Schaller, Conway, & Tanchuk, 2002).

Additionally, research using the serial reproduction paradigm, in which participants in a communication chain must sequentially pass on a stimulus description, indicates moves toward stereotypicality over time. In a classic demonstration of this pattern, Allport and Postman (1947) presented an initial communicator with a line drawing depicting a subway scene in which two riders—a Black man and a White man—are standing, with the White man holding an open razor in his hand. As descriptions of this drawing were passed down a communication chain, stereotype-consistent alterations emerge: The switchblade moved from the White man’s to the Black man’s hand in over 50% of communication chains; “several times he was reported as *brandishing* it wildly or as *threatening* the white man with it” (Allport & Postman, 1947, p. 111; italics in original). More recently, Park and Hastie (1987) found that when participants learned about a group through second-hand descriptions, they developed more homogeneous impressions of the group and its members than those who developed a group impression by learning about specific instances of members’ behavior. Using a two-step serial reproduction chain, Thompson, Judd, and Park (2000) also found that second-hand impressions of groups were more extreme (stereotypical) than impressions formed by reading about individual instance of behaviors.

Allport and Postman (1946) describe three processes that produce these kinds of outcomes in communicative exchanges: leveling, sharpening, and assimilation. Leveling refers to a simple reduction in detail over time. Sharpening refers to a highlighting of the remaining details, those of most interest to the communicator. The tendency for impressions of other people to become more extreme over time reflects this sharpening tendency (Baron, David, Brunzman, & Inman, 1997; Gilovich, 1987). Assimilation is the process most clearly relevant to stereotyping, as it involves movement toward a “principal theme”; such assimilation “. . . often conforms to

expectation. Things are perceived and remembered the way they usually are. Most important of all, assimilation expresses itself in changes and falsifications that reflect the agent's deeply rooted emotions, attitudes, and prejudices" (Allport & Postman, 1946, p. 505). Assimilation to stereotypes is clearly consistent with this idea, and indeed, Allport and Postman (1947) expressed this point in their original work:

Whether this ominous distortion reflected hatred and fear of Negroes we cannot definitely say. In some cases these deeper emotions may be the assimilative factor at work, though the falsification might well occur even among subjects who have no active anti-Negro bias. There is so much unthinking acceptance of the widespread cultural stereotype of the Negro as hot-tempered and addicted to the use of razors as weapons that the report may mean nothing more than an assimilation to verbal clichés and conventional expectation (pp. 111–112).

Stereotypes of groups provide a "principal theme" toward which perceptions may move during the course of communication about others. The model in Fig. 1.2 therefore suggests that as a result of the process of engaging in communication about a member of a stereotyped group, interactants maintain, reinforce, or even strengthen relevant group stereotypes.

Is it also the case that attitudes toward groups as a whole are affected by the process of communication? One study focusing on communicators has examined this question (Biernat & Sesko, 2011). As in Collins et al. (2009), communicators reviewed the transcript of a male student who was presented as either Black or White and were told that they would communicate their impressions to another student. Racial attitudes and motivations to respond without prejudice had been measured several weeks prior to the lab session and were again measured after communications were produced. The tendency to communicate more positive impressions of the Black than White student, but to remember the Black student as having a lower GPA, was replicated in this study, though only among those participants who had scored low on the Internal Motivation to Respond Without Prejudice Scale (IMS; Plant & Devine, 1998). Those with a strong internal commitment to nonprejudice appeared *not* to use race in their communications, a pattern consistent with findings suggesting that nonprejudice is well rehearsed and relatively automatic in these individuals (Amodio, Devine, & Harmon-Jones, 2008; Devine, Plant, Amodio, Harmon-Jones, & Vance, 2002). But those low in this internal motivation were more likely to use race when considering the Black target and therefore, paradoxically, applied a within-race standard that resulted in more favorable communications.

Further, the tendency to communicate more positive impressions of Black than White students predicted increases in racial prejudice, as measured using the Anti-Black Attitudes Questionnaire (Katz & Hass, 1988). Specifically, among those who offered relatively positive communications about the target

student, racial attitudes became more negative from pre- to posttest when the student was Black than White (Biernat & Sesko, 2011). There was no race difference in racial attitudes change among those who communicated relatively negative impressions of the target. Thus, we have some evidence that communication positivity that follows from the use of lower standards to evaluate Black students actually contributes to *increases* in racial prejudice, at least among communicators.

The key reason for this pattern, highlighted throughout this discussion, is that the backdrop of shared cultural stereotypes means that stereotype activation is high during the communicative encounter. These activated stereotypes may lead to the use of within-category standards that produce a contrast effect in subjective communications about others, but assimilation to stereotypes in the memories of communicators and the impressions of interpreters ultimately occurs.

One additional mechanism may also explain why communicative exchanges of the sort discussed here lead to the downstream consequence of stereotype maintenance: Such exchanges may provide a “moral credential” that legitimates later bias (Monin & Miller, 2001). For Monin and Miller (2001), having behaved in a nonprejudiced manner in one situation—establishing one’s credentials as nonprejudiced—may give people leave to express prejudice in a subsequent situation. Consider first the case of the communicator. Having communicated a relatively positive impression of a Black target to a peer may establish a credential—whether in the eyes of others or the self—that “frees” later expressions of bias. This might account for both the memory effects described above (remembering the Black student as having a lower GPA than the White student, despite a positive conveyed impression), as well as the increases in racial prejudice that followed favorable communications about Black relative to White targets (Biernat & Sesko, 2011). One additional paradoxical consequence, not yet tested empirically, may also emerge: Communicators may leave the setting with a non-prejudiced self-image. In this account, positive communication produced by the use of shifting standards provides “cover” for subsequent prejudice but leaves the communicator feeling as though he or she has behaved without bias.

We currently have no data relative to stereotype maintenance or post-communication prejudice in the interactants we have labeled “interpreters” in our model. We know that they may leave the communicative exchange with relatively stereotypical views of the specific target person (e.g., judging a Black student to have a lower GPA than a White student, despite his having been described more positively; Collins et al., 2009). Of course, interpreters can readily attribute their perceptions to the communicator, not the self: After all, they were merely translating what the communicator offered. This attribution is aided by the fact that interpreters are unlikely to be aware that their translation was biased by group stereotypes. Thus,

interpreters, along with communicators, may leave the communicative exchange with a nonprejudiced self-image at the same time that their stereotypes and prejudices are strengthened.

Much additional research is necessary to test portions of the model presented in Fig. 1.2. Evidence for Outcomes 1 and 2 is fairly strong: Subjective communications tend to be more favorable for groups that are negatively stereotyped, presumably because standards of judgment are lower in these cases. Interpreters, in turn, tend to adjust for target category as they translate these communications, ultimately developing stereotypical perceptions of targets. Evidence for some of the outcomes outlined in Outcome Box 3 of Fig. 1.2 has also been presented, as communicators seem to remember targets in stereotypical ways despite showing contrast effects in the subjective language of their communications (Biernat & Sesko, 2011; Collins et al., 2009). But evidence for the other outcomes in Box 3 are more tenuous at this point; one study has documented that communicators show increases in racial prejudice following positive communications about Black relative to White targets (Biernat & Sesko, 2011), but none have examined such outcomes in interpreters or the possibility that nonprejudiced self-images result in either interactant.

Further, the model is based in assumptions about the role of activated stereotypes in producing these effects—a cognitive account. But motivational forces may also play a role, as suggested by the possibility of moral credentialing and the role of motivations to respond without prejudice. Additional motivations come into play as one considers the myriad goals communicators and interpreters may bring to a communicative exchange, or variations in the expected importance or consequences of an exchange (e.g., a letter of recommendation vs. an oral conversation between friends). Studies in which such motives are manipulated will be necessary to understand what factors may moderate the general pattern described in Fig. 1.2. Data on mediating mechanisms—and particularly the role of judgment standards—are also necessary. But the model and our data thus far suggest that communication about members of stereotyped groups may ultimately reinforce stereotypes, even when the language used *appears* favorable.



4. SHIFTING STANDARDS IN JUDGMENT AND COMMUNICATION ABOUT THE SELF

Thus far I have discussed judgments of and communications about *other people* based on shared cultural stereotypes and shifting standards. But of course we also engage in self-judgment, and we receive communications from others about ourselves. Performance evaluations and task feedback are two formalized examples of such communications, and even everyday

conversation may be considered communications about how others view us (e.g., “great job” or “that was so nice!”). From a shifting standards perspective, the question is whether the social categories to which we belong, and their associated stereotypes, affect self-judgments and our interpretations of others’ impressions of us. That is, do we judge ourselves relative to within-group standards on dimensions relevant to group stereotypes? Do we interpret or translate the subjective evaluations of others with reference to these standards as well?

4.1. Self-judgments

Years of research on social comparison processes suggest that we assess our opinions and abilities by comparing ourselves to similar others (Festinger, 1954; Goethals & Darley, 1977; Wood, 1989). Shared social category membership is one important marker of similarity. For example, Major and Testa (1989) found that women and men tend to make within-sex rather than cross-sex comparisons of their jobs and wages (see also Miller & Prentice, 1996). Another study found that when choosing between an own-sex comparison other and an opposite sex “standard setter” on a performance dimension of interest, 97% of participants chose a same sex reference group member first (Zanna, Goethals, & Hill, 1975).

The notion that individuals choose to compare themselves to ingroup members is related to the basic premise of the shifting standards model that *others* are judged relative to within-group standards (Biernat et al., 1991). To the extent that “self” is considered a member of a social category, and to the extent that comparison of self to ingroup others occurs, the processes previously outlined for stereotype-based judgment of others may also apply to self-judgment. That is, the use of within-category judgment standards may lead to assimilation to stereotypes on common-rule response scales, but null effects or contrast effects in subjective responses (see Mussweiler & Strack, 2000). For example, as a woman, I might consider myself an objectively warm and caring person. At the same time, *compared to women* I might see myself as less warm than would be the case had men been part of my reference group. The meaning of subjective language about the self may shift based on social category membership, much in the same way subjective language shifts occur in judgments of others (see Biernat, Eidelman, & Fuegen, 2002).

Several studies have examined this prediction. In one set of field studies, male and female U.S. Army captains assigned to work groups judged themselves and their group mates on leadership competence—a “masculine” stereotyped attribute (Biernat, Crandall, Young, Kobrynowicz, & Halpin, 1998). These judgments were made using subjective rating scales, which allow for within-category shifts in meaning, as well as rank orderings or Q-sorts, which force a common-rule, cross-category perspective.

In common-rule units, men judged themselves more favorably than did women—a stereotype-assimilative effect. But this effect was significantly attenuated when subjective ratings were made, particularly in work groups including only one woman (Biernat et al., 1998). Similar patterns emerged in six-person work groups created in the laboratory: In common-rule units, men judged themselves higher in leadership competence but lower in warmth than women judged themselves. But subjective ratings attenuated or reversed these effects, in this case *only* in groups including a solo woman (Biernat et al., 2002). Solo status may have heightened the salience of gender (see Kanter, 1977; Taylor, Fiske, Etcoff, & Ruderman, 1978), which led to both stronger assimilative effects on common-rule scales and reductions or reversals of these effects—based on the use of within-category standards—when self-judgments were rendered in subjective language.

Related effects have emerged in research on self-judgments outside of my lab. For example, in one study on cultural stereotypes, Euro-Canadian and Japanese respondents were asked to make self-ratings on the culture-relevant dimensions of “independence” and “interdependence” (Heine, Lehman, Peng, & Greenholtz, 2002). When the ingroup was instantiated as a standard (“compared to most Japanese/North Americans . . .”), no cultural differences in self-ratings emerged (a null effect). But when a cross-category referent was made explicit, Canadians reported greater independence and less interdependence, relative to Japanese respondents (an assimilative effect). Similar effects emerged when men and women rated themselves on these same dimensions relative to within-sex versus between-sex standards (Guimond, Chatard, Martinot, Crisp, & Redersdorff, 2006). Although these studies did not compare subjective and common-rule response scales, they did document that cross-category judgments are more likely than within-category judgments to reveal stereotype-consistent effects. In another study, Mussweiler and Strack (2000) led participants to judge the magnitude of their own drug consumption relative to a low (tennis player Steffi Graf) or high (musician Frank Zappa) standard. Objective judgments of drug consumption (number of instances per month of alcohol/drug consumption) demonstrated assimilation to the standard, but subjective judgments of frequency revealed contrast effects. Although this study was not directly relevant to stereotypes, it did demonstrate that self-judgments can be differentially affected by standards, depending on the response scale at hand.

4.2. Interpreting communications directed toward the self

The findings described above suggest that the use of stereotype-based shifting standards may apply to self-judgments, at least in contexts that make salient the relevant social category. An additional question is whether communications *from* others *to* the self is interpreted in the same manner.

That is, do we use category-based shifting standards to interpret the subjective language that others use to describe and evaluate us?

A common form of communication we receive from others is feedback about a performance or work product. And when we receive such feedback, it often takes the form of subjective language—"great job" or "not bad" or "that was awful!" As noted earlier, the specific meaning of such descriptors is ambiguous without an appropriate referent. Do we interpret the meaning of this feedback with reference to our social category memberships? Working within the model depicted in Fig. 1.2, we might portray the self as interpreter, who shares cultural stereotypes and engages in stereotype-based standard shifts along with the communicator of feedback. Thus, when subjective feedback is received, its *objective* meaning may be assessed relative to within-group standards.

A number of researchers have addressed how feedback affects members of negatively stereotyped groups, and most of this work has focused on consequences for self-esteem. For example, in a study of Black students' reactions to feedback, self-esteem was harmed by negative feedback from a Black evaluator but not a White evaluator, largely because students questioned the White evaluator's objectivity (Banks, Stitt, Curtis, & McQuater, 1977; see also Cohen, Steele, & Ross, 1999; Coleman, Jussim, & Isaac, 1991). In a similar study comparing Black and White students' reactions to failure or success feedback from a White evaluator, Major, Spencer, Schmader, Wolfe, & Crocker (1998) found that objective feedback had no effect on Black students' self-esteem but did affect the self-esteem of Whites. Others have documented that Blacks may be more likely to discount feedback (both negative and positive) from Whites (e.g., Crocker & Major, 1989; Crocker, Voelkl, Testa, & Major, 1991), and that assurances from evaluators that high standards are being used may reduce the tendency to discount critical feedback (Cohen et al., 1999).

But this earlier research did not examine the direct *translation* or understanding of feedback received, the focus of this research. How do Black versus White, or male versus female, recipients of subjective feedback in a stereotyped domain interpret its meaning? From the shifting standards framework, the key prediction is that members of negatively stereotyped groups will interpret subjective feedback in a stereotyped domain to indicate lower *objective* standing in that domain than will members of positively stereotyped groups.

In one study addressing gender stereotypes regarding leadership, women and men were asked to role-play being the President of a student leadership organization (Biernat & Danaher, *in press*, Study 1). They were asked to demonstrate their leadership skills by sending an email to their group members, which would then be evaluated by one recipient. All participants received a (bogus) email response containing subjective feedback indicating a mediocre performance ("... I think your leadership skills are not good

(but not super bad either). Your email message was not the best or the worst email I've seen, but it definitely was weak in authority . . ."; misspellings intended).

Participants were then asked to translate this subjective language into a common-rule metric, to indicate what they thought the evaluator meant by the feedback. For example, participants estimated the letter grade and the monetary worth the evaluator placed on their leadership skills. Consistent with the use of gender-based shifting standards, women assumed they were held to lower standards than did men, and they interpreted the language conveyed in the feedback to indicate a *worse* objective performance. Of course, it may be the case that women merely take feedback more seriously than do men (see Roberts, 1991; Roberts & Nolen-Hoeksema, 1994). But we found no differences in men's and women's perceptions of the evaluator or the validity of the feedback. Nonetheless, women assumed that "not good but not super bad" indicated worse objective leadership quality than did men.

Figure 1.2 also suggests downstream consequences of stereotype-based communicative exchanges, which include stereotype maintenance. In the context of translating feedback about the self, the question is whether, for example, women who negatively translate feedback about their leadership skills show other signs of heightened (self-) stereotyping. One consequence of feedback that has been considered in past research is devaluation of the performance domain (Crocker & Major, 1989; Eccleston, Smyth, & Lopoo, 2010; Ogbu, 1991; Schmader & Major, 1999). In our research, we have addressed more specifically whether having translated feedback to indicate a worse performance predicts such devaluation—for example, reduced importance of the domain in which feedback was offered. Devaluation can also be indicated in reduced motivation to perform and/or reduced subsequent performance. For example, in the gender and leadership study, we assessed whether the importance placed on leadership and performance on a leadership task declined in women.

This was indeed the case: Though importance of leadership was equally high for women and men prior to the writing of leadership emails and feedback, a significant decrease in leadership importance occurred for women from pre- to postfeedback and interpretation (Biernat & Danaher, *in press*). Further, the translation of the feedback predicted this decline, $r=0.41$, and indeed mediated the effect of gender on devaluation of leaderships. That is, to the extent that women translated the feedback to indicate a poor objective performance, the importance they attached to leadership fell over the course of the study. Women also performed less well than men on a bogus leadership task (a set of items from the GMAT), though translation was uncorrelated with this outcome. Overall, the data from this study suggest that women and men may have interpreted subjective feedback regarding leadership skill relative to within-sex standards, with the

consequence that women translated the feedback to indicate a worse objective performance (see Outcome Box 2 of Fig. 1.2). Further, women left the communicative exchange feeling and behaving more consistently with gender stereotypes about leadership: They performed less well on a supposed leadership task, and they placed less importance on leadership skills (of course, all participants were carefully debriefed before leaving the lab). These self-stereotyping findings are consistent with Outcome Box 3 in Fig. 1.2: Stereotypes were strengthened over the course of the communicative exchange.

One shortcoming of this study was that only a single feedback condition was run; no experimental manipulation occurred and thus the results amount to a sex difference that may or not have been driven by the feedback-interpretation exchange. To address this issue and extend the findings to a different social category and stereotype, we developed a similar paradigm that focused on racial stereotypes regarding academic performance (Biernat & Danaher, *in press*, Study 2). Participants were Black and White undergraduates who were asked to write an essay on the topic of the university's plan to require all graduating seniors to take a comprehensive exam. After writing the essay, participants were given subjective feedback designed to be negative in tone, or they were given no feedback on the essay. All feedback was delivered via one to seven numerical ratings on subjective scales assessing essay quality (e.g., clarity of thought, critical thinking, quality of argument).

As in the gender/leadership study, participants were asked to "translate" what the evaluator meant by the feedback, or in the "no feedback" condition, to estimate what kind of feedback they thought an evaluator would offer. These translations were made in common-rule units (letter grades, percentile score). In the no-feedback condition, Black and White students did not have differential expectations of the feedback they would have received. This is important, as it demonstrates that some communication must occur before members of negatively stereotyped groups can "translate" its meaning in a downward direction.

But in the negative feedback condition, which is comparable to the type of feedback delivered in the gender-leadership study, Black participants translated the subjective ratings to indicate worse objective writing quality: Blacks in this negative feedback condition translated their feedback to indicate a score of 55%, whereas Whites translated it to mean 69%. It was also in the negative feedback condition that Black participants experienced a drop in the perceived importance of writing—a devaluation effect, and a drop in writing performance, as indicated by the quality of an additional essay that was graded by independent judges who were blind to condition and participant race. Further, analogous to the results in the gender/leadership study, devaluation was predicted by the objective translation, $r=0.65$, and translation mediated the race-devaluation relationship: To the extent that Black students translated the negative feedback to indicate a lower

objective performance, the importance they placed on writing fell from the beginning to end of the study (Biernat & Danaher, *in press*).

These data point to the possibility that the processes outlined in Fig. 1.2 may operate when we translate subjective feedback about the self, at least when that feedback is relatively negative in tone. As indicated in Outcome Box 2, in the face of identical subjective feedback, members of negatively stereotyped groups (in our research, women in the domain of leadership; Blacks in the domain of academic writing) translated feedback to indicate an objectively worse performance than did their more positively stereotyped counterparts. Further, consistent with Outcome Box 3, stereotypes were maintained or strengthened as a result: Members of negatively stereotyped groups came to devalue the performance domain and to perform less poorly—thereby behaviorally confirming stereotypes—relative to positively stereotyped targets. Such consequences did not occur in the absence of feedback and its translation.

These results also extend the literature on race- and gender-based reactions to feedback by noting that the effects of social category membership may emerge not only in downstream consequences for motivation, performance, or self-esteem, but rather in the *immediate understanding* or *interpretation* of the feedback received. Subjective language is slippery; if members of negatively stereotyped groups understand it differently—more negatively—than do members of the contrasting social category, this can potentially set in motion a process whereby stereotypes are confirmed and maintained.

4.3. Limitations of the self-translation effects

There are several limitations to this suggestion that one's own social category memberships may play a role in translation of subjective feedback and in downstream consequences for stereotype maintenance. First, the studies only examined the translation of feedback that was negative (or at least mediocre) in tone. The shifting standards model predicts a main effect of social category membership on feedback translation: Women may always assume lower standards to judge their leadership than do men, regardless of the nature of the feedback, and Blacks may do the same when it comes to feedback in an academic domain. We did indeed find that Blacks assumed they were evaluated with respect to lower standards than did Whites, and women assumed lower standards than men. But whether this occurs regardless of the valence of feedback remains to be seen. For example, when told "great job!" do members of negatively stereotyped groups continue to adjust the common-rule meaning of that feedback downward?

A second issue is that there was no evidence in the studies described here that presumed standards—the key construct in the shifting standards model—actually mediated the effects of race and gender on feedback interpretation, devaluation, or performance decrements (Biernat & Danaher,

in press). In fact, in a number of studies in which standards have been measured along with some sort of judgment—an evaluation of a target person, a translation of a communication—we have found little evidence that standards predict that judgment (e.g., Biernat & Eidelman, 2007; Biernat & Kobrynowicz, 1997). What does this mean for the shifting standards model? This issue will be addressed more fully after describing research on the setting of judgment standards.

5. SETTING AND MEASURING JUDGMENT STANDARDS

The shifting standards model rests on an assumption about differences in judgment standards, which are based on group stereotypes. The model assumes, for example, that holding a stereotype that men are better leaders than women means that the standard one uses to evaluate women on leadership is *lower* than the standard used to evaluate men.

5.1. Low minimum standards for groups stereotyped as “deficient” on a trait or attribute

This pattern of lower standards for members of negatively stereotyped groups has been directly demonstrated in several studies. For example, Biernat and Kobrynowicz (1997) asked participants to indicate level of objective performance targets would need to provide to meet minimum standards of competence for a job (e.g., “how many examples of [job-relevant] skills would you require of this applicant before feeling confident that he or she meets the minimum standard to perform the skill?” p. 549). These studies demonstrated that women were held to lower minimum standards than men, and Black men were held to lower minimum standards than White men. That is, women and Black men needed to provide less evidence of competence to meet perceivers’ (low) expectations (Biernat & Kobrynowicz, 1997). These results and others discussed below are summarized in the second column of Table 1.1.

In another series of studies, participants checked off all the behaviors from a provided list to indicate their minimum standards for men’s and women’s competitiveness, emotionality, and aggression (Biernat et al., 2008). For example, in one study, participants were provided with a set of 20 behaviors, judged moderately aggressive in a pretest (e.g., “interrupts a talkative student in order to make a point”; “forces a drunk friend to give up the car keys”). They were asked to check all the behaviors a male or a female actor would have to engage in “to give you some inkling or hint that she or he is aggressive” (Biernat et al., 2008, Study 3). Fewer behaviors indicate a lower standard for the trait in question. It was indeed the case that fewer

Table 1.1 Findings regarding minimum versus confirmatory standards: Minimum standards are lower but confirmatory standards are higher for members of groups stereotyped as deficient on an attribute

Stereotype/dimension	Minimum standards	Confirmatory standards
Gender and competence in masculine work domains (women stereotyped as deficient) ^a	Women need fewer examples of skills than men to meet minimum standards	Women need higher score than men to be confident in ability to do the job
Race and workplace competence (Blacks stereotyped as deficient) ^a	Blacks can achieve lower scores than Whites to meet minimum standards	Blacks must achieve higher scores than Whites to be confident in ability
Gender and aggression; competitiveness (women stereotyped as deficient) ^b	Fewer behaviors to get “inkling” that a woman may be competitive; aggressive (compared to a man)	More behaviors to “confirm” that a woman is competitive; aggressive (compared to a man)
Gender and emotionality (men stereotyped as deficient) ^b	Fewer behaviors to get “inkling” that a man may be emotional (compared to a woman)	More behaviors to “confirm” that a man is emotional (compared to a woman)
Gender and workplace competence (women stereotyped as deficient) ^c	Women more likely to be placed on short list than men	Women less likely to be hired than men
Gender and workplace incompetence (men stereotyped as deficient) ^d	Fewer behaviors to get “inkling” that a man is incompetent (compared to a woman) More negative behaviors recorded in “informal notes” for men than women	More behaviors to “confirm” that a man is incompetent (compared to a woman) Fewer negative behaviors recorded in “formal log” for men than women
Race and workplace incompetence (Whites stereotyped as deficient) ^e	Whites more likely to be placed on probation than Blacks	Whites less likely to be fired than Blacks

^a Biernat and Kobrynowicz (1997).

^b Biernat, Ma, and Nario-Redmond (2008).

^c Biernat and Fuegen (2001).

^d Biernat, Fuegen, and Kobrynowicz (2010).

^e Fuegen and Biernat (2011).

behaviors were checked—standards were lower—for women than men on the dimensions of aggression and competence, and more behaviors were checked—standards were higher—for women than men on the dimension of emotionality (see Table 1.1). These effects tended to be stronger among participants who were members of the group stereotyped as having the trait in question (e.g., men in the case of competitiveness, women in the case of emotionality). But consistent with the basic premise of the shifting standards model, men had to do relatively little to be suspected of emotionality, and women had to do relatively little to be suspected of competitiveness and aggression. Standards were lower for members of groups stereotyped as deficient on the attribute in question.

This pattern was also observed in several studies examining decision making regarding applicants and employees in masculine job settings. In one study, participants were asked to consider the resume of a male or a female applicant for an office position, and to indicate whether they would “short list” the applicant—pass him or her through an initial screening and keep him/her in the running for the position (Biernat & Fuegen, 2001, Study 1). To the extent that a short list represents a minimum standard, that standard should be lower for group members stereotyped as deficient on the relevant attribute (job-related competence in this case). Female applicants were more likely to be shortlisted than identical male applicants, indicating that they were held to a lower minimum standard.

The inference of *in*competence should operate in a mirror image fashion. In “masculine” work environments, men are stereotyped as competent (or deficient in *in*competence) relative to women, and thus minimum standards for *in*competence should be lower for women than men. This prediction was tested in a study in which participants considered a male or a female employee at a “high tech computer hardware firm” and then indicated from a set of 10 relatively negative workplace behaviors (e.g., “missed an important deadline”) the “minimum number of behaviors necessary to suspect” that the trainee may be incompetent (Biernat et al., 2010, Study 1). Fewer negative behaviors were checked for the male than female target; that is, minimum standards of incompetence were lower for men than women.

Another study demonstrated that this pattern of low incompetence standards for men may also be revealed in the attention paid to negative behaviors in the workplace. Participants role-played being a manager who was exposed to information about a male or a female “trainee” indicating relatively poor performance during a probationary employment period (Biernat et al., 2010, Study 2). Participants were asked to keep “informal notes” as they reviewed the employment record, jotting down any “notable” behaviors. These notes were described as nonconsequential for the employee; they were only for use by the participant/manager “as you try to help in training the individual” (p. 859). This description was used to instantiate the use of a minimum standard or expectation. The stereotype

of men as low in *incompetence* in masculine occupations means that minimum standards are *lower* for men and women, and thus, negative behavior should be *more readily noticed* for men than women. Consistent with this prediction, participants recorded more negative employee behaviors in their informal notes about men than women (see Table 1.1). Because incompetence is relatively unexpected in men in masculine work domains, it may “stand out” more and be noted when minimum standards are instantiated. An interesting implication of this pattern is that declining work performance may be “caught” earlier in members of groups for whom competence is unexpected—men in this setting.

5.2. Stringent confirmatory standards for members of negatively stereotyped groups

The findings described above indicate that direct reports of standards reflect group stereotypes: To the extent that a group is stereotyped as low in some attribute—e.g., emotionality for men, aggression for women—minimum standards are indeed lower for this group. Other research described earlier, in which participants were asked to infer the standards used by “communicators” of impressions, was also consistent with this pattern (Biernat & Danaher, *in press*; Biernat & Eidelman, 2007).

But my guess is that some readers are scratching their heads, as low expectations for a group seem to lead us to require *more* evidence to be *certain* that an individual possesses an unexpected attribute. The saying that women or African Americans need to work “twice as hard to be perceived as half as good” as White men reflects this intuition (Carter, 1993; Fernandez, 1982). The sociological theory of *expectation states* and its more focused *status characteristics theory* (Berger, Fisek, Norman, & Zelditch, 1977) also offers this prediction: That a stricter inference standard is introduced for those about whom low expectations exist (see Foddy & Smithson, 1989; Ridgeway, 1991).

In their work on gender-based double standards of competence, Foddy and Smithson (1989) define standards as “rules providing performance requirements for the inference of either ability or lack of ability” (p. 74). In the domain of “masculine” work settings, the prediction is that standards of ability are higher (more evidence of ability is required) for women than men, and conversely, that standards for *lack* of ability are higher (require more evidence of lack of ability) for men than women (Foschi, 1998, 2000). These predictions are closely tied to attribution processes: “Unexpected performance elicits a stricter standard, because the judge requires stronger evidence that this performance was due to an ability” (Foddy & Smithson, 1989, p. 76; see also Jones, Davis, & Gergen, 1961).

This perspective seems to offer predictions directly opposed to those of the shifting standards model. But we have suggested that it is precisely *because* expectations for women’s competence is lower than that of men’s

(or because any group is stereotyped as deficient in an attribute relative to another group) that standards to diagnose ability (or other traits) are higher for these targets. That is, because *minimum* standards are low, *confirmatory* standards may be high for a given target group. In this sense, standards may shift in the direction of leniency or stringency depending on whether a minimum standard or a confirmatory standard is invoked (see Biernat, 2003; Biernat & Kobrynowicz, 1997).

In the research described thus far, participants have been directed toward minimum standards—for example, “what evidence would it take for you to suspect?” that a target has a trait, or “would you place this target on a short list?” or “what evidence would you record in your informal notes?” In all of these cases, standards were lower for the group stereotyped as deficient on the trait under consideration (see Table 1.1). But these studies also included additional conditions in which participants were oriented toward *confirmatory* standards—the extent of evidence needed to be certain that the target had the attribute in question.

For example, Biernat and Kobrynowicz (1997) directed some participants toward standards to *confirm* the ability of male or female applicants for a masculine occupation. They were asked to indicate how many examples of work-related skills would be required of the applicant “before feeling confident that he or she has the ability” to perform the skill (p. 549). Although participants in a minimum standards condition reported lower evidentiary requirements for women than men, participants in this confirmatory standards condition reported *higher* standards for women than men. In a similar study, participants set lower minimum standards but higher confirmatory standards for Black male than White male job applicants (Biernat & Kobrynowicz, 1997, Study 2; see Table 1.1).

In studies using the behavioral checklist paradigm, some participants were asked to indicate all the behaviors a male or a female target would need to engage in to *confirm* that he or she had the trait in question (competitiveness, emotionality, aggression; Biernat et al., 2008). As summarized in Table 1.1, more evidence was required of women than men to confirm aggression and competitiveness, and more evidence was required of men than women to confirm that they were emotional. Again, these patterns emerged alongside converse effects when minimum standards were assessed. Thus, though confirmatory standards of aggression were higher for women than men, minimum standards—the behavioral evidence required to suspect that a woman might be aggressive—were lower for women than men. Similarly, when *incompetence* in a masculine work domain was assessed, participants required more evidence of incompetence to *confirm* that a male versus a female employee was incompetent, though they required less evidence for the male to meet *minimum* incompetence standards (see Table 1.1).

5.2.1. Related research

A number of other research traditions suggest that whether and how traits are diagnosed depends on the type of trait—and the underlying trait–behavior relationship—at hand. For example, Reeder and Brewer (1979) suggested that some traits are characterized by a “hierarchically restrictive schema,” such that individuals with one extreme of a disposition (e.g., high intelligence or high immorality) may be assumed to engage in a wider range of behaviors than those at the other extreme of a disposition (low intelligence or high morality). Thus, an “honesty” diagnosis requires consistent, repeated honest behavior, but “dishonesty” may be diagnosed on the basis of a mix of both honest and dishonest behaviors. Reeder, Pryor, and Wojciszke (1992) added to this schema model by classifying traits into four types—capacities, morality traits, attitudes, and frequency-based traits—each with different trait–behavior relations.

Other attributes of traits that may affect behavior–trait inference have also been considered in the literature. These include a trait’s category breadth (the diversity of behavioral referents of a trait; Hampson, Goldberg, & John, 1987), behavioral specificity (the strength of the behavioral implications of a trait; Kirby & Gardner, 1972), imaginability (Hampson, 1982), category volume (the availability of a trait’s associated behaviors; Buss & Craik, 1983), scope (the “relative frequency of behavior” specified by a trait; Gidron, Koehler, & Tversky, 1993), and visibility (the ease of observation of a trait; Funder & Dobroth, 1987). Further, many of these perspectives have also considered the important dimension of trait *valence*. For example, Rothbart and Park (1986) found that unfavorable traits were judged easier to acquire (i.e., required relatively few instances of confirmatory behavior) and harder to lose (required many instances of disconfirmatory behavior) than favorable traits.

My research adds to this mix of factors affecting trait diagnosis the *stereotypicality* of traits, in combination with the category membership of the person being judged and the type of standard in question. For example, “hostility” may be relatively easy to confirm because of its negativity, but because it is a component of racial stereotypes, hostility is particularly likely to be quickly confirmed in a Black than a White actor (though *suspected* based on less evidence in a White than a Black actor).

Additional research on trait diagnosis resonates with our findings regarding confirmatory standards. For example, the literature on spontaneous trait inferences (STIs) points to the ease with which traits are inferred in actors based on descriptions of their behavior (STIs; Carlston & Skowronski, 1994; Uleman, Newman, & Moskowitz, 1996). Because these inferences are dispositional, they suggest that perceivers are easily *confirming* traits in actors, not merely *suspecting* them. For example, STIs are eliminated with information suggesting the behavior was caused by something other than the target person’s disposition (Van Overwalle, Drenth, & Mausman, 1999).

These effects are also moderated by stereotyping, in that STIs are inhibited when actors perform stereotype-inconsistent behaviors (particularly when the perceiver is under heavy cognitive load; Wigboldus, Dijksterhuis, & van Knippenberg, 2003; Wigboldus, Sherman, Franzese, & van Knippenberg, 2004). These data are consistent with findings that trait confirmation requires more behavioral evidence in targets stereotyped as lacking the trait in question (Biernat et al., 2008).

Hugenberg and Bodenhausen (2003, 2004) have found that those high in implicit racial prejudice are quicker to perceive anger in Black faces (and slower to perceive the offset of anger) (Hugenberg & Bodenhausen, 2003). Participants in these studies viewed Black and White faces displaying expressions that ranged from anger to calm. They were told to “press the spacebar when they saw that the target face no longer expressed its initial emotion” (p. 641). This decision hints at “confirmation,” in which case the findings are consistent with the argument that a trait (“anger” in this case) should be more easily confirmed in members of groups expected to possess the trait (i.e., Blacks).

5.3. Both stringency and leniency for members of groups stereotyped as “deficient” on attributes

These other approaches to studying trait diagnosis have highlighted confirmatory standards but have not simultaneously investigated minimum standards. Thus, the direct comparison between types of standards is not possible in these data. For example, we do not know if judges would be quicker to *suspect* anger in a White than a Black face; at the same time they *confirm* anger more quickly in a Black face (Hugenberg & Bodenhausen, 2003). But the difference between minimum and confirmatory standards has also been observed using paradigms other than behavioral checklists or decisions about when a standard is met. For example, recall the paradigm in which participants reviewed a poor performance record of a male or a female trainee (Biernat et al., 2010). In a condition described earlier, participants were asked to record any “notable” behaviors in their “informal notes,” designed to induce a minimum standard. We found that more negative behaviors were recorded for men than women, presumably because men were held to *lower* minimum standards of incompetence and therefore negative behaviors were more remarkable. But in another condition, participants were asked to keep a “formal log,” which was described as

a formal way of keeping track of the trainee’s progress. It will be used for promotion and salary purposes and will become part of the trainee’s permanent employment file, for all managers and executives to review

when considering the future of this trainee in the company. Your goal with these notes is to track the trainee's performance. Negative information in the log may have serious implications for the trainee."

Biernat et al. (2010, p. 860)

These instructions were designed to induce a confirmatory standard; the seriousness of the implications meant that negative behavior should not be recorded unless the "manager" had *confirmed* that the trainee was incompetent. Thus, because confirmatory standards of incompetence should be higher for men than women—it takes more evidence to confirm that a man is incompetent—judges should record *fewer* negative behaviors in the "formal log" for men than women. This was the case: On average, participants recorded 3.25 (of 8 possible) negative behaviors in the formal log for "Kenneth," but 4.90 negative behaviors for "Katherine" (see Table 1.1). In a replication study, participants kept a formal log for a Black or a White male trainee. Participants recorded 3.00 negative behaviors in the formal log for "David," but 4.83 negative behaviors in the formal log for "Denzel" (Biernat et al., 2010, Study 3).

These studies provide clear evidence that when a *confirmatory* standard is instantiated, members of groups stereotyped as deficient on the dimension under consideration are held to *higher* standards (see also Biernat & Ma, 2005). And again, this pattern occurs alongside evidence of *lower minimum* standards for these same targets. Even when minimum versus confirmatory standards are reflected in decisions such as short listing versus hiring, or probation versus firing, we find evidence for this seemingly paradoxical pattern. As summarized in Table 1.1, though women were more likely to be shortlisted than men for a masculine job—presumably reflecting low minimum standards—they were less likely to be hired for the same job—a decision that instantiates a confirmatory standard—at least by female evaluators (Biernat & Fuegen, 2001). In a study focusing on workplace incompetence, poor-performing White employees were more likely to be placed on probation—a decision that instantiates minimum standards of incompetence—than comparable Black employees, but Black employees were more likely to be fired—a decision that is presumably made only after one *confirms* incompetence (Fuegen & Biernat, 2011).

And while I describe these patterns of evidentiary standards as paradoxical, they are quite consistent with both anecdote and theory about the effects of stereotypes. On the anecdote side, consider law professor Stephen L. Carter's (1993) discussion of race and affirmative action. He writes,

[I am] somewhat skeptical . . . that Black people of intellectual talent have a harder time than others in proving their worth. My own experience suggests quite the contrary, that like a flower blooming in winter, intellect is more readily noticed where it is not expected to be found (p. 54).

This statement reflects the idea that Blacks may be held to lower (minimum) standards than Whites, making it easier to surpass these expectations. But just a few pages later, Carter (1993) adds, “Our parents’ advice was true: We really do have to work twice as hard to be considered half as good [as Whites]” (p. 58). This captures the concept of higher confirmatory standards for Blacks than Whites; the need for Blacks to provide more evidence of competence before an ability inference is made. Both patterns ring true.

With regard to theory, the shifting standards model speaks most clearly to the pattern observed for minimum standards. The theory is built on the idea that stereotypes instantiate standards that reflect the group-based expectation: If women are stereotyped as relatively incompetent in a work domain, or as low in assertiveness, standards are lower for women than men. This is the process that sets the stage for the kinds of contrast effects in subjective language discussed in earlier sections of this chapter, and in the literature more broadly. For example, low minimum standards of female assertiveness may explain why women who step out of stereotypical roles—by behaving in a self-promoting or forceful manner—are judged to be *too dominant*; more socially deficient and unlikeable than their male counterparts (e.g., see Eagly, Makhijani, & Klonsky, 1992; Rudman, 1998; Rudman & Glick, 2001). To make predictions regarding confirmatory standards required the consideration of additional theory, most notably the theory of expectation states (Foddy & Smithson, 1989; Foschi, 2000).

Shifting standards and expectation states theory can be integrated by considering the attributional links between *low expectations* and *high evidentiary* requirements to overcome those low expectations. Consider Jones and Davis’ (1965) theory of correspondent inferences, which examines how and when behavior is attributed to an underlying, corresponding disposition in the actor. Using the example of “dominance,” they write, “The inference that domineering action reflects an underlying trait of dominance is correspondent to the extent that the actor’s dominance is . . . more intense and noteworthy than we would normally expect” (p. 224). Applied to expectations based on group stereotypes, the logic is that because expectations for group members are low in a stereotyped domain—because minimum standards are low—it takes “more intense” evidence to “confirm” the trait in question (see also Kelley, 1967).

Our research comparing minimum and confirmatory standards has led to one additional observation. One might expect that minimum standards are always lower than confirmatory standards. After all, suspecting that a student is smart should require less evidence than confirming that trait. But across at least eight studies, we have found that for members of groups stereotyped as *having* the relevant attribute, minimum standards are indistinguishable from confirmatory standards. For example, minimum and confirmatory standards were identical for men on the dimension of aggression (5.44 and 5.30

aggressive behaviors were necessary to suspect and diagnose aggression, respectively, in men), but minimum standards were lower than confirmatory standards for women (3.58 and 6.59; [Biernat et al., 2008](#), Study 3). Similarly, when setting standards for job-related competence, White men were held to the same minimum and confirmatory standard of performance, whereas Black men were held to a lower minimum than confirmatory standard ([Biernat & Kobrynowicz, 1997](#), Study 2). And when assessing *incompetence*, women—stereotyped as possessing this attribute—were held to identical minimum and confirmatory standards, but men were held to lower minimum than confirmatory standards of incompetence ([Biernat et al., 2010](#), Study 1).

This has led to a conclusion that the distinction between minimum and confirmatory standards is irrelevant when a group is stereotyped as possessing the trait in question. In these cases, “suspicion=confirmation” ([Biernat et al., 2008](#), p. 307). This tendency increases the likelihood that stereotypes will be maintained over time. Minimum standards may be met more quickly for group members stereotyped as deficient in a trait—for example, women might be “suspected” of competence earlier than men—but these individuals are unlikely to confirm the trait, given high standards. For men in this example, the meeting of minimum standards is sufficient to confirm the attribute. Stereotypes are ultimately reinforced via this process.

6. DO STANDARDS MEDIATE JUDGMENT AND COMMUNICATION EFFECTS?

In much of the research conducted from a shifting standards perspective, the use of standards has been assumed rather than directly assessed. Other studies have measured standards but not assessed the effects of these standards on judgment (e.g., [Biernat et al., 2008](#)). But a few studies have explicitly manipulated standards and examined the effects of this manipulation on judgment. For example, participants were asked to offer subjective judgments of the athleticism of a series of targets relative to “Black men” (the high standard) versus “White men” (the lower standard). Instantiation of the high standard led to subjective judgments of all targets as lower in athleticism ([Biernat & Manis, 1994](#), Study 3). Similarly, asking participants to judge the height of male targets relative to the “average man” and female targets relative to the “average woman” increased the likelihood of contrast effects in subjective judgments—women judged slightly “taller” than men ([Biernat et al., 1991](#)).

But in one study examining the translation of letters of recommendation, an explicit manipulation of standards (“the letter writer holds women, compared to men, to lower/higher standards”) had no effect on

participants' translations of a favorable letter for a male versus a female target (Biernat & Eidelman, 2007, Study 2, p. 1161). And in several studies, measures of standards have been uncorrelated with judgments of targets, or with translations of feedback about others or the self. For example, as described earlier, when feedback was provided about performance in a leadership domain, women assumed they were evaluated against lower standards than men assumed, but standards did not predict how the feedback was translated (Biernat & Danaher, *in press*).

6.1. Reasons for lack of meditational findings

It is possible, of course, that this lack of mediation occurs because people are simply unable to effectively report the standards they used to evaluate others, or the standards they assume that others have used. Reporting standards may require a kind of introspection about mental processes that is unavailable for consciousness awareness and report (Nisbett & Wilson, 1977). Arguing against this possibility is that reports of standards often do seem to map onto theoretical expectations, as indicated in the studies of standard setting reviewed above. The reporting of standards does not seem to be the problem. Instead, the issue is that these reports often do not correlate as expected with judgments or translations.

There are at least three reasons for this lack of evidence of association between standards and judgment or mediation of the effects of target social category on judgment via standards. One is that our measures of standards have been poorly timed. Typically, we have measured standards after participants have been exposed to targets or after other manipulations have occurred. For example, participants in the gender/leadership study were asked to report standards after receiving feedback from their evaluators (Biernat & Danaher, *in press*); translators of letters of recommendation inferred standards after reading the letter and learning other information about the letter writer (Biernat & Eidelman, 2007); evaluators of resumes assessed standards after exposure to the resumes (Biernat & Kobrynowicz, 1997). Thus, the standard may be reported *in light of* the content of the evaluation rather than independent of it. Consider an evaluator who reviews a letter or recommendation containing subjective descriptions of a target individual ("a very good student"), reports the likely standards of the evaluator, and then offers a translation of that letter. The report of standards may be affected, in part, by the favorability of the content. In fact, we have found that following positive evaluations of targets, judges tend to report that high standards were used (unreported data from Biernat & Kobrynowicz, 1997). This seems counter to the fact that favorable evaluations are more likely to result when standards are low than when they are high: A performance looks better if it is judged against a low standard.

A second reason is that measures of standards may not be able to differentiate between minimum and confirmatory standards, unless these distinctions are explicitly articulated. As noted above, minimum and confirmatory standards may operate very differently. When a group is stereotyped as lacking a particular attribute (e.g., men stereotyped as lacking good caregiving skills), minimum standards are low—it takes less evidence to suspect that a man may be nurturing, but confirmatory standards are high—men may need to show more evidence to confirm their nurturing ability. In studies in which participants are asked to report “how high a standard” was used to evaluate a target, or how high a standard a communicator used to evaluate a target, either type of standard may be referenced. From a shifting standards perspective, low minimum standards for members of stereotyped groups are what give rise to contrast effects in subjective judgments—for example, a man might be subjectively judged a better parent than a comparable woman because he is evaluated relative to low standards. Therefore, we would expect those reporting low standards to evaluate a target more positively on subjective rating scales (a negative correlation between standards and judgment). But if a confirmatory standard is reported, that correlation should be positive (those held to high confirmatory standards should also be evaluated more positively, at least on subjective rating scales). To the extent that respondents vary in terms of whether they report minimum or confirmatory standards, the overall result may simply be no correlation between standards and judgment.

When the type of standard is more clearly specified, findings consistent with predictions have emerged. One line of research focused not on judgment of individual targets but rather on judgments of harm-doing by national groups (Miron, Branscombe, & Biernat, 2010). Specifically, U.S. participants were asked to consider the history of slavery in the USA and to report the degree of harm-doing caused by slavery, using subjective rating scales (e.g., “how much damage did Americans cause to Africans” during the period of slavery?). They were also asked to report a *confirmatory* standard of harm-doing: the level of harm necessary to confirm racism in the USA (e.g., “what percentage of Americans would have had to be involved in causing harm to Africans for you to consider the past United States a racist nation?”). Across two studies, those who reported high confirmatory standards of harm-doing judged the USA more favorably (less harm was done). High standards also predicted lower levels of collective guilt.

A third reason for the lack of association between standards and judgment is that other processes besides those highlighted in this chapter contribute to judgment outcomes. This is undoubtedly true! For example, there are many other sources of standards one can use to evaluate others, including the self (e.g., Dunning & Hayes, 1996) or other exemplars (e.g., Mussweiler & Rüter, 2003), or one’s ingroup (Gawronski, Bodenhausen, & Banse, 2005). The shifting standards model cannot provide a full accounting

of how evaluations are made of members of stereotyped groups, and many other models of social judgment have appeared in the literature and received empirical support.

For example, Brewer's (1988) dual process model and Fiske and Neuberg's (1990) continuum model of impression formation suggest that motivational factors may lead judges to forego category-based processing and instead individuate or personalize targets. For example, *outcome dependency* may prompt attention to individuating features, in that the perceiver desires to accurately predict and control the targets' behavior. Other motivating forces, such as expected competition or powerlessness, may also prompt enhanced attention to and use of individuating as opposed to categorical information (Fiske, 1993; Goodwin, Gubin, Fiske, & Yzerbyt, 2000; Ruscher & Fiske, 1990). Kunda and Thagard's (1996) parallel constraint satisfaction model of impression formation suggests that stereotypes have no special status in impression formation; category membership of a target is represented as a node in a connectionist network, along with many other types of information and its associates, which are activated in parallel and constrain each other's meaning, until the network settles on an overall impression of the target. Bodenhausen and Macrae (1998) highlight the distinct stages of stereotype activation and expression; at each stage, some factors *facilitate* the assimilative influence of stereotypes, and some *inhibit* that influence (resulting in null effects and occasional contrast effects). Inhibitory factors may include social norms and motivations to avoid prejudice (Crandall & Eshleman, 2003; Dunton & Fazio, 1997; Plant & Devine, 1998).

The shifting standards model seems to depart from these other models in two ways. One is that it takes contrast effects seriously, highlighting the ways that stereotypes may be revealed in contrast effects in the setting of standards, in subjective judgments, and in behavior toward stereotyped targets (as when negatively stereotyped targets are more likely to be verbally praised for their work product than positively stereotyped targets; Biernat, 2003; Biernat & Vescio, 2002; Vescio et al., 2005). The other departure, as noted above, is that the shifting standards model is largely cognitive in nature and has not incorporated the effects of motivation on social judgment. That some studies have failed to find evidence of standards mediating judgment outcomes is very likely due to such motivational processes overriding the effects of standards.

For example, in a series of studies described earlier, participants translated a letter of recommendation written about a male or a female applicant to a graduate physics program (Biernat & Eidelman, 2007). Although measured standards were consistent with predictions, these did not mediate translation outcomes, and a direct manipulation of standards ("this evaluator used lower/higher standards for women than men") had no effect on translation. Instead, the *likeability* of the letter writer was a key mediator

of judgment outcomes: To the extent that participants liked the professor who wrote the recommendation letter, they translated his subjective description of the student to indicate a more favorable objective standing (Biernat & Eidelman, 2007).

6.2. Considering motivation in the shifting standards model

Critically important to understanding social judgment and communication is a broader consideration of how motivational processes and normative factors might be incorporated into the shifting standards approach. The basics of the shifting standards model are quite simple: People hold (and often share) stereotypes of groups, and when called on to make judgments of individual group members, those stereotypes affect the standards used to render subjective evaluations on stereotyped dimensions. And as outlined in Fig. 1.2, we assume that “interpreters” are similarly affected by stereotypes as they translate judgments of others, and that downstream consequences for stereotype maintenance are triggered as a result of activated content.

A number of motivations might affect which stereotypes are called to mind in a given judgment situation, especially given that individuals belong to more than one social group simultaneously. Most research on the shifting standards model has targeted a single social category at a time, and a restricted range at that: For example, when studying gender stereotypes, targets tend to be White, and when studying race stereotypes, targets tend to be male (e.g., Biernat & Kobrynowicz, 1997). But a broader literature on intersectionality—the confluence of category memberships—points to a more complicated picture of how stereotypes operate. For example, the *outgroup male target* hypothesis suggests that men, not women, of stigmatized racial groups tend to be “the primary targets of negativity in most intergroup contexts” (Navarrete, McDonald, Molina, & Sidanius, 2010, p. 935), a pattern motivated by different factors tied to evolutionary history for male and female perceivers. Other research points to the *invisibility* of Black women relative to Black men and White women, a status that increases the likelihood of marginalization in many contexts (Purdie-Vaughns & Eibach, 2008; Sesko & Biernat, 2010).

Which category becomes salient in a given situation, or whether some category combination calls to mind distinct stereotypes, may depend on a variety of factors. Some of these are environmental or context specific, as when the action in the setting triggers a focus on a particular group membership (see Macrae, Bodenhausen, & Milne, 1995 for an example of situation-cued activation of the category “woman” vs. “Chinese”). But many motivational factors may affect this process as well. These motivations may matter as well for other steps in the judgment process: Is the category applied to a particular target or do judges take a more piecemeal

(individuated) approach (Brewer, 1988; Fiske & Neuberg, 1990)? Is the judgment called to mind rendered as is, or altered by motivational concerns? In the case of interpreting the language of others, do motivations (and metacognitions about the motivations of others) moderate the effects of stereotypes?

To address these questions, I consider the set of five “core motives,” culled from an analysis of themes in social psychology, articulated by Fiske (2004): belonging, understanding, controlling, self-enhancing, and trusting (see also Yzerbyt, 2010). Each of these is considered below (and summarized in Table 1.2), with a focus on how these motives might play a role in either strengthening or reducing the tendency to shift standards.

Belonging refers to people’s desire to “fit in”: to be accepted by others, particularly ingroup members (Leary, 2010). This may prompt conformity to relevant social norms in the situation. In the context of the shifting standards model, belonging needs may either enhance or reduce the role of stereotypes in guiding social judgment, as individuals comply with local social norms (e.g., Crandall & Eshleman, 2003). When norms promote prejudice, we would expect the use of stereotypes (and hence shifting standards) to increase, but when norms are antiprejudice, this tendency should be reduced.

Note that this straightforward prediction suggests a counterintuitive pattern: Judges will be most subjectively *positive* toward Blacks (as well as more *negative* in common-rule judgments and behavioral responses) under conditions that promote or condone prejudice. In a study described earlier, we found that the tendency for White communicators to show pro-Black bias in their subjective impressions and anti-Black bias in memory for GPA was strongest among those with low internal motivation to respond without prejudice (i.e., among whom norms might be characterized as condoning of prejudice; Biernat & Sesko, 2011). We might similarly expect enhancement of this shifting standards pattern with situational manipulations of pro-prejudice norms.

This is at odds with the idea that *antiprejudice* norms evoke pro-Black bias, as when evaluators offer more favorable feedback on poor writing samples by Black than White students (Harber, 1998; see also Ruscher, Wallace, Walker, & Bell, 2010). It will be important in future research to tease apart whether subjective positivity toward Blacks (favorable subjective impressions, positive feedback) is driven by low standards or by concerns about appearing prejudiced (or both). Consider recent findings of a “failure to warn” Black (relative to White) students that a heavy course schedule might prove too challenging (Crosby & Monin, 2007). This effect seems more readily attributable to participants’ “fear that discouraging an ambitious Black student might reflect prejudice” rather than to the use of low standards to evaluate Blacks (Crosby & Monin, 2007, p. 663). A key

Table 1.2 Speculations on the effects of “core motives” on the tendency to shift standards

Core motives (from Fiske, 2004)	Conditions that might exacerbate the tendency to shift standards	Conditions that might reduce the tendency to shift standards
Belonging	Social norms/settings promoting stereotyping	Social norms/settings promoting nonprejudice
Understanding	Stereotypes offer shared understanding; desire to maintain beliefs	Low fit of target to category expectations; accuracy motives
Controlling	Control threats; high power or status	Accuracy and accountability motives
Self-enhancing	Self- or group-esteem threats	Self-affirmation
Trusting	Threats to trust; negativity vigilance	Ingroup preference motives; seeing the best in others

factor in documenting the role of shifting standards is that subjective positivity is also be accompanied by negativity toward Blacks in other forms, such as common-rule judgments and memory distortions.

The core motive of understanding concerns the desire to make sense of the social world and to have “shared meaning and prediction” (Fiske, 2004, p. 16). The reliance on shared cultural stereotypes may indeed reflect this motivation, as do other social representations (Moscovici, 1988) or “group meanings” (Zajonc & Adelman, 1987). Stereotypes simplify and structure the world; as articulated in Fig. 1.2, they may provide the “common ground” needed for successful interaction and conversation. Perceivers seem to engage in practices that maintain these stereotypes, whether it be enhanced attention to and memory for stereotype-consistent information (Allen, Sherman, Conrey, & Stroessner, 2009), increased confidence in one’s own thoughts about a target person when information is stereotype consistent (Clark, Wegener, Briñol, & Petty, 2009), stereotype-consistent construal of ambiguous information (Dunning & Sherman, 1997), or compensation for the stereotype inconsistency of one target by seeing hyperstereotype conformity in a subsequently encountered group member (Seta, Seta, & McElroy, 2003). Even inferences about standards may be made with an eye toward maintaining stereotypes. For example, when exposed to a target who admits a counterstereotypic attribute (e.g., a Black man describing himself as “bad at basketball”), perceivers may assume that assessment was made relative to a narrow, high standard (e.g., Black men). But stereotypic descriptions (e.g., a Black man who is “good at basketball”) are assumed to reference broader more inclusive standards (“people in general”;

Collins, Crandall, & Biernat, 2006). Thus, contexts that emphasize the importance of shared meaning, or of maintaining group beliefs, may enhance the likelihood of shifting standards effects (see Table 1.2).

But to the extent that stereotypes become less useful in a given situation, they may indeed be abandoned in favor of other means of understanding. Thus, in some judgment contexts, especially when targets do not “fit” group-based expectations, stereotypes may be abandoned in favor of piecemeal processing (Brewer, 1988; Fiske & Neuberg, 1990). In such cases, the use of within-category shifting standards would also be abandoned, as would any reference to the group in judgment, communication, or interpretation of judgment. Concerns about accuracy might also affect judgment standards more so than differential expectations. For example, Tausch (2008) found that judges set higher evidentiary standards for “competent” than “incompetent” targets to confirm warmth, an effect mediated by perceived harmfulness of making incorrect trait ascriptions.

The third core motive, controlling, refers to the human need for “perceived contingency between behavior and outcomes” (Fiske, 2004, p. 16), for predictability. Such control may be lacking under conditions of threat, or enhanced under conditions of high status or power. Both may prompt high reliance on stereotypes as a means of gaining control. For example, integrated threat theory (Stephan & Stephan, 2000) and evolutionary perspectives on “fitness threats” (e.g., Cottrell & Neuberg, 2005) point to a wide variety of threats that may prompt prejudicial responding. High power may also prompt increased stereotyping, as the need to differentiate among subordinates may be low (Fiske, 1993; cf., Vescio, Snyder, & Butz, 2003). High reliance on stereotypes following threat or high power should also mean increased use of shifting standards to evaluate and communicate about group members.

But control could also be exerted via accuracy in judgment or via careful attention to information about others. Thus, outcome dependency or specific instruction to be accurate may reduce reliance on stereotypes, as may accountability to others (e.g., Hatrup & Ford, 1995; Pendry & Macrae, 1996), unless those to whom one is accountable support stereotype use (see Lerner & Tetlock, 1999). When perceivers are under conditions in which control is best attained via reduced reliance on stereotypes, we would expect less evidence of shifting standards in judgment and communication, and perhaps a disconnect between reported standards and judgment.

A fourth core motive is self-enhancement, the need to hold a generally positive view of the self. Much theory in the social psychology of prejudice has pointed to the need to protect or enhance self-esteem or group-esteem as a contributor to outgroup bias (e.g., Duckitt, 2001; Fein & Spencer, 1997; Tajfel & Turner, 1986). Group dominance motives, also related to esteem, contribute to prejudicial outcomes as well (Navarrete et al., 2010;

Sidanius & Pratto, 1999). These findings suggest that the tendency to apply stereotypes and to shift judgment standards may be heightened under conditions of perceived threat to self-esteem. Affirmations of the self, on the other hand, may reduce the likelihood of reliance on stereotypes and, therefore, the tendency to shift judgment standards (see Table 1.2).

The final core motive suggested by Fiske (2004) is trusting: Individuals are motivated to “see the social world as a benevolent place” (p. 23). Interpersonally, this trust is often manifested in a positivity bias—seeing the best in people (Sears, 1983). Trusting ingroup members is particularly important, and mutual trust may contribute to group cohesion and a sense of belonging. Ingroup trust may also contribute to outgroup distrust; thus, any factor that increases the distance between “us” and “them” may increase stereotyping and prejudice. But in research on the shifting standards model, ingroup–outgroup distinctions have been less important than the content of stereotypes *per se*. For example, we have only rarely documented participant sex effects in gender-stereotyping studies (e.g., Biernat & Kobrynowicz, 1997), suggesting that it is knowledge of stereotype content rather than ingroup/outgroup status *per se* that contributes to shifting standards effects. Thus, I suspect that contextual factors that emphasize ingroup/outgroup distinctions may serve to override shifting standards tendencies rather than enhance them: If one is motivated to show solidarity with the ingroup, positivity toward that group (and negativity toward the outgroup) rather than reliance on group-based stereotypes may result. Similarly, any motivation to see the best in others may reduce stereotyping tendencies and subsequent shifting standards effects.

Perhaps only when trust is harmed in some way, in the words of Fiske (2004), “by betrayal, exploitation, or hostility” (p. 24), might attempts to restore trust take the form of heightened reliance on stereotypes (as is the case with other forms of threat). Additionally, Fiske (2004) describes vigilance for negativity as a corollary to trust, making individuals particularly sensitive to negative information about others. To the extent that negative information confirms stereotypes, this too may contribute to heightened use of shifting standards in the evaluation and communication process (see Table 1.2).

This brief review has considered a broad set of motivations as they may affect stereotype activation and application and, hence, the tendency to use stereotype-based shifting standards. Many of these motivational processes have been discussed in other models of stereotyping and impression formation but have received little attention thus far from the perspective of the shifting standards model. The model largely describes a “neutral” or baseline judgment situation, but of course, people often make and communicate judgments of others in settings that one or more of the core motives outlined above may be salient. A key question is whether motivated processes (e.g., the desire to please an audience, to feel better about the self) *enhance* the tendency to shift standards, or *override* it.

As summarized in [Table 1.2](#), various threats as well as normative contexts that promote stereotyping may increase the tendency to shift standards. What distinguishes this prediction from other approaches to stereotyping is the premise that use of stereotypes as standards may lead to both positive and negative judgments of negatively stereotyped group members: Subjective language may allow for positivity (as when targets are evaluated against low standards), but at the same time, common-rule judgments and bottom-line choices will assimilate to negative stereotypes. Other motivational conditions may reduce or limit the use of stereotypes as shifting standards, including accuracy and accountability, normative contexts that eschew the use of stereotypes, self-affirmation, and high trust of others. To the extent that these factors reduce reliance on stereotypes, the tendency to shift standards will be reduced as well. This means reductions in both the subjective positivity and objective negativity of judgments about members of negatively stereotyped groups. For example, when self-affirmed or oriented toward accuracy, communicators may not produce positive subjective descriptions of Black relative to White students, and they may not underestimate Black students' GPAs ([Collins et al., 2009](#)). The predictions outlined in [Table 1.2](#) await empirical test, but bringing motivation into the shifting standards model will be necessary for a fuller understanding of the role of stereotypes in social judgment.

7. SUMMARY AND NEW DIRECTIONS

Social judgment is relative, and many possible standards or referents for rendering these judgments are available. The shifting standards model suggests that social categories and their associated stereotypes play an important role in this process. When we are called upon to evaluate others on dimensions relevant to stereotypes, we make comparisons to within-group expectations. The result is that subjective language (especially adjectival descriptions) may mask stereotyping effects because different targets are evaluated relative to different standards. But I hope that the research reviewed in this chapter indicates that such effects may be deceptive, in that judges whose subjective language conveys positive impressions of targets (based on low standards) nonetheless maintain stereotype-based representations of those targets.

This chapter began by considering examples of how members of stereotyped groups may be judged and treated inconsistently: The “highly competent” female employee receives lesser consequential performance evaluations than her comparable male colleague ([Biernat et al., 2011](#)), the Black job applicant must jump through fewer hoops than his White counterparts to meet minimum standards but more hoops to confirm his ability

(Biernat & Kobrynowicz, 1997), the female softball player is praised for hitting a single but is placed in less valued field positions (Biernat & Vescio, 2002), and the Black student is described more positively but remembered more negatively than a White counterpart (Collins et al., 2009). In each case, I suggested that the use of stereotype-based standards contributed to both positivity (targets appear “better” when evaluated against lower standards) and negativity (in bottom-line judgments and behavior) toward members of negatively stereotyped groups.

To make this case, I first reviewed research demonstrating the “signature” shifting standards pattern of judgment, whereby judgments of individual members of stereotyped on common-rule measures *assimilate* to stereotypes but show null or *contrast* effects on subjective scales. A recent meta-analysis documents this pattern across a wide variety of social groups and judgment domains (Manning et al., 2011).

I next argued that the tendency to shift standards has important implications for the process of communication. We talk *about* other people *to* other people using subjective language, and the question is whether that language—such as “she’s aggressive,” “he’s emotional,” “she’s a good student”—is translated with reference to group stereotypes. Figure 1.2 lays out a schematic model of the communication process that begins with shared cultural stereotypes and a shared tendency to shift standards. Because of the use of shifting standards, subjective communication about members of negatively stereotyped groups may be relatively favorable, but both “interpreters” and communicators may leave an encounter with stereotypical views of the target (Collins et al., 2009). Despite the surface positivity of language that can result from the use of stereotype-based shifting standards, the ultimate result is maintenance or strengthening of stereotypes. In one study, those who communicated relatively positive impressions of a Black student left the setting with more negative racial attitudes than those who communicated positively about a White student (Biernat & Sesko, 2011). The translation of feedback about the self may also be made with reference to social category membership, with negative downstream consequences for domain identification and performance (Biernat & Danaher, *in press*).

In much research on stereotype-based judgment and communication, the role of standards has been assumed rather than measured. But in this chapter, I also reviewed a line of research on the setting of judgment standards. This literature documents that both leniency and stringency may characterize the evidentiary standards applied to members of groups stereotyped as lacking some attribute (see Table 1.1). For example, women may be held to lower minimum standards of aggression than men; thus, less behavioral evidence of aggression triggers the suspicion of aggression in women (Biernat et al., 2010). At the same time, women may be held to higher confirmatory standards of aggression than men; they need to provide more evidence of aggression before being certain that they are

dispositionally aggressive. Both patterns reflect the use of stereotypes: Because expectations are low, more evidence is required to come to a conclusion that contradicts the stereotype. When it comes to judging workplace competence in masculine domains, this may mean that women might more easily pass a low screening bar, a minimum standard, than man but have a harder time truly documenting their worth (Biernat & Kobrynowicz, 1997).

The final section of the chapter addressed the question of whether standards mediate judgment outcomes. Evidence on this point is sketchy; in some studies, measured or manipulated standards do not play a mediating role, and this presents a real challenge to the shifting standards model. I discussed possible reasons for the disconnect between standards and judgment, including measurement problems, the difficulty of distinguishing between minimum and confirmatory standards, and the likelihood that other processes outside the framework of the shifting standards model contribute to and disrupt the judgment process. I also considered the possible missing factor of “motivation” in the shifting standards model and addressed how core motives—belonging, understanding, controlling, self-enhancing, and trusting (Fiske, 2004)—might affect the tendency to shift standards (see Table 1.2). The shifting standards model describes a neutral, relatively “cold” judgment context, but must recognize that motivational forces figure into judgment and communication effects as well.

In addition to a consideration of motivation, the research reviewed in this chapter points to several new avenues for research. First, I have suggested that the process of shifting standards, especially in the context of communication, may contribute to stereotype maintenance over time. Others have addressed the role of communication in stereotype maintenance (e.g., Schaller et al., 2002), but what makes the shifting standards phenomenon intriguing in this regard is that language about members of negatively stereotyped groups may have a surface positivity that belies underlying stereotype-consistent representations and beliefs. This phenomenon will require further explication: Does communication about members of stereotyped groups—for example, in an admissions or hiring meeting—contribute to more bias against the target and to stronger stereotype endorsement than would be the case had the communication not occurred? Or is there a point at which positive language about stereotyped targets actually translates into positive objective perceptions and changes overall group stereotypes?

A second area ripe for further research concerns the consequences of shifting standards for the targets of judgment. Throughout this chapter, I have pointed to conflicting outcomes for the stereotyped: Not only a class of assimilative effects (e.g., female attorneys less likely than male attorneys to receive favorable consequential judgments) but also a class of contrastive effects (e.g., female attorneys described subjectively more

favorably than male attorneys; Biernat et al., 2011). This surely creates confusion for the target, and a lack of predictability about his or her status in a judgment setting. Further, the target may come to recognize that the pattern of inconsistency—getting praise but not getting valued outcomes—is based on low expectations. Any praise or positive evaluation may then be interpreted as patronizing and evoke anger and lowered motivation in the target (see Vescio et al., 2005). We know little, however, about the long-term consequences of being a recipient of conflicting feedback. I also reviewed research suggesting that members of negatively stereotyped groups may interpret feedback with reference to their social category membership; for example, Black students interpreted negative subjective feedback to indicate an objectively worse performance than did Whites (Biernat & Danaher, in press). These data pointed to downstream consequences of lowered domain identification and performance, but what are the longer term consequences of these patterns? How can they be prevented?

This points to a third avenue for future research: Understanding how the tendency to shift standards can be reduced and how targets of judgment might avoid any negative consequences of the process. With regard to the first point, I think it unlikely that social categories can be avoided as referents for judgment, and the inherent relativity of language will always allow us to use the same words to mean different things. The shifting of standards may well be an automatic process, as when an 18-pound feline readily appears “very big” for a cat but “quite small” for a tiger. However, our field knows a lot about what makes for *accurate* judgment, and these insights may help us understand how the tendency to shift standards may be reduced. In their excellent monograph on *Judging merit*, Thorngate, Dawes, and Foddy (2009) point to three “bad habits” that may lead to biases in judgment: (1) relying on retrospective memory to make judgments rather than making them on line, (2) making holistic rather than disaggregated judgments, and (3) being inconsistent in the weighting of attributes and definitions of merit rather than using the same criteria for all targets.

The third bad habit seems the most relevant to shifting standards; indeed, the tendency to shift standards is *defined* by inconsistency. One obvious remedy, then, is to make standards of judgment clear before any judgments are rendered. In a job setting, for example, the standard may be provided by job requirements themselves rather than any features of the applicants. Promoting the use of a single standard, and making that standard explicit, may render the use of stereotype-based standards more difficult. This practice may be less practical in the kinds of social judgments we render as part of everyday social discourse—judging a female driver as “aggressive,” a mediocre Black student as “really smart,” or a father who walks his kids to school as a “great” parent. But in these cases, awareness, education, and conscious self-correction may be important tools (“I called her aggressive;

would I have used the same label for a man?”). This would of course require ability and motivation to correct on the part of the evaluator (Petty & Wegener, 1993).

Contrast effects in subjective language are only part of the shifting standards picture. The other part is that representations of targets remain stereotype consistent, as reflected in common-rule judgments, memory biases, and behavioral treatment, as described throughout this chapter. In addition to clarifying standards, then, directly changing the content of stereotypes is important for reducing tendencies to shift standards. Stereotypes of the sorts I have described here—beliefs about women’s workplace competence relative to men’s; Blacks’ academic ability relative to Whites’—seem intractable and long-standing, but even seemingly minor interventions (e.g., engaging in counterstereotypic mental imagery, such as thinking of “strong women”; Blair, Ma, & Lenton, 2001) may at least temporarily alter the content of stereotypes and prevent the shifting standards process.

Prevention of the negative consequences of shifting standards for *targets* of judgment—including feeling confused, patronized, and/or angry, and translating subjective feedback relative to own-group standards—may also be alleviated by the prescriptions described above. Specifying the standard used to render a judgment may allow targets to understand and appreciate feedback—both positive and negative. This is the idea behind Cohen et al.’s (1999) prescription for “wise” feedback, in which even critical feedback was well received by both Blacks and Whites, “when the feedback was accompanied both by an invocation of high standards and by an assurance of the student’s capacity to reach those standards” (p. 1302). In a job setting, making criteria for evaluation transparent (and providing evidence that such criteria are actually used) may reduce any confusion or concern on the part of recipients. And of course, changing stereotypes is important for targets as well: Targets will not translate feedback differently in the absence of group stereotypes.

I recognize that these are not earthshaking solutions, and that those who are most likely to shift standards may be the least motivated to stop doing so. The shifting standards model also highlights a unique conundrum: Those who shift standards may not recognize the problems this tendency creates. As discussed throughout this chapter, the use of low standards can have some positive consequences—subjective positivity, greater ease of passing low standards—and this may give judges a sense that they are being nonprejudicial and even fair. This too may reduce the likelihood that individuals and institutions in the business of judging others will address potential negative consequences of the use of stereotype-based standards. Still, I am hopeful that stereotype change is possible and that instantiation of clear and consistent standards—defined by the domain at hand rather than social category membership of the target—may reduce shifting standards effects.

The shifting standards model is based on simple ideas about the role of stereotypes in producing, communicating, and interpreting judgments of

others. I hope that this chapter demonstrates how these simple ideas can be applied to a broad range of phenomena and contributes to a broader, interpersonal perspective on the person impression process (Smith & Collins, 2009). Stereotypes often matter for social judgment, and the shifting standards model provides one lens through which these effects can be predicted and understood.

REFERENCES

- Allen, T. J., Sherman, J. W., Conrey, F. R., & Stroessner, S. J. (2009). Stereotype strength and attentional bias: Preference for confirming versus disconfirming information depends on processing capacity. *Journal of Experimental Social Psychology, 45*, 1081–1087. 10.1016/j.jesp.2009.06.002.
- Allport, G. W., & Postman, L. (1946). An analysis of rumor. *Public Opinion Quarterly, 10*, 501–517.
- Allport, G. W., & Postman, L. F. (1947). *The psychology of rumor*. New York: H. Holt.
- Amodio, D. M., Devine, P. G., & Harmon-Jones, E. (2008). Individual differences in the regulation of intergroup bias: The role of conflict monitoring and neural signals for control. *Journal of Personality and Social Psychology, 94*, 60–74. 10.1037/0022-3514.94.1.602007-19165-005.
- Banks, W. C., Stitt, K. R., Curtis, H. A., & McQuater, G. V. (1977). Perceived objectivity and the effects of evaluative reinforcement upon compliance and self-evaluation in Blacks. *Journal of Experimental Social Psychology, 13*, 452–463.
- Baron, R. S., David, J. P., Brunzman, B. M., & Inman, M. L. (1997). Why listeners hear less than they are told: Cognitive load and the teller-listener extremity effect. *Journal of Personality and Social Psychology, 72*, 826–838. 10.1037/0022-3514.72.4.8261997-03701-009.
- Berger, J., Fisek, M. H., Norman, R. Z., & Zelditch, M. Jr. (1977). *Status characteristics and social interaction: An expectation states approach*. New York: Elsevier.
- Berry, D. S., & Zebrowitz-McArthur, L. (1988). What's in a face? Facial maturity and the attribution of legal responsibility. *Personality and Social Psychology Bulletin, 14*, 23–33.
- Biernat, M. (2003). Toward a broader view of social stereotyping. *The American Psychologist, 58*, 1019–1027.
- Biernat, M., Collins, E. C., Katzarska-Miller, I., & Thompson, E. R. (2009). Race-based shifting standards and racial discrimination. *Personality and Social Psychology Bulletin, 35*, 16–28.
- Biernat, M., Crandall, C. S., Young, L. V., Kobrynowicz, D., & Halpin, S. M. (1998). All that you can be: Stereotyping of self and others in a military context. *Journal of Personality and Social Psychology, 75*, 301–317.
- Biernat, M., & Danaher, K. (in press). Interpreting and reacting to feedback in stereotype-relevant performance domains. *Journal of Experimental Social Psychology*.
- Biernat, M., & Eidelman, S. (2007). Translating subjective language in letters of recommendation: The case of the sexist professor. *European Journal of Social Psychology, 37*, 1149–1175.
- Biernat, M., Eidelman, S., & Fuegen, K. (2002). Judgment standards and the social self: A shifting standards perspective. In J. P. Forgas & K. D. Williams (Eds.), *The social self: Cognitive, interpersonal, and intergroup perspectives* (pp. 51–72). New York: Psychology Press.
- Biernat, M., & Fuegen, K. (2001). Shifting standards and the evaluation of competence: Complexity in gender-based judgment and decision making. *Journal of Social Issues, 57*, 707–724.

- Biernat, M., Fuegen, K., & Kobrynowicz, D. (2010). Shifting standards and the inference of incompetence: Effects of formal and informal evaluation tools. *Personality and Social Psychology Bulletin*, *36*, 855–868.
- Biernat, M., & Kobrynowicz, D. (1997). Gender- and race-based standards of competence: Lower minimum standards but higher ability standards for devalued groups. *Journal of Personality and Social Psychology*, *72*, 544–557.
- Biernat, M., Kobrynowicz, D., & Weber, D. (2003). Stereotyping and shifting standards: Some paradoxical effects of cognitive load. *Journal of Applied Social Psychology*, *33*, 2060–2079.
- Biernat, M., & Ma, J. E. (2005). Stereotypes and the confirmability of trait concepts. *Personality and Social Psychology Bulletin*, *31*, 483–495.
- Biernat, M., Ma, J. E., & Nario-Redmond, M. R. (2008). Standards to suspect and diagnose stereotypical traits. *Social Cognition*, *26*, 288–313.
- Biernat, M., & Manis, M. (1994). Shifting standards and stereotype-based judgments. *Journal of Personality and Social Psychology*, *66*, 5–20.
- Biernat, M., Manis, M., & Nelson, T. E. (1991). Stereotypes and standards of judgment. *Journal of Personality and Social Psychology*, *60*, 485–499.
- Biernat, M., & Sesko, A. K. (2011). *Communicating about others: Motivations and consequences of race-based impressions*. (manuscript under review).
- Biernat, M., & Vescio, T. K. (2002). She swings, she hits, she's great, she's benched: Implications of gender-based shifting standards for judgment and behavior. *Personality and Social Psychology Bulletin*, *28*, 66–77.
- Biernat, M., Tocci, M. J., & Williams, J. C. (2011). The language of performance evaluations: Gender-based shifts in the content and consistency of judgment. *Social Psychological and Personality Science*.
- Biernat, M. (2009). Stereotypes and shifting standards. In T. D. Nelson (Ed.), *Handbook of Prejudice, Stereotyping, and Discrimination* (pp. 137–152). New York: Psychology Press.
- Blair, I. V., Ma, J. E., & Lenton, A. P. (2001). Imagining stereotypes away: The moderation of implicit stereotypes through mental imagery. *Journal of Personality and Social Psychology*, *81*, 828–841.
- Bodenhausen, G. V., & Macrae, C. N. (1998). Stereotype activation and inhibition. In R. S. Wyer (Ed.), *Advances in social cognition* (pp. 1–52). Mahwah, NJ: Lawrence Erlbaum.
- Bosak, J., Szesny, S., & Eagly, A. H. (2008). Communion and agency judgments of women and men as a function of role information and response format. *European Journal of Social Psychology*, *38*, 1148–1155.
- Brauer, M., Judd, C. M., & Jacquelin, V. (2001). The communication of social stereotypes: The effects of group discussion and information distribution on stereotypic appraisals. *Journal of Personality and Social Psychology*, *81*, 463–475.
- Brauer, M., Wasel, W., & Niedenthal, P. (2000). Implicit and explicit components of prejudice. *Review of General Psychology*, *4*, 79–101.
- Brewer, M. B. (1988). A dual process model of impression formation. In R. S. Wyer Jr. & T. K. Srull (Eds.), *Advances in social cognition: A dual process model of impression formation* (pp. 1–36). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Bridges, J. S., Etaugh, C., & Barnes-Farrell, J. (2002). Trait judgments of stay-at-home and employed parents: A function of social role and/or shifting standards? *Psychology of Women Quarterly*, *26*, 140–150.
- Buss, D. M., & Craik, K. H. (1983). The act frequency approach to personality. *Psychological Review*, *90*, 105–126.
- Carlston, D. E., & Skowronski, J. J. (1994). Savings in the relearning of trait information as evidence for spontaneous inference generation. *Journal of Personality and Social Psychology*, *66*, 840–856.
- Carter, S. L. (1993). *Reflections of an affirmative action baby*. New York: Basic Books.

- Clark, H. H. (1985). Language use and language users. In G. Lindzey & E. Aronson (Eds.), *Handbook of Social Psychology* (3rd ed. pp. 179–231). New York: Random House.
- Clark, A. E., & Kashima, Y. (2007). Stereotypes help people connect with others in the community: A situated functional analysis of the stereotype consistency bias in communication. *Journal of Personality and Social Psychology*, *93*, 1028–1039. 10.1037/0022-3514.93.6.10282007-17941-008.
- Clark, H. H., & Shober, M. F. (1992). Asking questions and influencing answers. In J. J. Tamur (Ed.), *Questions about questions* (pp. 15–48). New York: Russell Sage.
- Clark, J. K., Wegener, D. T., Brinol, P., & Petty, R. E. (2009). Discovering that the shoe fits: The self-validating role of stereotypes. *Psychological Science*, *20*, 846–852.
- Cohen, G. L., Steele, C. M., & Ross, L. D. (1999). The mentor's dilemma: Providing critical feedback across the racial divide. *Personality and Social Psychology Bulletin*, *25*, 1302–1318.
- Coleman, L. M., Jussim, L., & Isaac, J. L. (1991). Black students' reactions to feedback conveyed by White and Black teachers. *Journal of Applied Social Psychology*, *21*, 460–481.
- Collins, E. C., Biernat, M., & Eidelman, S. (2009). Stereotypes and the communication of person impressions. *Journal of Experimental Social Psychology*, *45*, 368–374.
- Collins, E., Crandall, C. S., & Biernat, M. (2006). Stereotypes and implicit social comparison: Shifts in comparison-group focus. *Journal of Experimental Social Psychology*, *42*, 452–459.
- Correll, J., Judd, C. M., Park, B., & Wittenbrink, B. (2010). Measuring prejudice, stereotypes, and discrimination. In J. F. Dovidio, M. Hewstone, P. Glick, & V. M. Esses (Eds.), *The SAGE handbook of prejudice, stereotyping, and discrimination* (pp. 508–525). Thousand Oaks, CA: Sage.
- Cottrell, C. A., & Neuberg, S. L. (2005). Different emotional reactions to different groups: A sociofunctional threat-based approach to “prejudice” *Journal of Personality and Social Psychology*, *88*, 770–789. 10.1037/0022-3514.88.5.770.
- Crandall, C. S., & Eshleman, A. (2003). A justification-suppression model of the expression and experience of prejudice. *Psychological Bulletin*, *129*, 414–446. 10.1037/0033-2909.129.3.4142003-00782-007.
- Crocker, J., & Major, B. (1989). Social stigma and self-esteem: The self-protective properties of stigma. *Psychological Review*, *96*, 608–630.
- Crocker, J., Voelkl, K., Testa, M., & Major, B. (1991). Social stigma: The affective consequences of attributional ambiguity. *Journal of Personality and Social Psychology*, *60*, 218–228.
- Crosby, J. R., & Monin, B. (2007). Failure to warn: How student race affects warnings of potential academic difficulty. *Journal of Experimental Social Psychology*, *43*, 663–670. 10.1016/j.jesp.2006.06.0072007-08759-017.
- Devine, P. G. (1989). Stereotypes and prejudice: Their automatic and controlled components. *Journal of Personality and Social Psychology*, *56*, 5–18. 10.1037/0022-3514.56.1.5.
- Devine, P. G., & Elliot, A. J. (1995). Are racial stereotypes really fading? The Princeton trilogy revisited. *Personality and Social Psychology Bulletin*, *21*, 1139–1150.
- Devine, P. G., Plant, E. A., Amodio, D. M., Harmon-Jones, E., & Vance, S. L. (2002). The regulation of explicit and implicit race bias: The role of motivations to respond without prejudice. *Journal of Personality and Social Psychology*, *82*, 835–848. 10.1037/0022-3514.82.5.8352002-12575-011.
- Duckitt, J. (2001). A dual-process cognitive-motivational theory of ideology and prejudice. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (pp. 41–113). San Diego, CA: Academic Press.
- Dunning, D. (1993). Words to live by: The self and definitions of social concepts and categories. In J. Suls (Ed.), *Psychological perspectives on the self* (pp. 99–126). Hillsdale, NJ: Erlbaum.
- Dunning, D., & Hayes, A. F. (1996). Evidence for egocentric comparison in social judgement. *Journal of Personality and Social Psychology*, *71*, 213–229.

- Dunning, D., & Sherman, D. A. (1997). Stereotypes and tacit inference. *Journal of Personality and Social Psychology*, 73, 459–471.
- Dunton, B. C., & Fazio, R. H. (1997). An individual difference measure of motivation to control prejudice reactions. *Personality and Social Psychology Bulletin*, 23, 316–326. 10.1177/0146167297233009.
- Eagly, A. H. (2004). Prejudice: Toward a more inclusive definition. In A. H. Eagly, R. M. Baron, & V. L. Hamilton (Eds.), *The social psychology of group identity and social conflict: Theory, application, and practice* (pp. 45–64). Washington, DC: APA Books.
- Eagly, A. H., Makhijani, M. G., & Klonsky, B. G. (1992). Gender and the evaluation of leaders: A meta-analysis. *Psychological Bulletin*, 111, 3–22.
- Eccleston, C. P., Smyth, J. M., & Lopoo, L. M. (2010). Unraveling the race paradox of achievement and self-views. *Social Psychology of Education*, 13, 1–18.
- Eiser, J. R. (1990). *Social judgment*. Pacific Grove, CA: Brooks-Cole.
- Fein, S., & Spencer, S. J. (1997). Prejudice as self-image maintenance: Affirming the self through derogating others. *Journal of Personality and Social Psychology*, 73, 31–44. 10.1037/0022-3514.73.1.31.
- Fernandez, J. P. (1982). *Racism and sexism in corporate life: Changing values in American business*. Lexington, MA: Heath.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 1954(7), 117–140.
- Fiske, S. T. (1993). Controlling other people: The impact of power on stereotyping. *The American Psychologist*, 48, 621–628.
- Fiske, S. T. (2004). *Social beings: A core motives approach to social psychology*. NY: Wiley.
- Fiske, S. T., & Neuberg, S. L. (1990). A continuum of impression formation, from category-based to individuating processes: Influences of information and motivation on attention and interpretation. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 23, pp. 1–74). New York: Academic Press.
- Foddy, M., & Smithson, M. (1989). Fuzzy sets and double standards: Modeling the process of ability inference. In J. Berger, M. Zelditch Jr., & B. Anderson (Eds.), *Sociological theories in progress: New formulations* (pp. 73–99). London: Sage Publications.
- Foschi, M. (1998). Double standards: Types, conditions, and consequences. *Advances in Group Processes*, 15, 59–80.
- Foschi, M. (2000). Double standards for competence: Theory and research. *Annual Review of Sociology*, 26, 21–42.
- Foster, E. K. (2004). Research on gossip: Taxonomy, methods, and future directions. *Review of General Psychology*, 8, 78–99.
- Fuegen, K., & Biernat, M. (2011). *Inferring incompetence: How stereotypes affect decisions regarding inability*. (manuscript under review).
- Funder, D. C., & Drobny, K. M. (1987). Differences between traits: Properties associated with interjudge agreement. *Journal of Personality and Social Psychology*, 52, 409–418.
- Gawronski, B., Bodenhausen, G. V., & Barse, R. (2005). We are, therefore they aren't: In-group construal as a standard of comparison for out-group judgments. *Journal of Experimental Social Psychology*, 41, 515–526.
- Gidron, D., Koehler, D. J., & Tversky, A. (1993). Implicit quantification of personality traits. *Personality and Social Psychology Bulletin*, 19, 594–604.
- Gilbert, D. T., & Hixon, J. G. (1991). The trouble of thinking: Activation and application of stereotypic beliefs. *Journal of Personality and Social Psychology*, 60, 509–517.
- Gilovich, T. (1987). Secondhand information and social judgment. *Journal of Experimental Social Psychology*, 23, 59–74.
- Glick, P., & Fiske, S. T. (2001). An ambivalent alliance: Hostile and benevolent sexism as complementary justifications for gender inequality. *The American Psychologist*, 56, 109–118.

- Goethals, G. R., & Darley, J. M. (1977). Social comparison theory: An attributional approach. In J. M. Suls & R. L. Miller (Eds.), *Social comparison processes: Theoretical and empirical perspectives* (pp. 259–278). Washington, DC: Hemisphere.
- Goodwin, S. A., Gubin, A., Fiske, S. T., & Yzerbyt, V. Y. (2000). Power can bias impression processes: Stereotyping subordinates by default and by design. *Group Processes and Inter-group Relations*, 3, 227–256.
- Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology*, 74, 1464–1480.
- Grice, H. P. (1975). Logic and conversation. In P. Cole & J. L. Morgan (Eds.), *Syntax and semantics: Speech acts* (pp. 41–58). New York: Academic Press.
- Guimond, S., Chatard, A., Martinot, D., Crisp, R. J., & Redersdorff, S. (2006). Social comparison, self-stereotyping, and gender differences in self-construals. *Journal of Personality and Social Psychology*, 90, 221–242.
- Hampson, S. E. (1982). Person memory: A semantic category model of personality traits. *British Journal of Psychology*, 73, 1–11.
- Hampson, S. E., Goldberg, L. R., & John, O. P. (1987). Category-breadth and social-desirability values for 573 personality terms. *European Journal of Personality*, 1, 241–258.
- Harber, K. D. (1998). Feedback to minorities: Evidence of a positive bias. *Journal of Personality and Social Psychology*, 74, 622–628.
- Hardin, C., & Higgins, E. T. (1996). Shared reality: How social verification makes the subjective objective. In R. M. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (3rd ed. pp. 828–842). New York: Guilford.
- Hatrup, K., & Ford, J. K. (1995). The role of information characteristics and accountability in moderating stereotype-driven processes during social decision making. *Organizational Behavior and Human Decision Processes*, 63, 73–86.
- Heine, S. J., Lehman, D. R., Peng, K., & Greenholtz, J. (2002). What's wrong with cross-cultural comparisons of subjective Likert scales? The reference-group effect. *Journal of Personality and Social Psychology*, 82, 903–918.
- Higgins, E. T. (1990). Personality, social psychology, and person-situated relations: Standards and knowledge activation as a common language. In L. A. Pervin (Ed.), *Handbook of personality* (pp. 301–338). New York: Guilford.
- Hoessler, C., & Chasteen, A. L. (2008). Does aging affect the use of shifting standards? *Experimental Aging Research*, 34, 1–12.
- Hugenberg, K., & Bodenhausen, G. V. (2003). Facing prejudice: Implicit prejudice and the perception of facial threat. *Psychological Science*, 14, 640–643.
- Hugenberg, K., & Bodenhausen, G. V. (2004). Ambiguity in social categorization: The role of prejudice and facial affect in race categorization. *Psychological Science*, 15, 342–345.
- Hummert, M. L. (1999). A social cognitive perspective on age stereotypes. In T. M. Hess & F. Blanchard-Fields (Eds.), *Social cognition and aging* (pp. 175–196). San Diego, CA: Academic Press.
- Huttenlocher, J., & Higgins, E. T. (1971). Adjectives, comparatives, syllogisms. *Psychological Review*, 78, 487–504.
- Jackman, M. R. (1994). *The velvet glove: Paternalism and conflict in gender, class, and race*. Berkeley: University of California Press.
- Jones, E. E., & Davis, K. E. (1965). From acts to dispositions: The attribution process in person perception. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 2, pp. 219–266). New York: Academic Press.
- Jones, E. E., Davis, K. E., & Gergen, K. J. (1961). Role playing variations and their informational value for person perception. *Journal of Abnormal and Social Psychology*, 63, 302–310.
- Kanter, R. M. (1977). *Men and women of the corporation*. New York: Basic Books.

- Katz, I., & Hass, R. G. (1988). Racial ambivalence and American value conflict: Correlational and priming studies of dual cognitive structures. *Journal of Personality and Social Psychology*, 55, 893–905. 10.1037/0022-3514.55.6.8931989-15265-001.
- Kelley, H. H. (1967). Attribution theory in social psychology. In D. Levine (Ed.), *Nebraska symposium on motivation* (Vol. 15, pp. 192–238). Lincoln: University of Nebraska Press.
- Kirby, D. M., & Gardner, R. C. (1972). Ethnic stereotypes: Norms on 208 words used in their assessment. *Canadian Journal of Psychology*, 26, 140–154.
- Kobrynowicz, D., & Biernat, M. (1997). Decoding subjective evaluations: How stereotypes provide shifting standards. *Journal of Experimental Social Psychology*, 33, 579–601.
- Kraut, R. E., & Higgins, E. T. (1984). Communication and social cognition. In R. S. Wyer & T. K. Srull (Eds.), *Handbook of social cognition* (Vol. 3, pp. 87–127). Hillsdale, NJ: Erlbaum.
- Kunda, Z., & Thagard, P. (1996). Forming impressions from stereotypes, traits, and behaviors: A parallel–constraint satisfaction theory. *Psychological Review*, 103, 284–308.
- Leary, M. R. (2010). Affiliation, acceptance, and belonging: The pursuit of interpersonal connection. In S. T. Fiske, D. T. Gilbert, & G. Lindzey (Eds.), *Handbook of Social Psychology* (5th ed., Vol. 2, pp. 864–897). Hoboken, NJ: John Wiley and Sons, Inc.
- Lerner, J. S., & Tetlock, P. E. (1999). Accounting for the effects of accountability. *Psychological Bulletin*, 125, 255–275.
- Lyons, A., & Kashima, Y. (2003). How are stereotypes maintained through communication? The influence of stereotype sharedness. *Journal of Personality and Social Psychology*, 85, 989–1005.
- Macrae, C. N., Bodenhausen, G. V., & Milne, A. B. (1995). The dissection of selection in person perception: Inhibitory processes in social stereotyping. *Journal of Personality and Social Psychology*, 69, 397–407.
- Major, B., & Testa, M. (1989). Social comparison processes and judgments of entitlement and satisfaction. *Journal of Experimental Social Psychology*, 25, 101–120.
- Major, B., Spencer, S., Schmader, T., Wolfe, C., & Crocker, J. (1998). Coping with negative stereotypes about intellectual performance: The role of psychological disengagement. *Personality and Social Psychology Bulletin*, 24, 34–50.
- Manning, M., Molix, L., Schlegel, R., Eidelman, S., Biernat, M., & Bettencourt, B. A. (2011). *The effects of categorical and individuating information on person evaluations*. Manuscript under review.
- Martin, C. L. (1987). A ratio measure of sex stereotyping. *Journal of Personality and Social Psychology*, 52, 489–499.
- Miller, D. T., & Prentice, D. A. (1996). The construction of social norms and standards. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 799–829). New York, NY: Guilford Press.
- Miron, A., Branscombe, N. R., & Biernat, M. (2010). Motivated shifting of justice standards. *Personality and Social Psychology Bulletin*, 36, 768–779.
- Monin, B., & Miller, D. T. (2001). Moral credentials and the expression of prejudice. *Journal of Personality and Social Psychology*, 81, 33–43.
- Moscovici, S. (1988). Notes towards a description of social representations. *European Journal of Social Psychology*, 18, 211–250.
- Mussweiler, T., & Rüter, K. (2003). What friends are for! The use of routine standards in social comparison. *Journal of Personality and Social Psychology*, 85, 467–481.
- Mussweiler, T., & Strack, F. (2000). The “relative self”: Informational and judgmental consequences of comparative self-evaluation. *Journal of Personality and Social Psychology*, 79, 23–38.
- Navarrete, C. D., McDonald, M. M., Molina, L. E., & Sidanius, J. (2010). Prejudice at the nexus of race and gender: An outgroup male target hypothesis. *Journal of Personality and Social Psychology*, 98, 933–945. 10.1037/a0017931.

- Nisbett, R., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review*, *84*, 231–259.
- Ogbu, J. U. (1991). Minority coping responses and school experience. *The Journal of Psychohistory*, *18*(4), 433–456.
- Park, B., & Hastie, R. (1987). Perception of variability in category development: Instance-versus abstraction-based stereotypes. *Journal of Personality and Social Psychology*, *53*, 621–635.
- Pendry, L. F., & Macrae, C. N. (1994). Stereotypes and mental life: The case of the motivated but thwarted tactician. *Journal of Experimental Social Psychology*, *30*, 303–325.
- Pendry, L. F., & Macrae, C. N. (1996). What the disinterested perceiver overlooks: Goal-directed social categorization. *Personality and Social Psychology Bulletin*, *22*, 249–256.
- Pennebaker, J. W. (2011). *The secret life of pronouns: What our words say about us*. New York: Bloomsbury Press.
- Pennebaker, J. W., Francis, M. E., & Booth, R. J. (2001). *Linguistic inquiry and word count: LIWC 2001*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Petty, R. E., & Wegener, D. T. (1993). Flexible correction processes in social judgment: Correcting for context-induced contrast. *Journal of Experimental Social Psychology*, *29*, 137–165.
- Plant, E. A., & Devine, P. G. (1998). Internal and external motivation to respond without prejudice. *Journal of Personality and Social Psychology*, *75*, 812–832. 10.1037/0022-3514.75.3.811.
- Purdie-Vaughns, V., & Eibach, R. P. (2008). Intersectional invisibility: The distinctive advantages and disadvantages of multiple subordinate group identities. *Sex Roles*, *59*, 377–391.
- Reeder, G. D., & Brewer, M. B. (1979). A schematic model of dispositional attribution in interpersonal perception. *Psychological Review*, *86*, 61–79.
- Reeder, G. D., Pryor, J. B., & Wojciszke, B. (1992). Trait-behavior relations in social information processing. In G. R. Semin & K. Fiedler (Eds.), *Language, interaction, and social cognition* (pp. 37–57). London, England: Sage Publications.
- Ridgeway, C. L. (1991). The social construction of status beliefs: Gender and other nominal characteristics. *Social Forces*, *70*, 367–386.
- Roberts, T. (1991). Gender and the influence of evaluations and self-assessments in achievement settings. *Psychological Bulletin*, *109*, 297–308.
- Roberts, J. V., & Herman, C. P. (1986). The psychology of height: An empirical review. In C. P. Herman, M. P. Zanna, & E. T. Higgins (Eds.), *Physical appearance, stigma, and social behavior: The Ontario symposium* (Vol. 3, pp. 113–140). Hillsdale, NJ: Erlbaum.
- Roberts, T., & Nolen-Hoeksema, S. (1994). Gender comparisons in responsiveness to others' evaluations in achievement settings. *Psychology of Women Quarterly*, *18*, 221–240.
- Rothbart, M., & Park, B. (1986). On the confirmability and disconfirmability of trait concepts. *Journal of Personality and Social Psychology*, *50*, 131–142.
- Ruscher, J. B., & Fiske, S. T. (1990). Interpersonal competition can cause individuating processes. *Journal of Personality and Social Psychology*, *58*, 832–843.
- Ruscher, J., & Hammer, E. (2006). The development of shared stereotypic impressions in conversation: An emerging model, methods, and extensions to cross-group settings. *Journal of Language and Social Psychology*, *25*, 221–243. 10.1177/0261927X062894242006-10101-003.
- Ruscher, J. B., Wallace, D. L., Walker, K. M., & Bell, L. H. (2010). Constructive feedback in cross-race interactions. *Group Processes and Intergroup Relations*, *13*, 603–619.
- Rudman, L. A. (1998). Self-promotion as a risk factor for women: the costs and benefits of counter stereotypical impression management. *Journal of Personality and Social Psychology*, *74*, 629–645.

- Rudman, L. A., & Glick, P. (2001). Prescriptive gender stereotypes and backlash toward agentic women. *Journal of Social Issues, 57*, 743–762.
- Schaller, M., Conway, L. G., & Tanchuk, T. L. (2002). Selective pressures on the once and future contents of ethnic stereotypes: Effects of the communicability of traits. *Journal of Personality and Social Psychology, 82*, 861–877.
- Schmader, T., & Major, B. (1999). The impact of ingroup vs. outgroup performance on personal values. *Journal of Experimental Social Psychology, 35*, 47–67.
- Sears, D. O. (1983). The person-positivity bias. *Journal of Personality and Social Psychology, 44*, 233–250.
- Sesko, A. K., & Biernat, M. (2010). Prototypes of race and gender: The invisibility of Black women. *Journal of Experimental Social Psychology, 46*, 356–360.
- Seta, J. J., Seta, C. E., & McElroy, T. (2003). Attributional biases in the service of stereotype maintenance: A schema-maintenance through compensation analysis. *Personality & Social Psychology Bulletin, 29*, 151–163.
- Sidanius, J., & Pratto, F. (1999). *Social dominance: An inter-group theory of social hierarchy and oppression*. New York: Cambridge University Press.
- Smith, E. R., & Collins, E. C. (2009). Contextualizing person perception: Distributed social cognition. *Psychological Review, 116*, 343–364.
- Stasser, G., & Titus, W. (1985). Pooling of unshared information in group decision making: Biased information sampling during discussion. *Journal of Personality and Social Psychology, 48*, 1467–1478.
- Stephan, W. G., & Stephan, C. W. (2000). An integrated threat theory of prejudice. In S. Oskamp (Ed.), *Reducing prejudice and discrimination* (pp. 23–34). Mahwah, NJ: Lawrence Erlbaum Associates.
- Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behavior. In S. Worschel & W. G. Austin (Eds.), *Psychology of Intergroup Relations*. Chicago, IL: Nelson-Hall.
- Tausch, N. (2008). The confirmability and disconfirmability of trait concepts: Competence affects evidentiary standards for warmth. *European Journal of Social Psychology, 38*, 1130–1138.
- Taylor, S. E., Fiske, S. T., Etcoff, N. L., & Ruderman, A. (1978). Categorical and contextual bases of person memory and stereotyping. *Journal of Personality and Social Psychology, 36*, 778–793.
- Thompson, M. C., Judd, C. M., & Park, B. (2000). The consequences of communicating social stereotypes. *Journal of Experimental Social Psychology, 36*, 567–599.
- Thorngate, W., Dawes, R., & Foddy, M. (2009). *Judging merit*. New York: Psychology Press.
- Uleman, J. S., Newman, L. S., & Moskowitz, G. B. (1996). People as flexible Interpreters: Evidence and issues from spontaneous trait inference. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 28, pp. 211–279). San Diego, CA: Academic Press.
- Van Overwalle, F., Drenth, T., & Mausman, G. (1999). Spontaneous trait inference. *Personality and Social Psychology Bulletin, 25*, 450–462.
- Vescio, T. K., Gervais, S. J., Snyder, M., & Hoover, A. (2005). Power and the creation of patronizing environments: The stereotype-based behaviors of the powerful and their effects on female performance in masculine domains. *Journal of Personality and Social Psychology, 88*, 658–672.
- Vescio, T. K., Snyder, M., & Butz, D. A. (2003). Power in stereotypically masculine domains: A social influence strategy X stereotype match model. *Journal of Personality and Social Psychology, 85*, 1062–1078.
- von Hippel, W., Silver, L. A., & Lynch, M. E. (2000). Stereotyping against your will: The role of inhibitory ability in stereotyping and prejudice among the elderly. *Personality and Social Psychology Bulletin, 26*, 523–532.

- Wigboldus, D. H. J., Dijksterhuis, A., & van Knippenberg, A. (2003). When stereotypes get in the way: Stereotypes obstruct stereotype-inconsistent trait inferences. *Journal of Personality and Social Psychology, 84*, 470–484.
- Wigboldus, D. H. J., Sherman, J. W., Franzese, H. L., & van Knippenberg, A. (2004). Capacity and comprehension: Spontaneous stereotyping under cognitive load. *Social Cognition, 22*, 292–309.
- Wittenbrink, B., Judd, C. M., & Park, B. (1997). Evidence for racial prejudice at the implicit level and its relationship with questionnaire measures. *Journal of Personality and Social Psychology, 72*, 262–274.
- Wood, J. V. (1989). Theory and research concerning social comparisons of personal attributes. *Psychological Bulletin, 106*, 231–248.
- Yzerbyt, V. Y. (2010). Motivational processes. In J. F. Dovidio, M. Hewstone, P. Glick, & V. M. Esses (Eds.), *The SAGE handbook of prejudice, stereotyping, and discrimination* (pp. 508–525). Thousand Oaks, CA: Sage.
- Zajonc, R. B., & Adelman, P. K. (1987). Cognition and communication: A story of missed opportunities. *Social Science Information, 26*, 3–30.
- Zanna, M. P., Goethals, G. R., & Hill, J. F. (1975). Evaluating a sex-related ability: Social comparison with similar others and standard setters. *Journal of Experimental Social Psychology, 11*, 86–93.

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COLOR-IN-CONTEXT THEORY

Andrew J. Elliot* and Markus A. Maier†

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* Department of Clinical and Social Science in Psychology, University of Rochester, Rochester, New York, USA

† Department of Psychology, University of Munich, Munich, Germany

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Abstract

Color is a ubiquitous perceptual stimulus, yet relatively little empirical and even less theoretical work exists on color and psychological functioning. The research that has been conducted has tended to lack the scientific precision and rigor evident in other areas of inquiry in psychology. In response, we have set out to develop a general model of color and psychological functioning—color-in-context theory—which we present herein. We also overview several lines of empirical work that have emerged from this theoretical framework, starting with research on red in achievement contexts, moving on to research on red in affiliation contexts, and concluding with research on other colors in other contexts. In addition, we articulate the need to carefully attend to the fact that color comprises three attributes—hue, lightness, and chroma—in creating color manipulations in experimental work. We close by highlighting the conceptual, empirical, and practical implications of viewing color as a functional, as well as aesthetic, stimulus, and by sounding the call for more research in this important yet overlooked area.

Each and every object that we perceive in daily life contains color, be it chromatic color (e.g., red, blue, green, etc.) or achromatic color (i.e., white, black, gray). Given that color is a ubiquitous feature of our perceptual world, one would think that there would be a considerable amount of scientific research conducted on any and all aspects of color. In one sense, this is indeed the case, as there is a raft of existing theoretical and empirical work on color physics (i.e., defining and modeling basic properties of color), color physiology (i.e., how rods and cones process color information), and color language (i.e., the use of color categories in lexical systems around the world). Color is complex and much work remains in each of these areas of study, but considerable theoretical and empirical progress has been made on these fronts.

What is surprising about the color literature is the relative paucity of scientifically based research that has been conducted on color psychology in humans (i.e., the relation between color and affect, cognition, and behavior¹). In contrast to the aforementioned work on color physics, physiology, and language, there is little empirical and even less theoretical work on color and psychological functioning (Elliot & Maier, 2007; Fehrman & Fehrman, 2004; Levy, 1984; Whitfield & Whitshire, 1990). Moreover, much of the research that has been done in this area has lacked the scientific precision and rigor evident in the other areas of inquiry. Many statements are made in

¹ Here and throughout, we use “affect, cognition, and behavior” (or derivations thereof) when seeking to encompass the broad spectrum of psychological functioning. We do so for ease of communication only, and hasten to add that affect, cognition, and behavior are obviously undergirded by and integrally intertwined with physiological and motivational processes.

the media, on the Internet, and in the popular, applied, and even scientific literatures about color associations and the influence of color on various aspects of affect, cognition, and behavior. These statements are often offered in authoritative fashion as documented fact, but in the vast majority of cases, they are based entirely on intuition, misinformation, or scant empirical work of questionable quality (Elliot & Maier, 2007; O'Connor, 2010).

Given this disparity between the ubiquity of perceived color stimuli and the dearth of scientifically derived knowledge on color psychology, we have set out to develop a general model of color and psychological functioning. In the following, we present this theoretical framework, along with several programs of empirical work that are emerging from it. First, however, we briefly review the extant theoretical and empirical work in this area in order to establish a context for our own research.

1. EXISTING THEORETICAL AND EMPIRICAL WORK

1.1. Theoretical work

Much of the existing research on color and psychological functioning has emerged from applied questions with little or no reliance on theory. Some of the most popular questions have been the following: What colors influence consumer behavior? What colors influence worker mood and productivity? What colors influence the taste and appeal of food? What colors are fashionable? What colors influence aggressive behavior? This last question was of particular interest in the late 1970s and early 1980s after a study appeared suggesting that the color pink reduced physical strength and aggression (Schauss, 1979). This led a number of correctional facilities in the USA to paint holding cells pink, until subsequent studies indicated that the effect was most likely spurious (Gilliam, 1991; Gilliam & Unruh, 1988; Ingram & Lieberman, 1985; Schwartz, Harrop, Love, Marchand, & Read, 1983).

Other research on color and psychological functioning has been primarily descriptive in nature, with minimal theoretical grounding. A good example of such work is that focusing on color preference. Empirical investigation of color preference has a long history, dating back to the early days of scientific psychology (Cohn, 1894), and a good deal of research has been conducted over the years (see Adams, 1987; Bornstein, 1975; Garth & Porter, 1934; Holden & Bosse, 1900; Norman & Scott, 1952; Zemach & Teller, 2007). However, nearly all of this research focuses strictly on psychophysical descriptions of color preference without explaining their origin or implications (for recent work on color preference that is more theoretically based, see Changizi, 2009; Hurlbert & Ling, 2007; Palmer & Schloss, 2010). Applied and descriptive work can be of some benefit, but such work does little to facilitate a broader understanding and explanation of links between color and psychological functioning.

A few theoretical statements about color and psychological functioning have been offered, most of which have been indirectly or directly grounded in a physiological model articulated by Goldstein (1942). Based on speculation by German poet and polymath Goethe (1810/1840), and his clinical work with psychiatric patients, Goldstein contended that color inherently elicits physiological responses from the body that are manifest in emotional experience, cognitive focus, and motor action. Specifically, he proposed that red and yellow are experienced as stimulating and disagreeable, focus attention on the outward environment, and produce forceful and expansive actions, whereas green and blue are experienced as relaxing and agreeable, focus attention inward, and produce reserved and stable behavior. Goldstein's conceptualization was not clearly explicated, and subsequent researchers have tended to interpret his ideas in terms of wavelength and arousal: Longer wavelength colors such as red and orange are viewed as arousing, and shorter wavelength colors such as green and blue are viewed as calming (Ainsworth, Simpson, & Cassell, 1993; Kvallek, Woodson, Lewis, & Sales, 1997; Nakashian, 1964; Stone & English, 1998).

Besides Goldstein's model (and derivations of this model), theoretical statements about color tend to focus on general associations that people have to various colors and how these general associations lead to responses consistent with the associations. For example, with regard to an achromatic color, black, Frank and Gilovich (1988) posited that this color is associated with evil, death, and other negative concepts and, accordingly, should lead people to behave in an aggressive manner. With regard to chromatic colors, Soldat, Sinclair, and Mark (1997) focused on the chromatic colors red and blue and argued that red is associated with happiness and, therefore, facilitates nonsystematic cognitive processing, whereas blue is associated with sadness and, therefore, facilitates systematic cognitive processing.

1.2. Empirical work

Empirical work testing the theoretical proposals stated above has been sparse, and the results have been largely inconsistent or unsupportive. In popular and scientific communication about color alike, writers commonly portray as fact the Goldstein-derived proposal that long wavelength colors such as red and orange (often characterized as "warm colors") are arousing and stimulating, whereas short wavelength color such as green and blue (often characterized as "cold or cool colors") are relaxing and calming. However, the existing data examining these (and related) ideas have not yielded support; this is particularly the case with research employing rigorous, controlled methodologies (Detenber, Simons, Roedema, & Reis, 2002; Kaiser, 1984; Langguth et al., 2009; O'Connor, 2010). Indeed, the utility of the general arousal construct on which Goldstein's ideas are based has itself been called into question by scholars (Neiss, 1988, 1990; Hyge &

Knez, 2001). Further, research examining hypotheses derived from these ideas, such as the proposal that long wavelength colors facilitate cognitive performance due to their arousing nature, has tended to produce null results (see Ainsworth et al., 1993; Caldwell & Jones, 1985; Kwallek et al., 1997; Pierce & Weinland, 1934; Pressey, 1921; Rosenstein, 1985).

Frank and Gilovich's (1988) hypothesis regarding black has received some direct (Frank & Gilovich, 1988; Johnson, 2005; Vrij, 1997; Vrij & Akehurst, 1997) and indirect (Meier, Robinson, & Clore, 2004; Sherman & Clore, 2009) support, but other studies have yielded null results (Mills & French, 1996; Tiraki, 2005) or findings in the opposite direction (Nickels, 2008). Soldat et al.'s (1997) hypotheses regarding red and blue have not received support from the existing research. Blue has only been linked to sadness in a distinct minority of studies (Kaya & Epps, 2004; Wexner, 1954), and the existing data clearly do not support a link between red and happiness (Clarke & Costall, 2008; Grieve, 1991; Hemphill, 1996; Jacobs, Keown, Worthley, & Ghymn, 1990; Manav, 2007). Further, there is no empirical evidence for the notion that red elicits nonsystematic and blue elicits systematic cognitive processing.

In the main, the extant literature on color and psychological functioning is fraught with a number of important methodological weaknesses. First, some studies that have been conducted have failed to attend to rudimentary scientific procedures such as ensuring that the experimenter is blind to hypothesis and condition, limiting participation in the experiment to non-color-deficient persons, etcetera. In addition, a number of studies have been published as brief one- or two-page reports with minimal information on which to judge the quality of the design, procedure, method, and materials (e.g., Green et al., 1982; O'Connell, Harper, & McAndrew, 1985; Profusek & Rainey, 1987; Rosenstein, 1985; Shick, 1975). Second, in many existing studies, the color manipulations that have been utilized have not been tightly controlled or have altered participants' typical perceptual experience. For example, in some studies, color has been manipulated using colored walls or partitions in simulated work environments, and in this case, it is not possible to dictate or determine the extent to which participants actually view the color stimulus (e.g., Ainsworth et al., 1993; Goodfellow & Smith, 1973; Rosenstein, 1985; Stone & English, 1998; Yildirim, Akalin-Baskaya, & Hidayetoglu, 2007). In other studies, color has been manipulated using colored lighting, and in this instance, participants are exposed to a highly unusual and distracting perceptual environment (e.g., Babin, Hardesty, & Suter, 2003; Halpern & Kugelmas, 1953; Hammes & Wiggins, 1962; James & Domingos, 1953; Wilkins, Sihra, & Myers, 2005). Further, these types of color manipulations are sometimes instantiated over long time periods (e.g., from several hours to multiple weeks; Küller, Mikellides, & Janssens, 2009; Kwallek et al., 1997; Pierce & Weinland, 1934), which raises the possibility that participants habituate to or grow increasingly weary of the manipulation.

Third, and most important, nearly all of the research conducted to date has failed to adequately attend to the multiple attributes of color in creating color manipulations. Color varies on three basic attributes, hue (wavelength; what laypersons commonly mean when using the term “color”), lightness (similar to brightness; essentially the white-to-black quality of a color), and chroma (similar to colorfulness; essentially the vividness or intensity of a color).² Any one of these attributes—hue, lightness, or chroma—can influence psychological functioning (Camgoz, Yener, & Guvenc, 2003; Suk & Irtel, 2009; Valdez & Mehrabian, 1994); therefore, failing to control for lightness and chroma when examining the influence of hue (for example) produces a classic design confound (i.e., variation of more than one variable at a time). Color stimuli can also vary in terms of perceived typicality (the degree to which a color looks like a commonly seen representation of that color category). Even when only a single color property is varied in a manipulation, some color stimuli may be a better representation of their target category than others. The most rigorous experimental work attends to both the multidimensionality and the perceived typicality of color stimuli in manipulations; most research has attended to neither.

Given the paucity of theoretical guidance and the myriad methodological shortcomings present in the literature, perhaps it is not surprising that research on color and psychological functioning has remained at a nascent stage of development. Without a clear conceptual framework, there is little traction for systematic programs of research to commence, and without sound, rigorous methodologies and procedures, empirical results are destined to be inconsistent and difficult to interpret. It is this state of the theoretical and empirical work on color and psychological functioning that motivated our efforts to develop color-in-context theory, to which we now turn.



2. COLOR-IN-CONTEXT THEORY

Color-in-context theory (see Elliot & Maier, 2007 for a nascent incarnation) is designed to be a broad model of color and psychological functioning that can be used to explain and predict relations between color and affect, cognition, and behavior. In the following, we explicate the core premises of this framework. We do so primarily in the abstract, without much reference to specific colors or color properties because each of the

² Color actually varies on more attributes than hue, lightness, and chroma, and many different terms and definitions are used in color research for each attribute (Fairchild, 2005; Pridmore, 2007). In this chapter, we focus on hue, lightness, and chroma because color theorists have argued that these are the most important attributes of (perceived) color to attend to in most experimental contexts (see Fairchild, 2005). We use these terms (and accompanying definitions) inclusively as placeholders for the concepts under consideration.

premises is meant to apply across colors and color properties (to varying degrees). When we move from presentation of the model to research testing the model, we focus on specifics that will help illustrate the more abstract premises stated in this section.

2.1. Premise 1: Color carries meaning

When most people think about color, they tend to think about aesthetics. That is, for the person on the street, the topic of color generally brings to mind issues such as one's most and least favorite colors, which types of clothing colors "go together," or the widespread preference for color television, movies, and photography over the same media in black and white. This tendency to focus primarily on the aesthetic value of color is present among researchers as well, in that color preference is the main area within the color psychology literature that has received significant and sustained empirical attention over the years.

The most rudimentary premise of color-in-context theory is that color is not just about aesthetics, it also carries meaning. Colors have associations that contain psychologically relevant meaning beyond intrinsic pleasantness–unpleasantness appraisals. Accordingly, color may be seen as a nonlexical visual stimulus that can symbolically convey various types of information. That is, color can have functional value as well as aesthetic value. Each of the three properties of color—hue, lightness, and chroma—can carry meaning and have functional value.

2.2. Premise 2: Viewing color influences psychological functioning

The perception of color influences psychological functioning in a manner consistent with the meaning of the color. Viewing color gives rise to evaluative processes that appraise stimuli as hospitable for or hostile to the perceiver (Cacioppo, Gardner, & Berntson, 1999; Elliot & Covington, 2001; Lang, 1995; Zajonc, 1998). Hospitable and hostile appraisals engage appetitive or aversive motivation (respectively), and concomitant affect, cognition, and behavior. Appraisal of a stimulus as hospitable promotes appetitive affect (e.g., excitement, hope), cognition (e.g., flexible, global processing), and behavior (e.g., overt approach), whereas appraisal of a stimulus as hostile prompts aversive affect (e.g., anxiety, fear), cognition (e.g., rigid, narrow processing), and behavior (e.g., overt avoidance; Chen & Bargh, 1999; Derryberry & Reed, 1998; Elliot & McGregor, 1999; Förster, Friedman, Özelsel, & Denzler, 2006; Roseman, 1984). Evaluative processes operate via multiple, partially overlapping mechanisms, from rudimentary spinal chord reflexes to complex cortical calculations (Cacioppo et al., 1999; Schneirla, 1959; Stellar & Stellar, 1985), and color

meanings may be represented and may evoke valenced appraisal processes, across these different levels of the neuraxis (Elliot, 2006). Thus, colors that carry positive associations evoke a suite of approach-oriented psychological processes, whereas colors that carry negative associations elicit a suite of avoidance-oriented psychological processes.

2.3. Premise 3: Color effects are automatic

Color usually represents the ground rather than the figure of the stimuli that individuals perceive. Color computations begin at a very early stage of visual processing, moving from absorption of light by cone photoreceptors to subcortical processing by the lateral geniculate nucleus to various regions of the visual cortex (Conway, 2009; Gegenfurtner & Kiper, 2003; Viviani & Aymoz, 2001). From retina to cortex, color information is processed incidentally, without intention or awareness (Ling & Blades, 1996; Kristjánsson, Vuilleumier, Malhotra, Husain, & Driver, 2005; Patel, Blades, & Andrade, 2002). Indeed, the full process from the extraction of color information to the activation and operation of appetitive or aversive affect, cognition, and behavior usually takes place automatically. Essentially, color acts as a nonconscious prime (see Bargh's (1990) automotive model for a conceptual parallel) that influences psychological functioning in subtle fashion. Friedman and Förster (2010) have recently coined the term implicit affective cue to refer to stimuli that evoke hospitable or hostile appraisals of the environment (and accompanying processes) without producing any explicit, conscious sensations. Such cues are presumed to exert an influence on psychological functioning without the perceiver's awareness. Color nicely fits this category of implicit affective cue. Given that the influence of color tends to take place outside of conscious awareness, color effects tend to persist, even if they have (undetected) inimical implications.

2.4. Premise 4: Color meanings (and associated responses) have two sources: Learning and biology

The specific meanings that colors carry are a joint function of two general sources. One source is classical conditioning (i.e., societal learning). In daily life, people encounter a multitude of implicit and explicit pairings between colors and particular concepts, messages, and experiences. This exposure to color-meaning pairings begins in infancy (e.g., girls are dressed in feminine pink, boys are dressed in masculine blue) and continues throughout the life span. With repetition over time, these pairings create strong color associations, such that the mere perception of a color can activate its paired associate and influence affect, cognition, and behavior accordingly. The specific content of color associations rooted in societal learning may be

discerned from a broad, multidisciplinary analysis of color in language (e.g., etymology, phraseology), literature (e.g., folklore, fiction), ritual (e.g., rites, ceremonies), the arts (paintings, plays), and civic and popular usage (e.g., in signage, in fashion).

Some color associations are undoubtedly grounded in societal learning alone, but we believe that some represent biologically based proclivities to construe particular colors in certain ways. Several theorists contend that color vision evolved because it contributed to adaptation and survival (i.e., it enhanced animals' ability to detect ripe fruit, avoid aposematic prey, or evaluate the quality/receptivity of potential mates; [Changizi, Zhang, & Shimojo, 2006](#); [Hutchings, 1997](#); [Jacobs, 1981](#); [Mollon, 1989](#)). Research with many different animal species indicates that color often serves a signal function in the wild, facilitating fitness-relevant behavior ([Andersson, 1994](#); [Dixon, 1983](#); [Graves, Hable, & Jenkins, 1985](#); [Gerald, 2003](#); [Hill, 2002](#); [Setchell & Wickings, 2004](#)). If, as we suspect, some color-meaning pairings in humans are rooted in biology, parallels should be observed between human and nonhuman animals in color-meaning pairings, and ideally these parallels would be seen in primates (including our closest primate relatives, bonobos and chimpanzees). Data documenting such parallels with human infants would be persuasive as well. Further, consistency across time and culture should be observed in the aforementioned color associations in language, literature, civic and popular use, etc.

Societal and biologically based sources of color associations in humans are not necessarily mutually exclusive. On the contrary, we view these two sources as contributing jointly to the way color is construed (see [Kenrick, Trost, & Sundie, 2004](#); [Simpson & Gangstead, 2001](#); on the compatibility of societal and biologically based types of explanation). It is likely that many of the color-meaning links that appear throughout history in various languages, literatures, and cultural practices across the globe are not random, but rather are derived from biologically based tendencies. Thus, societal learning may, at times, represent a cognitive reinforcing and shaping of evolutionarily engrained predispositions. Indeed, such learning may even extend the applicability of color-meaning links beyond the tether of natural bodily processes (where color is typically displayed) to clothing, products, and other artificial stimuli (for artificial use of color in nonhuman animals, see [Burley, 1981](#); [Cuthill, Hunt, Cleary, & Clark, 1997](#); [Healey, Uller, & Olsson, 2007](#)).

2.5. Premise 5: Relations between color perception and affect, cognition, and behavior are reciprocal

In addition to positing that color perception influences affect, cognition, and behavior, we posit the reciprocal relation—that affective, cognitive, and behavioral states can influence color perception. A number of theorists have

proposed that visual perception is not just the product of an isolated visual system but is influenced by the appetitive or aversive psychological state of the perceiver (see the New Look, ecological, sensorimotor, and embodiment approaches to perception; Barsalou, 1999; Bruner & Goodman, 1947; Gibson, 1979; O'Regan & Noë, 2001). Considerable empirical work has documented the veracity of this general idea, although nearly all of this research has focused on noncolor aspects of perception (see Balcetis & Dunning, 2006; Barsalou, 2008; Changizi & Hall, 2001; Proffitt, 2006). A few studies have begun to emerge suggesting that color perception varies as a function of the psychological state of the perceiver (Bubl, Kern, Ebert, Bach, & van Elst, 2010; Hansen, Olkkonen, Walter, & Gegenfurtner, 2006; Mitterer, Horschig, Müsseler, & Majid, 2009).

2.6. Premise 6: Color meanings and effects are context specific

Context has been largely ignored in theoretical and empirical work on color psychology. Central to color-in-context theory is the idea that color carries different meanings in different contexts and, therefore, has different implications for feelings, thoughts, and actions in different contexts. For example, with regard to approach–avoidance processes, we think that the same color can carry opposite meanings and have opposite implications (i.e., approach vs. avoidance) in different contexts.

Context is a difficult construct to define and conceptualize, as it is construed differently throughout the many different psychological disciplines in which it is utilized (Avramova, Stapel, & Lerouge, 2010; Bazire & Brézillon, 2005). Etymologically, “context” comes from classical Latin and carries the sense of connecting or weaving together (Burke, 2002; “Context,” *Oxford English Dictionary [OED]*). The OED emphasizes the lexical and linguistic in defining context; for example, “The whole structure of a connected passage regarded in its bearing upon any of the parts which constitute it; the parts which immediately precede or follow any particular passage or ‘text’ and determine its meaning.” However, the OED also indicates that this initial, concrete, definition has been transferred and extended, such that context can additionally denote the physical structure in which something is embedded or the moral or experiential situation within which something is perceived. Herein, we draw on these sources, as well as offerings by Bazire and Brézillon (2005) and Zimmermann, Lorenz, and Oppermann (2007), to define context as the set of circumstances that frame a color and determine its meaning in integrated fashion. The circumstances that frame, and give meaning to, color may be physical or psychological.

Neuroscientists have clearly shown that color perception is influenced by other features of visual perception such as shape, texture, motion, contrast, and spatial orientation (Shapley & Hawken, 2011). For example,

a color may appear to take on a somewhat different hue depending on whether it is viewed in isolation or in a complex scene with another color or colors present (Shevell & Kingdom, 2008). These aspects of the physical context of color may influence not only color perception but also color association. Thus, when a color is viewed on a large rather than a small surface (see Meier, Robinson, & Caven, 2008) or on a high rather than a low visual plane (see Meier & Robinson, 2004), it may be construed as a particularly powerful color.

Color is usually viewed on an object, as opposed to an isolated surface. The object on which color is perceived can influence both aesthetic preferences and the associations one has to the color. With regard to aesthetic preferences, blue may be seen as appealing when viewed on a pair of dress pants, but the same blue may seem unappealing when viewed on a pair of dress shoes. With regard to associations, pink may be associated with femininity when seen on a baby blanket, but not when seen on a piece of Bazooka bubble gum (see Ural & Yilmazer, 2010). Many color-object pairings prompt generic associations that have limited functional value, but some may function as signals that convey important information. For example, in certain bird species (blackcaps, domestic chicks) red on fruit is a signal of ripeness and palatability, but red on an insect is a signal of poison and unpalatability (Gamberale-Stille & Tullberg, 2001; Schmidt & Schaefer, 2004).

Independent of the object on which color is situated, the psychological context in which color is viewed may itself influence color meanings and corresponding effects. Psychological context can take on myriad manifestations, as documented emphatically in the cognitive and social psychological literatures (Bamford & Ward, 2008; Bouton, 2010; Cunningham & Zelazo, 2007; Feldman Barrett, Mesquita, & Smith, 2010; Ferguson & Bargh, 2004; Gawronski & Stritharan, 2010; Schwartz, 2007). Included among these manifestations are domain of behavior (e.g., the achievement domain, the affiliation domain), emotional/motivational states and traits (positive/appetitive, negative/aversive), task instructions or characteristics of a task itself (e.g., its ease or difficulty), momentarily accessible (i.e., primed) information, and culture (e.g., country or geographical region). The same color can have different meanings and exert different effects across these (and many other) psychological contexts, even if color is viewed on the same physical object. We will illustrate this context-specificity point in several different ways when presenting our empirical work in the forthcoming sections.

Relatively little is known, at present, about the precise way in which color (or any other stimulus) and the physical and psychological context in which it is embedded are integrated together to produce meaning (Van Berkum, 2009). What is clear is that this color-context binding takes place at an early, rudimentary stage of visual processing and requires no

intention or awareness (Castelhana & Henderson, 2008; Gawronski, Rydell, Vervliet, & De Houwer, 2010; Spence, Wong, Rusan, & Rastegar, 2006; Zachar, Schrott, & Kabai, 2008). Much like the meaning of a word in language is determined at by the context in which it is embedded (Kinsch & Mangalath, 2011), the meaning of a color is determined by its contextual surround. Some colors, especially those most salient across time, language, and culture (i.e., white, black, and red; see Berlin & Kay, 1969; Kay & Maffi, 1999; Kuehni, 2007), may have default meanings. Such meanings would represent either the most salient association to the color (e.g., purity for white) or its most negative meaning (e.g., danger for red), given the “bad is stronger than good” principle (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). In instances in which contextual cues are neither strong nor salient, the default meaning is activated. However, in the main, color meanings are contextually constructed, and failure to attend to this basic reality is problematic. Indeed, the vast majority of research on color psychology has neglected to consider color-in-context, and we believe that this oversight (in conjunction with the aforementioned methodological problems) is largely responsible for the accumulation of inconsistent empirical data that have hampered progress and growth in this promising area.

3. AN IMPORTANT METHODOLOGICAL DIGRESSION

Before proceeding to an overview of our research on color and psychological functioning, we pause for what we consider a critically important methodological digression. In [Section 1](#), we noted that color stimuli vary on hue, lightness, and chroma and that nearly all extant research has failed to attend (or properly attend) to this important fact when creating color manipulations. As such, most research confounds the three color properties, leading to two primary problems: First, it makes clear interpretation of results impossible, as any observed result could be due to the focal color property or due to unknown variation in one or both of the other, nonfocal, color properties. Second, it makes attempts to replicate past research extremely difficult and often impossible. Replication requires the availability of precise and accurate information on the hues, lightnesses, and chromas of the color stimuli used in the manipulation; without this information the only recourse is to use the actual color stimuli used in the initial investigation (which itself can be impossible to reproduce, unless the color stimuli are printed or careful records are kept of the settings of computer screens, etc.). Until this critical issue is rectified, empirical progress is not possible, and accordingly, we think it is important to briefly overview how color manipulations have been and can be created. In doing so, we focus on

hue manipulations, but the same issues pertain to lightness and chroma manipulations.

The majority of the research that has been conducted has used hues unsystematically with no consideration of the issue of lightness and chroma confounds. In these instances, it is most likely that investigators simply pick hues that they think are ideal representatives of the focal colors in question. The problem is that the prototypic exemplar of some hues is undoubtedly lighter or more chromatic than others (e.g., prototypic red is more intense than prototypic yellow; prototypic gray is lighter than the prototype of most any chromatic color).³ Other investigators have selected colors from standard color sets that were designed for the general populace with no attempt at systematic representation of hue, lightness, and chroma (e.g., Milton Bradley standard color papers; Garth & Collado, 1929; Luckiesh, 1916 [the “Wundt” colored papers referred to in this research are actually the Milton Bradley set; see Titchener, 1900]; St. George, 1938). Clearly, these sets provide no guard against confounding.

A more rigorous approach to selecting hues is through the use of color samples within a well-validated color model. The *Munsell Book of Color* (1976), based on the Munsell color system, is commonly used for this purpose (see also the Natural Color System; Hård, Sivak, & Tonnquist, 1996). The color samples are painted color chips systematically arranged in terms of three coordinates: hue, value (similar to lightness), and chroma; the chips possess numerical values that represent uniform perceptual spacing for each coordinate (Romney, 2008; Wyszecki & Stiles, 2000). There are three primary ways in which this approach is used in research: (1) the color chips themselves are used as stimuli, (2) the color chips are used as a visual referent to select comparable colors in another medium, or (3) the numerical values of the color chips are converted into other numerical values that allow comparable colors to be displayed on a computer screen. The first way is sound, and only limited by the (necessarily) constrained range of colors provided in the Munsell chip set (Zuk & Decruyenaere, 1994). The second way is susceptible to error, in that it requires the investigator to make subjective matching judgments that can be of less than optimal reliability and validity (Endler, 1990; Bergman & Beehner, 2008). The third way is sound, but again makes use of a constrained range of colors and, importantly, requires use of a spectrophotometer to provide numerical values for the color chips.

³ As noted in Section 2, the most rigorous color manipulations control for the perceived typicality of the colors, as well as the nonfocal attributes of the colors. Perceived typicality differs from perceived prototypicality, in that for any given individual, there is a large range of colors that fit within the former, but there is just one cardinal color that represents the former. Thus, most colors may be matched rather straightforwardly on perceived typicality, but many colors cannot be matched on perceived prototypicality.

Another rigorous, and more flexible, approach is to select hues directly with a spectrophotometer. A spectrophotometer assesses color at the spectral level and yields objective numerical values for hue, lightness, and chroma for any color stimulus. In this approach, the parameters for a target hue are measured, and then other hues are selected that objectively match the lightness and chroma of the target hue. Some computer software programs, such as Photoshop, have a function that allows the user to insert numerical values to adjust the parameters of a color stimulus. However, this approach is not appropriate for selecting colors in color manipulations because the software program and the computer (and the monitor, printer, and any other device used in this process) are typically not designed to produce color the same way. As a result, the color parameters entered into a software program and the color parameters displayed on a computer screen or outputted by a printer are typically discordant, often substantially so. In short, reliance on software programs alone is not a viable option; a spectrophotometer must be used to assess color at the spectral level for this type of color matching to be conducted accurately.

Use of a spectrophotometer to select color stimuli allows one to equate hues on lightness and chroma in an objective fashion, but this approach does not take into consideration variability in color perception across individual observers. Two computer-based techniques that do so are heterochromatic flicker photometry (HFP; Ives, 1912) and the minimally distinct border (MDB; Boykin & Kaiser, 1968) method. These techniques are commonly used in psychophysical research on color in which extremely precise matching of color parameters is imperative. In a typical HFP procedure, a target hue is presented on a background of a different hue or an achromatic baseline such as white. The target hue is flashed quickly (e.g., 12Hz; Jordan, Sherman, & Tonkin, 2007) while the background hue remains constant. Participants are asked to adjust the brightness (similar to lightness) of the target hue until the appearance of a flicker ceases; this is the point at which two colors are considered equal in brightness. Chroma cannot be equated using this technique. The MDB technique is similar to HFP; only both non-hue color attributes may be equated. Two hues are presented adjacent to each other, and participants are asked to adjust the brightness (or chroma) of one of the hues until the border between them becomes indistinct. Although these two methods are well suited for psychophysical color research, they are not optimal for research on color and psychological functioning for the following reasons (see Feltman & Elliot, 2009; Pokorny, Smith, & Lutze, 1989; Wagner & Boynton, 1972): (1) they can only be used when presenting color on a computer screen, and they cannot be used for printed color stimuli; (2) chroma cannot be controlled in HFP and controlling lightness and chroma using the MBD method requires multiple

steps; (3) they draw explicit attention to color, making the subtle investigation of color effects impossible; and (4) they cannot be used with young children (or animals).

All considered, we think the direct use of a spectrophotometer is clearly the best approach for creating manipulations in research on color and psychological functioning. It is objective, accurate, replicable, flexible, adaptable to any mode of color presentation, and makes no demands on participants. Although it does not account for individual differences in color perception, this within-person variability (like any other individual difference) simply produces unsystematic variance that is randomly dispersed across experimental conditions. Thus, in the empirical work that we have conducted and that we present in the following, we made use of a spectrophotometer to directly equate colors on nonfocal color attributes (with a few footnoted exceptions). Specifically, we used a spectrally based procedure that matches chromatic hues on lightness and chroma, and matches chromatic and achromatic hues on lightness (chroma is not a relevant parameter for achromatic colors).



4. RED IN ACHIEVEMENT CONTEXTS

Our empirical work on color and psychological functioning to date has focused primarily on applying color-in-context theory to the color red in the achievement and affiliation domains. In this section, we overview our research on red in achievement contexts; in the next section, we overview our research on red in affiliation (particularly, heterosexual interaction) contexts; and in the following section, we overview our research on other contexts (as well as other colors and causal directions).

Achievement contexts are situations in which competence is evaluated, and both positive outcomes (i.e., success) and negative outcomes (i.e., failure) are possible (Elliot, 1999). The primary hypothesis that we focus on herein is that red impairs intellectual performance in such contexts (Elliot, Maier, Moller, Friedman, & Meinhardt, 2007). The rationale for this hypothesis is detailed in the following.

4.1. Conceptual rationale

We contend that in achievement situations, red carries the meaning of danger, specifically, the danger of failure. This association between red and the danger of failure is thought to emerge from multiple, nonindependent sources. One specific and direct source is the repeated pairing of red

and mistakes/errors on schoolwork that children in many cultures encounter. This specific red-failure association is bolstered and elaborated on by other, more general pairings of red and danger. Red conveys danger objectively in the form of fire, exposed blood, and an angry face, and red is used to signal danger in daily life via traffic lights, sirens, and warning signals. Even lexically, red carries a negative connotation as something to be avoided in phrases such as “in the red,” “red tape,” and “red handed.” These learned associations may themselves be bolstered by or even emerge from an evolutionarily engrained predisposition to interpret red as a danger signal in competitive contexts in which negative possibilities are salient. In a number of different vertebrate species, including nonhuman primates (e.g., gelada baboons, mandrills, rhesus macaques check), a bodily display of red is an indicator of the superiority, aggressiveness, or attack readiness of an opponent (Dunbar, 1984; Gerald, 2003; Pryke, Andersson, Lawes, & Piper, 2001; Setchell & Wickings, 2005). In like fashion, in humans, red on the face of an opponent may mean signal anger and aggressiveness (especially relative to pallor, which signals fear; Changizi et al., 2006; Drummond, 1997; Levenson, 2003) or may serve as a testosterone-based indicator of dominance (Archer, 2006; Hill & Barton, 2005; Mazur, 2005). Thus, though both specific and general associative processes that may themselves have derived from biologically based proclivities, red carries the meaning of failure in achievement contexts, serving as a warning signal that a dangerous possibility is at hand.

Research on nonhuman primates in competitive encounters indicates that red displays and other threat-relevant cues prompt avoidance-based behavior in conspecifics, as indicated by submission and appeasement gestures and actions (Gerald, Waite, & Little, 2009; Setchell & Wickings, 2005). In humans, encountering a negative object, event, or possibility, including the possibility of failure, is known to automatically evoke a motivational tendency to avoid that object, event, or possibility (Bargh & Chartrand, 1999; Cacioppo et al., 1999). In addition, research has demonstrated that avoidance motivation in achievement settings evokes anxiety, task distraction, and a number of self-protective processes (e.g., disidentification, self-handicapping; Birney, Burdick, & Teevan, 1969; Elliot & Church, 2003; Elliot & McGregor, 2001; Hembree, 1988; Osborne, 1995; Zuckerman, Kieffer, & Knee, 1998) that negatively influence performance on tasks requiring flexible mental manipulation (i.e., tasks commonly encountered at school and work). Accordingly, viewing red in an achievement context is posited to impair performance attainment because it evokes avoidance motivation which, in turn, is inimical for performance. The activation, operation, and influence of avoidance motivation in this hypothesized red effect are thought to take place outside of conscious awareness.

4.2. The influence of red on intellectual performance

Our research on red in achievement contexts commenced with a series of experiments designed to examine the influence of red on intellectual performance (Elliot et al., 2007, Experiments 1–4).⁴ In each of these experiments and, indeed, throughout the research we overview in this chapter, participation was limited to individuals who did not report an experiment-relevant color deficiency (e.g., red-green or blue-yellow). In addition, in all of the research that we have conducted, the experimenters were blind to participant condition and experimental hypotheses throughout the data collection process. Further, all experiments were designed to ensure that the experimenter did not see the color manipulation at any time during the experimental session. At the end of most experiments, participants were asked to guess the purpose of the experiment; in most instances, not a single participant provided a correct guess (and in all cases, the results were the same whether correct guessers were included or not).

In Experiment 1, U.S. undergraduates were assigned to a red, green, or black between-subjects condition. We selected green as the chromatic contrast to red because green, like red, is an additive primary color and is considered the opposite of red in several well-established color models (see Fairchild, 2005; Fehrman & Fehrman, 2004). In addition, green carries the approach-oriented meaning of “go” in contrast to the avoidance-oriented meaning of “stop” in traffic lights. The three achromatic colors are black, white, and gray, and in this initial experiment, we used black as the achromatic control color.

Participants were informed that the experiment involved solving moderately difficult anagrams and they completed a practice anagram test.

⁴ In these initial experiments, we had not yet developed our spectrally based procedure for creating color manipulations (see the prior section). Fortunately, the color manipulations used in these experiments were written or printed on paper, meaning we could return to them *post hoc* to determine the precise hue, lightness, and chroma information for each experiment using a spectrophotometer. These *post hoc* assessments were reassuring, especially with regard to the chromatic colors. In Experiment 1, the red and green hues were adequately (i.e., within five units maximum; M. D. Fairchild, personal communication, June 9, 2005; Stokes, Fairchild, & Berns, 1992) matched on chroma, but not lightness—red LCh(59.3, 43.8, 6.5), green LCh(70.4, 40.2, 162.3); black is achromatic and cannot be matched on chroma or lightness. The values for this experiment represent the median of 12 separate tests (see Elliot & Aarts, 2011, on the complications involved in acquiring spectral data from colored pencil or pen output). In Experiments 2 and 3 (the same chromatic manipulations were used in these two experiments, with white used as the achromatic control in Experiment 2 and gray in Experiment 3), the red and green hues were matched on lightness, but not chroma—red LCh(45.7, 55.3, 24.9), green LCh(40.9, 25.8, 154.8); white is achromatic and cannot be matched on chroma or lightness, and gray is also achromatic and did not match the other hues on lightness—gray LCh(75.3, –, 71.1). In Experiment 4, the red and green hues were matched on lightness and chroma—red LCh(44.0, 45.0, 24.3), green LCh(47.0, 48.3, 161.6); gray did not match the other hues on lightness—gray LCh(73.4, –, 274.40) (these same color manipulations were used in Elliot et al., 2007, Experiment 5). In short, we can be reasonably confident that the results for the chromatic colors red and green are reliable and interpretable for the Elliot et al. (2007) experiments, but the results for the achromatic color gray must be considered suspect. Further, although the color manipulations were carefully conserved in storage (e.g., kept shielded from direct light), they were tested several years after being created, and some shifting in hue, lightness, and/or chroma may have occurred during this time.

Following the practice test, participants were provided with an envelope containing the “real” anagram test (a different set of the same type of anagrams). Color was manipulated by putting a colored participant number on the test. Prior to the session, a research assistant wrote a participant number in the upper right hand corner of each page of the test in red, green, or black ink. Participants were told that their participant number was written on each page of the test and were asked to check to make sure that this was so. The colors in this and the other three experiments in this series were pilot tested to ensure that they were viewed as typical representations of the colors utilized. Participants then completed the test.

Analyses in this and the other three experiments in this series controlled for participants’ score on the practice test. The results indicated that participants with red on their anagram test performed worse than those with green or black on their test; participants in the green and black conditions did not differ in their performance (see Fig. 2.1).

In Experiment 2, we changed the achromatic control color to white, and changed the color manipulation to make it more brief, controlled, and separate from (i.e., prior to) task performance. We also changed the task to an IQ test, and included a variety of different self-report measures (perceived performance, approach and avoidance achievement goals, affect, and general arousal) at the end of the experiment. We expected null results on these self-report measures in line with our proposal that the red effect takes place outside of individuals’ conscious awareness. Finally, we conducted the experiment in a different country, Germany.

Participants were randomly assigned to a red, green, or white between-subjects condition. They were informed that the experiment involved taking an IQ test comprising analogy items. Participants were then handed

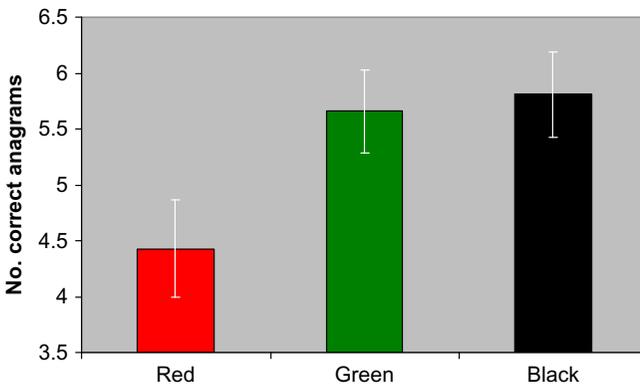


Figure 2.1 Mean number of correctly solved anagrams by color of participant number (means are adjusted for premanipulation performance). Confidence intervals (95%) are indicated by vertical lines (Elliot et al., 2007, Experiment 1).

a two-ring binder containing a practice analogies test, which they completed. Following the practice test, participants were given another two-ring binder containing the “real” analogies test (a parallel form of the IQ test). The first page of the two-ring binder for the real test was a cover page containing the word “Analogies.” Color was manipulated by placing “Analogies” on a red, green, or white rectangular background (see Fig. 2.2). Participants were told that the first page within the binder should contain the word “Analogies” and were asked to check to make sure this was so. After a 5-s exposure to the color manipulation, participants were instructed to turn the page and begin the test (we used a version of this procedure in many of our experiments and refer to it in the following as the “test cover” or “cover page” procedure). Participants completed the test and then answered the self-report questions.

The results from this experiment conceptually replicated those from Experiment 1. Participants who viewed red prior to the analogies test performed worse than those who viewed green or white; participants in the green and white conditions performed comparably. Null results were obtained for each of the self-report measures.

In Experiments 3 and 4, we utilized the same general procedure used in Experiment 2 but implemented several changes. Specifically, we changed the achromatic control color to gray, reduced the color exposure to 2s, used high school participants, conducted the experiment in a real-world achievement setting (students’ actual classrooms), and assessed the self-report variables after the manipulation but before the performance period. Experiments 3 and 4 also differed in the content of the self-report and IQ test items. The results from these experiments were the same as those from the prior experiments: Participants who viewed red prior to the test performed worse than those who viewed green or white (which did not differ from each other), null results were obtained for the self-report measures.

In follow-up work, [Maier, Elliot, and Lichtenfeld \(2008\)](#) conducted an experiment in Germany (Experiment 1) contrasting red and gray using the test cover procedure from [Elliot et al. \(2007, Experiments 2–4\)](#). The results

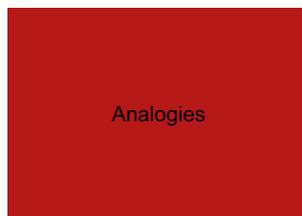


Figure 2.2 The test cover manipulation ([Elliot et al., 2007, Experiment 2](#)); the color of the rectangle was manipulated.

from this experiment were the same as those from Elliot et al. (2007) in that viewing red led to worse performance than viewing gray. Further, Elliot, Payen, Brisswalter, Cury, and Thayer (2011) conducted an experiment in France using the test cover procedure, but in this experiment, they compared red to blue as well as to gray. Participants in the red condition performed worse on the IQ test than those in the blue or gray conditions; those in the blue and gray conditions performed at a comparable level. In short, these subsequent findings of Maier et al. (2008) and Elliot et al. (2011) confirm the initial findings of Elliot et al. (2007) and extend them to an additional chromatic color and an additional country.

Recent neurophysiological research has demonstrated that processing color words activates the same brain regions that are activated when color is actually perceived (Moscoso del Prado Martín, Hauk, & Pulvermüller, 2006; Simmons et al., 2007). These findings raise the intriguing possibility that processing color words and viewing actual colors can influence psychological functioning in the same manner. In four experiments, we (Lichtenfeld, Maier, Elliot, & Pekrun, 2009) examined this possibility with regard to red and intellectual performance. In one illustrative experiment (Experiment 2), German high school students were assigned to a red or a gray between-subjects condition. Participants were informed that the experiment involved taking an IQ test comprised of analogy items. They were then given two sample items, the second of which contained the color manipulation. For this item, a word pair was provided, along with the first word of a second pair: Animal:Hound=Plant:_____; five response options were given. In the red condition, the response options were Branch, Red-Alder, Root, Tree, Organism, whereas in the gray condition, the response options were Branch, Gray-Alder, Root, Tree, Organism (solution: Red- or Gray-Alder). After completing the sample item, participants completed the test. The results revealed that participants in the red condition performed worse than those in the gray condition. The other three experiments in this series conceptually replicated this semantic red effect, using different variants of manipulation and outcome measure. Thus, whether visually perceived or lexically processed, red is deleterious for intellectual performance; this inimical influence of red appears to take place without participants' conscious awareness.

4.3. The influence of red on avoidance motivation in achievement settings

The red effect documented in the aforementioned experiments is believed to occur because red is associated with failure and evokes avoidance motivation in achievement situations. In two reaction time experiments, we (Moller, Elliot, & Maier, 2009) directly examined the hypothesized red-failure association. Experiment 1 used a 2 (Color: red vs. green) \times 2 (Valence: failure vs. success) repeated measures design. The session consisted of 80 trials divided

into 2 blocks; within block, each of five failure words (e.g., wrong, worst) and success words (e.g., correct, excellent) was presented four times (twice in each color) in random order on a black computer screen. The failure and success words were equal in length and were pilot tested on a separate sample to ensure that they fit their designated categories and were of equal familiarity and extremity. The task for the U.S. undergraduate participants was to press a key labeled to indicate whether the word was failure related or success related. For each trial, a fixation cross appeared for 500ms, and then a word appeared until a response was made. The analyses revealed a $\text{Color} \times \text{Valence}$ interaction, indicating that participants were faster categorizing failure words presented in red relative to green and were faster categorizing success words presented in green relative to red.

The absence of an achromatic control color in Experiment 1 made it impossible to determine whether red facilitates or green inhibits reactions to failure words, whether green facilitates or red inhibits reactions to success words, or some combination therein. As such, in Experiment 2, we added white and sought to anchor the red and green effects to this achromatic baseline. We also used different success and failure words to test the generalizability of the findings beyond the specific word sets used in Experiment 1. The analyses again revealed a $\text{Color} \times \text{Valence}$ interaction (see Fig. 2.3), and *post hoc* tests clarified the direction of the effects. Participants were faster categorizing failure words presented in red relative to green or white; latencies for failure words presented in green and white did not differ. Participants were also faster categorizing success words presented in green relative to red or white, and participants were slower categorizing success words in red relative to white.

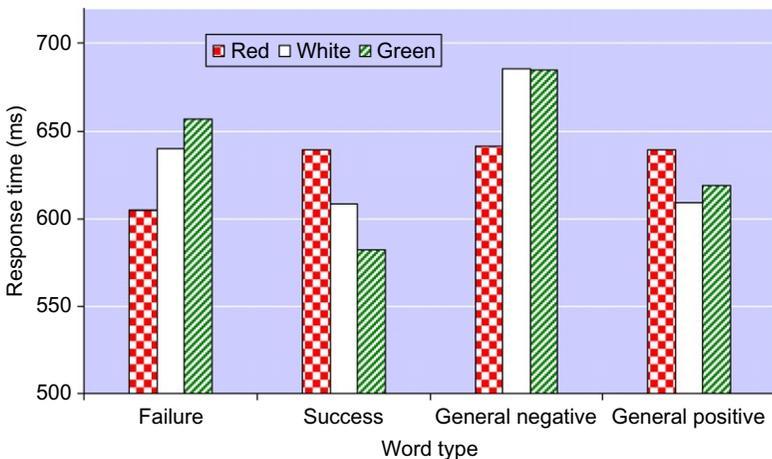


Figure 2.3 Mean response latencies for failure, success, general negative, and general positive words presented in red, white, and green (Moller et al., 2009, Experiment 2).

The findings from these experiments provide strong evidence for the hypothesized link between red and failure. Red is not only positively associated with failure but also negatively associated with success. Reciprocal relations such as these are usually the product of primitive evaluative processes that prepare immediate responses to hostile or hospitable stimuli (Cacioppo, Gardner, & Berntson, 1997). Accordingly, these findings support the idea that red serves a signal function in achievement contexts, warning the perceiver of potential danger that requires the mobilization of resources for action. The green findings in these experiments were limited to success; this and other considerations regarding green will be addressed in a forthcoming section.

In accord with our contention that the influence of red takes place outside of conscious awareness, the Elliot et al. (2007, 2011) experiments reviewed above showed that our color manipulations did not affect participants' self-reported avoidance motivation, or any other self-reported state or perception.⁵ In several other experiments, we focused on the link between red and a variety of different nonself-report (i.e., behavioral and psychophysiological) indicators of avoidance motivation.

In Elliot et al. (2007, Experiment 5), we examined the influence of red on task choice. Selecting easy rather than moderately difficult tasks is a classic indicator of avoidance motivation in the achievement motivation literature (Atkinson & Litwin, 1960; Ceranski, Teevan, & Kalle, 1979). In the experiment, German high school students were assigned to a red, green, or gray between-subjects condition. The test cover procedure was used to manipulate color, but then participants received the following instructions:

There are several different versions of the 10-item analogy test included in your binder, and you can choose which one you would like to do. The different versions contain different numbers of easy and moderately difficult analogies. Easy analogies are ones that you will have about a 90% chance of getting right, and moderately difficult analogies are ones that you will have about a 50% chance of getting right. Please indicate the number of easy analogies and the number of moderately difficult analogies that you would like on your test.

The number of easy analogies selected represented the task choice variable. The experiment was stopped after the task choice (participants did not actually complete the test). The results indicated that participants who viewed red prior to the ostensible test selected more easy items than

⁵ Interestingly, the one time that we found a significant influence of red on a self-report process measure was when red was manipulated lexically. In Lichtenfeld et al. (2009, Experiment 4), processing the word red versus processing the word green in an achievement setting led participants to report more worry during an IQ test. Reading color words may be a more active, conscious process than viewing color stimuli and may therefore allow individuals better access to activated mental or ongoing affective processes. Future research is needed to examine this and related possibilities.

those who viewed green or gray; the selections of participants who viewed green or gray did not differ (see Fig. 2.4).

In another set of experiments, we (Elliot, Maier, Binser, Friedman, & Pekrun, 2009) examined the affect of red on the physical enactment of avoidance behavior. Experiment 1 used a 2 (Color: red vs. green) \times 2 (Achievement Context: achievement context vs. nonachievement context) design with behavioral inhibition as the focal outcome. Several researchers have interpreted inhibited motor action when required to approach a potentially dangerous situation to be an indicator of avoidance motivation (Lewin, 1935; Geen, 1987; Gray & McNaughton, 1997), and here we focused on inhibited knocking behavior (see also Robinson, Wilkowski, & Meier, 2008). U.S. undergraduates were told that they would be doing one of two activities in another room, either taking a test (achievement context) or rating how much other students would like a test (nonachievement context). Color was manipulated with the test cover procedure. Participants were told that they would take (rate) an analogies test or a vocabulary test and were instructed to open the two-ring binder to see which type they would take (rate). All test covers contained the word “Analogies” on a colored (red or green) rectangle. Participants then walked to the other room and encountered a closed door with a “Please Knock” sign on it. The number of times participants knocked on the door was the dependent variable. The experiment was stopped after the initial set of knocks was recorded (participants did not actually take or rate the test). Analyses revealed the predicted Color \times Context interaction (see Fig. 2.5). Participants in the red condition knocked less than those in the green

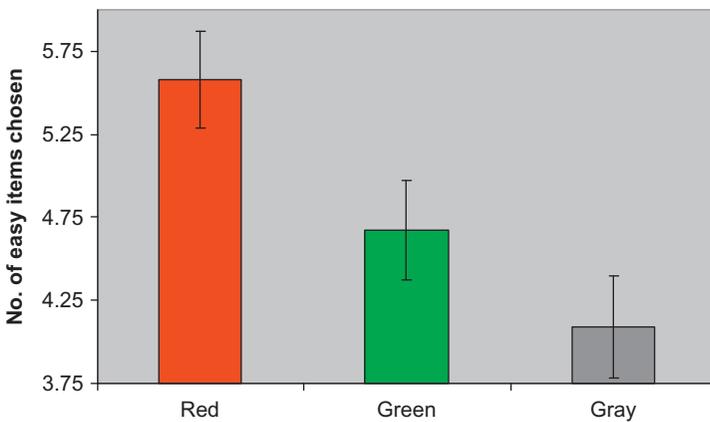


Figure 2.4 Mean number of easy items chosen by color on the cover of the test. Confidence intervals (95%) are indicated by vertical lines (Elliot et al., 2007, Experiment 5).

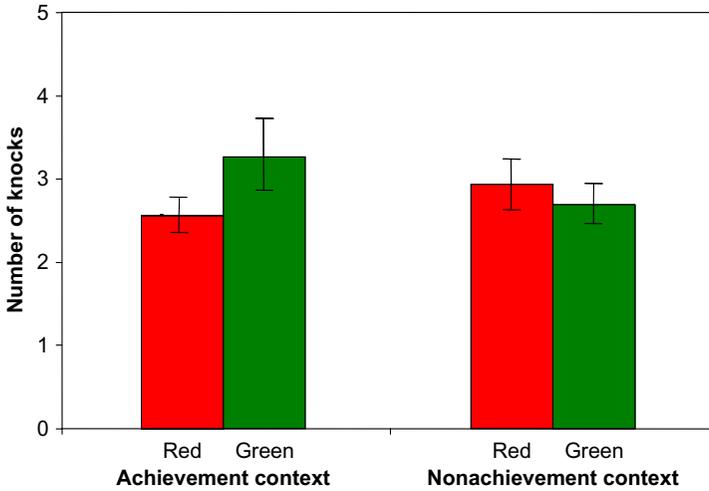


Figure 2.5 Mean number of knocks by color on the cover of the test and achievement context. Confidence intervals (95%) are indicated by vertical lines (Elliot et al., 2009, Experiment 1).

condition when they thought they would be taking a test, whereas color condition had no influence on participants' knocking when they thought they would be rating the likeability of a test.

Experiment 2 expanded the color manipulation to include gray, omitted the nonachievement context, and focused on behavioral withdrawal as the focal outcome. Physical movement away from an undesirable stimulus is a classic, face valid indicator of avoidance motivation (Lewin, 1935; Miller, 1944), and here we focused on backward postural movement (Hillman, Rosengren, & Smith, 2004). U.S. undergraduates were assigned to one of three between-subjects color conditions: red, green, or gray, and time (the 5s following the onset of the color manipulation) was a within-subjects factor. Participants were positioned on a stool in front of a computer screen and were told that they would be taking an IQ test that would be presented on the computer screen. An inclinometer sensor was placed on participants to assess their body movement during the session (see Fig. 2.6). The test cover manipulation was shown for 2s, and participants' backward movement was assessed for 5s. The experiment was stopped after 5s (participants did not actually take the test). In the analyses, body position 1s prior to onset of the manipulation was used as a covariate to establish a reference point, and the linear and higher order movement trends across the five postmanipulation seconds were examined. The results revealed only the predicted pattern of linear effects. As seen in Fig. 2.7, participants who viewed red

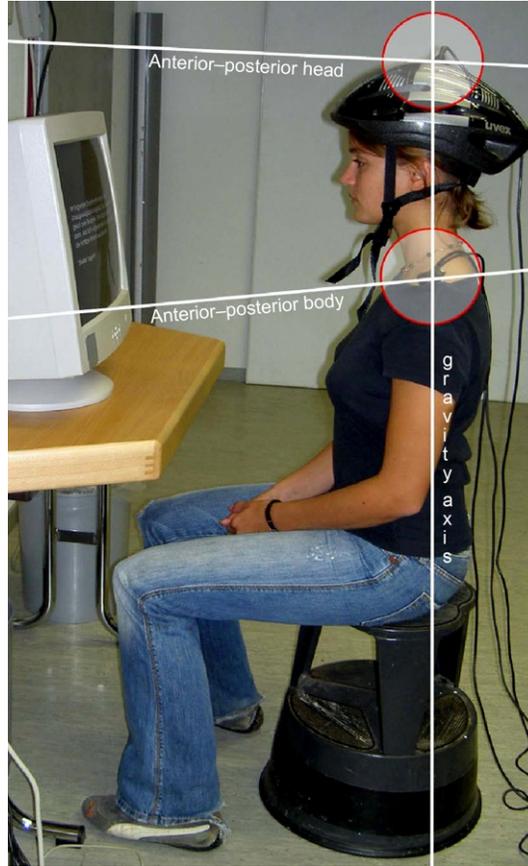


Figure 2.6 The movement apparatus used to assess upper body inclination (Elliot et al., 2009, Experiment 2).

prior to the ostensible IQ test evidenced greater backward movement than those who viewed green or gray; participants who viewed green and gray did not differ. Interestingly, color condition did not influence movement while color was being viewed, rather it was once the color was gone and the appearance of the test was imminently anticipated that participants in the red condition moved away from the computer screen. Thus, these experiments show that a brief glimpse of red prior to an achievement task evokes two distinct forms of avoidance behavior: inhibited motor action when the task must be approached and bodily movement away from the task when directional action is unconstrained.

We have examined the influence of red on psychophysiological, as well as behavioral, manifestations of avoidance motivation. Our initial foray into

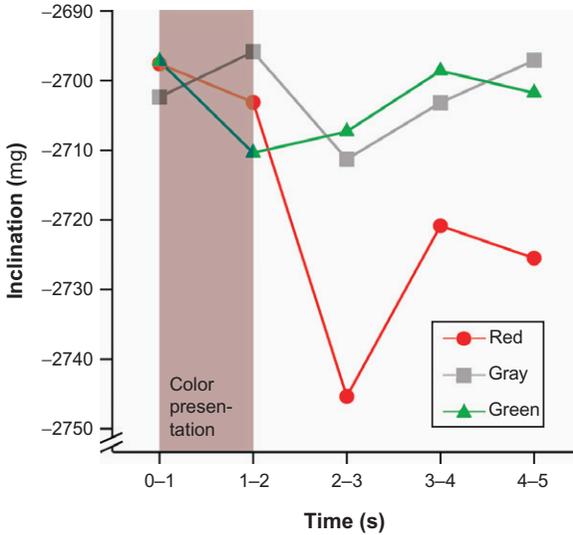


Figure 2.7 Mean inclination by color on the cover of the test. Negative “mg” values indicate angle alternation away from the test cover (Elliot et al., 2009, Experiment 2).

this type of investigation (Elliot et al., 2007; Experiment 6) focused on cortical activity, specifically, frontal cortical asymmetry as assessed via electroencephalography (EEG). Research has shown that the greater right, relative to left, frontal cortical activation is indicative of avoidance-based affective processes (Davidson, Schwartz, Saron, Bennett, & Coleman, 1979; Sutton & Davidson, 1997), and we used this as our marker of avoidance motivation in this experiment. German undergraduates were assigned to a red, green, or gray between-subjects condition. Participants sat in front of a computer screen and were told that they would be taking an IQ test that would be presented on the screen. EEG electrodes were placed on participants to assess their cortical activity, and 90s of premanipulation EEG data were obtained. The test cover manipulation was then shown for 2s, and 90s of postmanipulation EEG data were acquired as participants anticipated the start of the IQ test. The experiment was stopped after the 90s (participants did not actually take the test). In the analyses, cortical asymmetry in the frontal cortical region was the focal dependent variable, but asymmetries in the central, temporal, parietal, and occipital cortical regions were also tested; premanipulation asymmetries were controlled in all analyses. The results revealed that participants who viewed red prior to the ostensible test evidenced greater right, relative to left, frontal cortical activation than participants who viewed green or gray; those who viewed green and gray did not differ (see Fig. 2.8). The color manipulation did not affect EEG activity in any other region of the brain.

In another experiment, we (Elliot et al., 2011) sought to conceptually replicate the EEG experiment, this time focusing on cardiovascular activity, specifically, high-frequency (HF) heart rate variability (HRV) as assessed via electrocardiogram (ECG). Research has linked low levels of HF-HRV in an achievement setting to high levels of anxiety and worry (Friedman, 2007; Friedman & Thayer, 1998), and we used this as our marker of avoidance motivation in this experiment. French undergraduates were assigned to a red, blue, or gray between-subjects condition. The procedure was essentially identical to that used in Elliot et al. (2007, Experiment 6), except that 3-min pre- and postmanipulation assessments of ECG activity were obtained in place of 90-s pre- and postmanipulation assessments of EEG. In the analyses, HF-HRV was the dependent variable and premanipulation HF-HRV was controlled. The results indicated that participants who viewed red prior to the ostensible IQ test exhibited lower HF-HRV than those who viewed blue or gray; participants who viewed blue and gray exhibited comparable HF-HRV activity (see Fig. 2.9). The same results were obtained with other, comparable, indicators of HRV derived from the ECG data.

Thus, there is clear, converging evidence that red signals the danger of failure and evokes avoidance motivation in achievement settings. Supportive evidence has been found for cognitive processes, behavioral processes, and psychophysiological activity presumed to reflect basic affective processes. The influence of red appears to take place subtly, in implicit rather than explicit fashion (see Friedman & Förster, 2010).

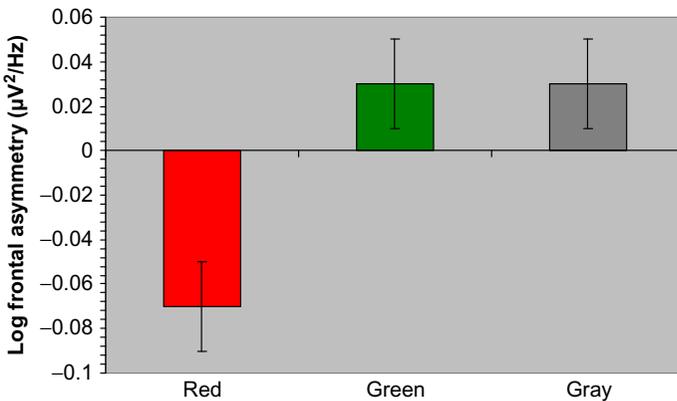


Figure 2.8 Mean log-transformed frontal asymmetry by color on the cover of the test (means are adjusted for premanipulation frontal asymmetry). Confidence intervals (95%) are indicated by vertical lines. Lower $\mu\text{V}^2/\text{Hz}$ values indicate greater relative right frontal activation (Elliot et al., 2007, Experiment 6).

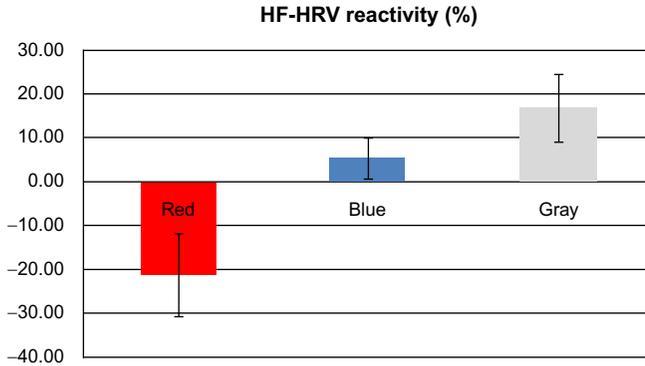


Figure 2.9 Mean high-frequency heart rate variability (HF-HRV) reactivity by color on the cover of the test. Values are expressed in percentage form. Error bars represent the standard error from the mean (Elliot et al., 2011).

4.4. Mediation of the influence of red on intellectual performance

In the research that we have overviewed to this point, red has been shown to have a direct effect on intellectual performance and has been shown to be linked to avoidance motivation. What we have yet to address is the issue of mediation: Does avoidance motivation *account for* the direct relation between red and intellectual performance? We attended to this mediational question in a series of experiments reported in Maier et al. (2008), using two different approaches to mediation: the experimental-causal-chain approach and the measurement-of-mediation approach (see MacKinnon, Fairchild, & Fritz, 2007; Spencer, Zanna, & Fong (2005).

In Experiments 2a and 2b of Maier et al. (2008), we examined mediation via the experimental-causal-chain approach, using local relative to global processing as the indicator of avoidance motivation. Research has shown that avoidance motivation constricts the scope of attention; when aversively motivated, people attend to more concrete, detailed aspects of the environment and a more narrow, constrained set of mental constructs (i.e., they focus on the “trees” as opposed to the “forest”; Derryberry & Reed, 1998; Förster et al., 2006; Mikulincer, Kedem, & Paz, 1990). We assessed local relative to global processing with a visual matching task presumed to reflect automatic perceptual and attentional processing (Andres & Fernandes, 2006; Poirel, Pineau, & Mellet, 2006).

We tested the first part of the proposed mediational chain in Experiment 2a. German high school students were assigned to a red or a gray between-subjects condition. The test cover procedure was used to manipulate color, but after viewing the color for 2s, participants were told that they were to complete a filler task and a few brief questions prior to taking

the IQ test. The “filler task” was a visual matching task (see [Kimchi & Palmer, 1982](#)) in which a target figure is presented along with two comparison figures, and the participant is to judge which comparison figure is most similar to the target figure. Each target figure is made up of several elements, and the similarity judgement may be based on either the local elements comprising the figure or the global figure itself. Participants with more constricted attentional focus due to avoidance motivation exhibit more local processing on this type of task ([Friedman & Förster, 2010](#); [Gasper, 2004](#)). After completing the visual matching task, participants completed self-report measures of state test anxiety and mood. The experiment was then stopped (participants did not actually take the test). The results indicated that participants who viewed red prior to the ostensible IQ test evidenced more local relative to global processing than those who viewed gray. No color differences were observed for the self-report measures.

We tested the second part of the proposed mediational chain in Experiment 2b. The experiment entailed manipulating local relative to global processing and examining its influence on intellectual performance. If, as anticipated, local processing undermined performance attainment, it would complete the chain and validate the hypothesized mediational model.

German high school students were assigned to a local or a global processing between-subjects condition. Participants were informed that they would take an IQ test, but that first they would do another simple task (which was the attentional focus manipulation). The task for the attentional focus manipulation mapped directly onto the visual matching task that was used as the dependent variable in Experiment 2a. In this task, a target figure and two comparison figures are presented, with one comparison figure corresponding to the local details of the target figure and the other corresponding to the global details of the target figure. In the local processing condition, participants were asked to select which of the candidate comparison figures corresponded to the local details of the target figure, whereas in the global processing condition participants were instructed to select which of the candidate comparison figures corresponded to the global details of the target figure. Thus, to continue the example, in the local processing condition, participants were guided to select the triangle comprising of squares, whereas in the global processing condition, they were guided to select the square comprising of triangles. Following the attentional focus manipulation, participants completed the IQ test. The results revealed that participants in the local processing condition performed worse than those in the global processing condition. Together, Experiments 2a and 2b satisfy the requirements for documenting mediation via the experimental-causal-chain approach.

Having documented mediation via the experimental-causal-chain approach, in Experiment 3 we tested mediation using the measurement-of-mediation approach. German high school students were assigned to a red

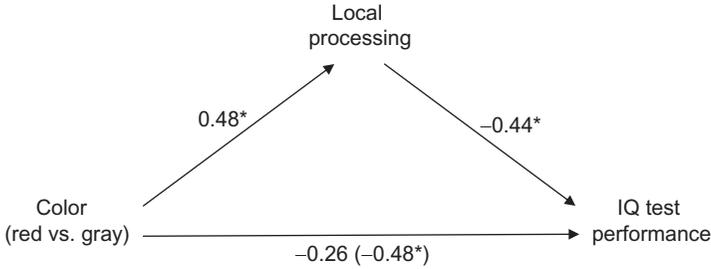


Figure 2.10 The effect of color on the cover of the test on IQ test performance mediated by local processing. The values in the figure represent standardized coefficients from regression analyses; the value in parentheses is from the analysis of the direct effect. * $p < 0.05$ (Maier et al., 2008, Experiment 3).

or a gray between-subjects condition. The procedure was the same as that used in Experiment 2a described above, except that after the color manipulation, participants did not complete the self-report measures and did complete the IQ test. The results indicated that participants who viewed red prior to the IQ test performed worse than those who viewed gray. In addition, participants who viewed red exhibited more local relative to global processing on the visual matching task than those who viewed gray. Finally, local relative to global processing was a negative predictor of performance attainment, and the direct effect of red on performance was significantly diminished when local processing was taken into account (see Fig. 2.10). These findings satisfy the requirements for documenting mediation via the measurement-of-mediation approach.

4.5. Other research on red in the achievement domain

Competence evaluation is at the centerpiece of achievement contexts (Elliot, 2005), and competence may be evaluated with regard to other attributes besides mental ability, such as physical ability. In other research on the color red in achievement contexts, we have examined whether red evokes avoidance motivational processes and influences performance on tests of physical ability. We briefly overview this work in the following.

In one experiment, we (Payen et al., 2011) investigated whether viewing red prior to a strength test undermines strength performance, much like viewing red prior to an intelligence test undermines intellectual performance. French undergraduates were assigned to a red, blue, or gray between-subjects condition. The procedure was essentially identical to that used in the research described above (e.g., Elliot et al., 2007), except the test cover contained the words “Strength Test” and participants engaged in an isometric voluntary contraction of the thigh that provided an assessment of the speed and force of

strength performance. The results indicated that participants produced the same peak force across color conditions, however, those who viewed red prior to the strength test produced their force more slowly than those who viewed blue or gray; participants who viewed blue and gray did not differ. Thus, red interfered with the efficiency or “explosiveness” of strength output, indicating a disruption in self-regulation.

In another experiment on physical force, we (Elliot & Aarts, 2011, Experiment 2) examined whether red has a different influence on strength output when it is viewed immediately prior to and during, as opposed to after, the performance period. Conceptual models of how both human and non-human animals respond to threat stimuli distinguish between fear-based and anxiety-based responding (Bouton, Mineka, & Barlow, 2001; Fanselow & Lester, 1988). A proximal threat cue prompts fear, a subcortically grounded “call to arms” that is known to facilitate efficient (rapid) and effective (forceful) motor action in support of immediate fight or flight reactions. A distal threat cue prompts anticipatory anxiety, a cortically grounded self-regulatory state of concern that is known to interfere with efficient and effective motor action (Coombes, Cauraugh, & Janelle, 2007; Fanselow, 1994). Red is a threat cue in achievement contexts, and in the test cover procedure used in Payen et al. (2011) and our research on intellectual performance, red is clearly used as a distal threat cue. As such, it should interfere with efficient and effective functioning, which is precisely what we have observed. In Elliot and Aarts (2011, Experiment 2), we used red as a proximal threat cue to see if it would have a facilitative effect on strength output.

Undergraduates in The Netherlands were assigned to a red, blue, or gray between-subjects condition. Participants were informed that the experiment focused on physical exertion and entailed squeezing a handgrip device as hard as they could when the word “squeeze” appeared on the computer screen. “Squeeze” was then presented on the screen on a red, blue, or gray background and stayed on the screen during the 3.5s performance period. The handgrip device allowed us to assess the speed and force of strength performance. The results indicated that participants viewing red produced more force and did so more rapidly than participants viewing blue or gray; no differences were observed in the blue and gray conditions. Thus, when presented as a proximal threat cue, red facilitated efficient and effective strength output, likely indicating an urgent mobilization of resources for self-protection.

To date, we have focused exclusively on individual performance settings, but in a recent set of scenario experiments, we (Feltman & Elliot, 2011) investigated the influence of red on perceptions of dominance and threat in an interpersonal competitive context—a Taekwondo match. In Experiment 2 (which corresponds most directly to the empirical work discussed thus far), we examined how viewing red on an opponent affects one’s perceptions of that opponent. U.S. undergraduates were assigned to a red or a blue

between-subjects condition. Participants were informed that they were to imagine competing in a Taekwondo match against a same sex opponent and were shown pictures of the match venue and equipment to facilitate engagement in the imagination exercise. This also allowed color to be manipulated, as in one condition the opponent's hogu (i.e., body protector) was presented in red and in the other condition it was presented in blue; in both conditions, the participant's hogu was presented in white. After the 5-s color manipulation, participants wrote down their thoughts and feelings about an imagined match for 5 min. Then, they completed measures of how dominant and threatening they perceived their opponent and themselves to be; relative dominance and threat scores were created. The results revealed that participants in the red condition perceived their opponent to be more dominant and more threatening than those in the blue condition.

In an additional experiment, we (Feltman & Elliot, 2011, Experiment 1) used the same procedure but placed the color manipulation on the participant's hogu to investigate the influence of *wearing* red rather than *viewing* red on dominance and threat perceptions. The results indicated that participants in the red condition perceived themselves to be more dominant and more threatening than those in the blue condition. Thus, red appears to have a bidirectional influence on person perception: it enhances perceptions of dominance and threat whether it is presented on another person or on oneself.

5. RED IN AFFILIATION CONTEXTS

The research that we overviewed in the prior section clearly shows that red carries a negative meaning (failure, danger, threat) and has several aversive implications for individuals in achievement contexts. However, we do not think that red always carries a negative meaning or has aversive implications in all contexts. On the contrary, we posit that red can carry a positive meaning and have appetitive implications in affiliation contexts, specifically those involving heterosexual interaction. The primary hypotheses that we focus on herein are that red facilitates males' attraction to females (Elliot & Niesta, 2008) and females' attraction to males (Elliot et al., 2010). The rationale for these hypotheses is detailed in the following.

5.1. Conceptual rationale

We contend that in realm of heterosexual interaction, red carries the meaning of sex and romance. Research on color associations indicates that people tend to link red to love and carnal passion (Clarke & Costall, 2008; Grieve, 1991), and this amorous meaning of red is posited to emerge from two basic, nonindependent sources. One source is conditioning based on

the societal use of red across the ages to symbolize eros, lust, fertility, passion, and sexuality in ritual, mythology, and folklore (Greenfield, 2005; Hutchings, 2004; Jobs, 1962; Knight, Powers, & Watts, 1995; Kohn, 1999). In both ancient and modern times, red carries particularly strong sexual connotations for women (e.g., lingerie; cosmetics; red-light districts; the fabled “red dress” in literature, stage, and film; Elliot & Niesta, 2008). Thus, there are general, culturally learned associations between red and romance for men and women alike, and these general associations appear to be reinforced in specific ways for women.

These learned associations to red may themselves be grounded in our biological heritage. It is at this more basic level that red clearly takes on differential meanings when displayed by females and males. In both instances, red functions as a sexual signal, but the specific message conveyed by red is different in each instance. Accordingly, we attend to females and males separately in describing red signal coloration; we start with females.

Females in many vertebrate species, including nonhuman primates (e.g., gelada baboons, chimpanzees), display red on their body (e.g., chest, genitalia) when nearing ovulation (Barelli, Heistermann, Boesch, & Reichard, 2007; Dixson, 1983; Dubuc et al., 2009; Gerald, 2003; Hrdy & Whitten, 1987; Setchell, Wickings, & Knapp, 2006). The precise function of this red coloration is debated (see Nunn, 1999; Setchell & Wickings, 2004; Stallman & Froehlich, 2000), but the weight of evidence suggests that at least one function is to signal sexual receptivity, that is, a readiness to mate (Stockley & Bro-Jørgensen, 2011; Wallner, Aspernig, Millesi, & Machatschke, 2011). Ovulation is not advertised in as conspicuous a manner in human females, but researchers have begun to document subtle markers of reproductive status. Women’s general skin tone lightens near ovulation (Van den Berghe & Frost, 1986), and they wear clothing that leaves more skin visible (Grammer, Renninger, & Fischer, 2005; Haselton, Mortezaie, Pillsworth, Bleske-Rechek, & Fredrick, 2007). Further, women report more sexual interest and are more easily sexually aroused at midcycle (Bullivant et al., 2004; Slob, Bax, Hop, Rowland, & van der Werff ten Bosch, 1996), meaning the red blush of flirtation (Eibl-Eiblsfeldt, 1989) and flush of sexual excitation (Katchadourian, 1984) are more prevalent. Thus, women, like other female primates, may display red more frequently and more prominently when most sexually receptive (Elliot & Niesta, 2008). In short, through general and specific learning processes (described earlier) that may themselves reinforce and extend deeply rooted biological tendencies, female red is a sexual signal conveying the message of sexual receptivity.

Research on nonhuman primates indicates that males are particularly attracted to female conspecifics displaying red and other receptivity cues, as evidenced by increased masturbation and mounting attempts (Bielert, Girolami, & Jowell, 1989; Waitt, Gerald, Little, & Krasielburd, 2006). Human males find receptive women particularly attractive and sexually

desirable. Experimental and correlational work shows that when women are in a receptive, relative to a nonreceptive state, men perceive them to be more attractive (Clark, 2008), are more sexually attracted to them (Schmitt & Buss, 1996; Schmitt, Couden, & Baker, 2001), and are more inclined to approach them (Hendrie, Mannion, & Godfrey, 2009). In sum, on the basis of these considerations, we posit that red is an aphrodisiac for men viewing women because men, like other male primates, interpret female red as a signal of sexual receptivity which, in turn, facilitates sexual attraction and approach behavior. As with the red effect in the achievement domain, we believe that all aspects of the hypothesized romantic red effect involving males viewing females take place outside of conscious awareness.

With regard to males, male red is an indicator of high status in many vertebrate species, including nonhuman primates (e.g., gelada baboons, mandrills; Bakker & Sevenster, 1983; Bergman, Ho, & Beehner, 2009; Dunbar, 1984; Healey et al., 2007; Pryke & Griffith, 2006; Setchell & Dixson, 2001). Higher status males display red most intensely and extensively (on their face, chest, rump, genitalia), especially during mating season and prior to and immediately following male–male competition for mates or territory (Andersson, 1994). There are striking parallels between human males and other male vertebrates, including primates, regarding status, testosterone, vascular processes, and red skin coloration. In both cases, status and testosterone are positively associated (particularly before and after competitive events; Archer, 2006; Mazur, 2005; Mehta, Jones, & Josephs, 2008; Muller & Wrangham, 2004; Setchell, Smith, Wickings, & Knapp, 2008), testosterone increases blood flow in visible areas of the skin (Blas, Perez-Rodriguez, Bortolotti, Vinuela, & Marchant, 2006; Edwards, Hamilton, Duntley, & Hubert, 1941; Rhodes et al., 1997; Vandenberg, 1965), and red coloration may indicate physiological fitness because highly oxygenated (i.e., redder) blood is a sign of health (Bardin, 1996; Beehner, Bergman, Cheney, Seyfarth, & Whitten, 2006; Changizi, 2009; Stephen, Coetzee, Law Smith, & Perrett, 2009) and testosterone-induced skin vascularization is costly to produce in terms of energy and immunocompetence (Folstad & Karter, 1992; Muehlenbein & Bribiescas, 2005; Toral, Figuerola, & Negro, 2008). The modal method of status acquisition is different for nonhuman and human primates, with the former entailing agonistic dominance contests and the latter entailing ambitious normative striving for economic rewards and social position (Barkow, 1975; Buss, 2008). Nevertheless, in both cases status striving represents competition for limited, valued resources, and males experiencing more competitive success and acquiring greater status may display red more frequently and more prominently (see Elliot et al., 2010 for additional discussion). In short, through general learning processes (described earlier) that may themselves reinforce and extend deeply rooted biological tendencies, male red is a sexual signal conveying the message of high status.

Research on nonhuman primates indicates that females prefer to mate with male conspecifics displaying red and other status cues, as evidenced by copulation solicitations and looking behavior (Boinski, 1987; Brauch et al., 2008; Keddy, 1986; Klinkova, Hodges, Fuhrmann, de Jong, & Heistermann, 2005; Waite et al., 2003). Human females find high status men highly attractive and sexually desirable. In research using experimental inductions of male status (Dewall & Maner, 2008; Sadalla, Kenrick, & Vershure, 1987; Townsend, 1998) and in analyses of personal advertisements (Greenlees & McGrew, 1994; Waynforth & Dunbar, 1995; Wiedermann, 1993), women show a preference for males high in status. Women across cultures report valuing status in dates and mates and construe social status as a necessity rather than a luxury in their romantic partners (Li, Bailey, Kenrick, & Linsenmeier, 2002). In sum, on the basis of these considerations, we posit that red is an aphrodisiac for women viewing men because women, like other female primates, interpret male red as a signal of high status which, in turn, facilitates sexual attraction and approach behavior. As with the red effect in the achievement domain and for males viewing females, we believe that all aspects of the hypothesized romantic red effect involving females viewing males take place outside of conscious awareness.

5.2. The influence of red on heterosexual attraction: Men viewing women

Our research on red in affiliation contexts commenced with a series of five experiments designed to examine the influence of red on men's attraction to women (Elliot & Niesta, 2008). In general, we showed participants a picture of one target woman per experiment (Experiment 3 excepted) and used a between-subjects design so that participants would not see repeated color presentations that could alert them to the purpose of the research. We also used several different target women across the series of experiments to ensure the generalizability of our results. In each of these experiments and the rest of the experiments that we overview in this section, participation was limited to heterosexual and bisexual individuals when examining sexual attraction or attraction-relevant behavior.

In Experiment 1, U.S. undergraduate men were assigned to a red or a white condition; we selected white as the initial control color because it was the most natural and unobtrusive of the achromatic colors in this paradigm. Participants were informed that the experiment focused on first impressions of others. They were instructed to open the manila folder in front of them and to look at the picture inside for 5s. The picture was a head and shoulders photo of a moderately attractive woman. The photo was printed on white paper and color was manipulated by varying the color of the area surrounding the photo: red was added to the photo background for the red condition and nothing was added for the white condition (see Fig. 2.11). The colors in



Figure 2.11 The picture used in the manipulation. The color of the border of the picture was manipulated. The face of the female target was intact in the experiment, but is blurred here to protect privacy (Elliot & Niesta, 2008, Experiment 1).

this and the other four experiments in this series were pilot tested to ensure that they were viewed as typical representations of the colors utilized. After viewing the picture, participants closed the folder and completed a questionnaire that contained a perceived attractiveness measure. The results indicated that men who viewed the target woman on a red relative to a white background perceived her to be more attractive.

In Experiment 2, we examined whether the effect observed in Experiment 1 is specific to men rating women or generalizes to women rating women. If, as posited, red is a sexual signal, the red effect should be observed for male perceivers only. U.S. undergraduate men and women were assigned to a red or a white condition; the procedure and materials were the same as those in Experiment 1. Analyses revealed the predicted Color \times Sex of participant interaction (see Fig. 2.12). Men who viewed the target woman on a red relative to a white background perceived her to be more

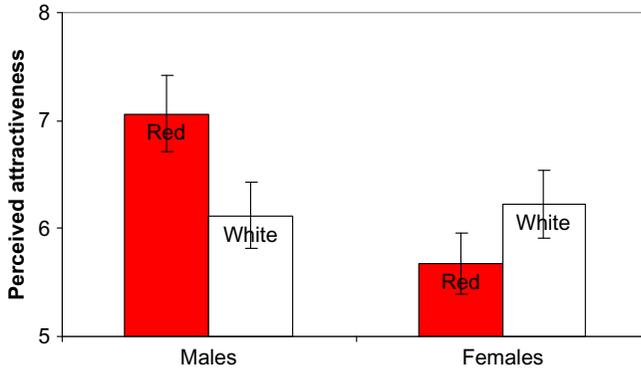


Figure 2.12 Mean perceived attractiveness by color on the border of the picture and sex of participant. Confidence intervals (95%) are indicated by vertical lines (Elliot & Niesta, 2008, Experiment 2).

attractive, whereas women’s ratings did not differ as a function of color. Further, in the red condition, men rated the target women as more attractive than women, whereas in the white condition, there was no sex difference in attractiveness ratings.

In Experiments 3–5, we shifted our focus back to male participants alone and, using the same basic procedure as Experiment 1, addressed several issues. First, we used different control colors (gray, green, blue) and presented color on the women’s shirt rather than the background of the photo (see Fig. 2.13). Second, we examined whether the red effect extends beyond attractiveness perceptions to sexual attraction and behavioral intentions (it should, based on our theorizing). Third, we examined whether the red effect extends to general likeability, kindness, and intelligence (it should not, based on our theorizing). The results supported our hypotheses in each instance, in that men in the red, relative to the control, condition perceived the target woman to be more attractive, sexually desirable, and date-worthy, but not more likable, kind, or intelligent.

In this initial series of experiments, we tested the influence of female red on men’s perceptions of and behavioral intentions with regard to women, but we did not examine actual appetitive behavior. In two subsequent experiments, we (Niesta Kayser, Elliot, & Feltman, 2010) sought to extend the red effect to men’s actual behavior toward the “lady in red.”

In Experiment 1, U.S. undergraduate men were assigned to a red or a green between-subjects condition. Participants were informed that the experiment entailed communicating with a woman by exchanging questions, much as one would do in an online conversation. The experimenter took the participant’s photo with a digital camera and left the room to ostensibly exchange the photo with that of the other, female, participant. Upon returning, the experimenter gave the participant a manila folder containing the



Figure 2.13 The picture used in the manipulation. The color of the shirt was manipulated. The face of the female target was intact in the experiment but is blurred here to protect privacy (Elliot & Niesta, 2008, Experiment 5).

other participant's photo, which was a head and shoulders shot of a moderately attractive woman wearing a red or a green shirt. Participants were instructed to open the folder and look at the photo for 5s. After viewing the picture, participants closed the folder and were given a different folder containing 24 questions printed on note cards. They were instructed to choose five questions that would then be given to the other participant. The questions varied in degree of attraction-relevant intimacy (low, e.g.,

“Where are you from?”; high, e.g., “How could a guy [I] get your attention at a bar?”); in heterosexual interactions, an early behavioral sign of attraction is asking more intimate questions of the other person (Reis & Shaver, 1988). The experimenter then left the room while the participant made his selections and, upon returning, told the participant that the experiment was now over and that the interaction would not actually take place. Finally, the participant reported his own attractiveness for use in moderator analyses. The results revealed that men who viewed their ostensible interaction partner wearing red relative to green chose to ask her more intimate questions. This effect did not vary as a function of self-perceived attractiveness.

Experiment 2 used a procedure similar to that used in Experiment 1, with the following changes: (1) blue replaced green as the control color; (2) participants’ mood and general arousal were assessed after the color manipulation (null results were anticipated), and self-perceived attractiveness was not examined; and (3) participants were taken to a conversation room to ostensibly meet the other participant, and the distance they sat from where she would reportedly sit was used as the behavioral measure of attraction (in heterosexual interactions, a clear behavioral sign of attraction is movement toward close physical proximity; Hatfield, 1984). The results revealed that men who viewed their ostensible conversation partner wearing red relative to blue sat closer to her. Null results were obtained for mood and general arousal.

5.3. The influence of red on heterosexual attraction: Women viewing men

Having documented the romantic red effect for men viewing women, we turned to the question of whether red also has amorous implications for women viewing men. In conducting a series of four experiments, we (Elliot et al., 2010, Experiments 1–4) used the same basic procedure used in Elliot and Niesta (2008) and also followed that work in the following ways: showing participants a picture of one target person per experiment, using between-subjects designs, using several different target persons across the series of experiments, and limiting participation to heterosexual and bisexual individuals when examining sexual attraction.

In Experiment 1, U.S. undergraduate women were assigned to a red or a white condition. Participants were informed that the experiment focused on first impressions of others. They were shown a head and shoulders photo of a moderately attractive man on a red or a white background for 5s, and then they completed a perceived attractiveness measure. The results indicated that women who viewed the target man on a red relative to a white background perceived him to be more attractive.

In Experiment 2, we examined the sex specificity of the observed effect. Undergraduate men and women in England were assigned to a red or a

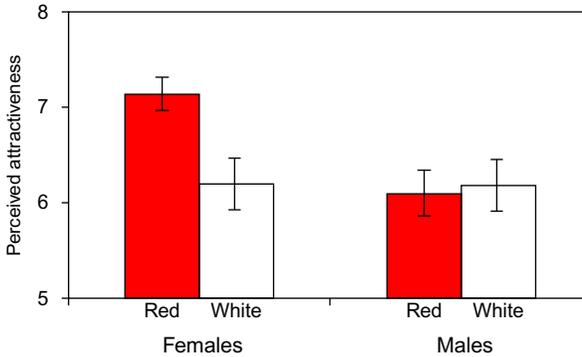


Figure 2.14 Mean perceived attractiveness by color on the border of the picture and sex of participant. Confidence intervals (95%) are indicated by vertical lines (Elliot et al., 2010, Experiment 2).

white condition; the procedure and materials were the same as those in Experiment 1. Analyses revealed the predicted Color×Sex of participant interaction (see Fig. 2.14). Women who viewed the target man on a red relative to a white background perceived him to be more attractive, whereas men’s ratings did not differ by color. Further, in the red condition, women rated the target man as more attractive than men, whereas in the white condition, there was no sex difference in attractiveness ratings.

In Experiments 3–4, we shifted our focus back to female participants alone and, using the same basic procedure as Experiment 1, addressed several issues. First, we used different control colors (gray and green) and presented color on the man’s shirt rather than the photo background. Second, we examined whether the red effect extends beyond attractiveness perceptions to sexual attraction (it should, based on our theorizing). Third, we examined whether the red effect extends beyond Western to Eastern (Chinese) participants (it should, based on our theorizing). Fourth, we examined whether the red effect extends to general likeability, agreeableness, and extraversion (it should not, based on our theorizing). The results supported our hypotheses in each case, in that women in the red, relative to the control, condition perceived the target man to be more attractive and sexually desirable, but not more likable, agreeable, or extraverted.

5.4. Mediation of the influence of red on perceived attractiveness and attraction

Having demonstrated that viewing red on a person of the opposite sex influences attractiveness perceptions and sexual attraction, we turned to the question of the mediational mechanisms responsible for the observed

effects. We began our empirical work on mediation by examining perceived status as the mechanism responsible for the romantic red effect in women viewing men and then proceeded to examine perceived receptivity as the mechanism responsible for the romantic red effect in men viewing women. As such, we will overview this work in this order. In each instance, we utilized both the experimental-causal-chain and measurement-of-mediation approaches to testing mediation, and we used the same basic approach used in [Elliot and Niesta \(2008\)](#) and [Elliot et al. \(2010, Experiments 1–4\)](#) regarding the color manipulations, rotation of target persons, type of design, and participation restrictions.

In Experiments 5a and 5b of [Elliot et al. \(2010\)](#), we examined mediation via the experimental-causal-chain approach, using females' perceptions of the target male's status as the focal mediator variable. We assessed status in two ways, by focusing on both present status and status potential. We also examined an alternative mediator candidate, stability, a positive characteristic that women value in men ([Sadalla et al., 1987](#); it should not mediate the red effect, based on our theorizing).

We tested the first part of the proposed mediational chain in Experiment 5a. German undergraduate women were shown a head and shoulders photo of a moderately attractive man wearing a red or a gray shirt and then asked to complete a questionnaire containing perceived status, a perceived status potential, and a perceived stability measures. The results indicated that women who viewed the target man wearing a red relative to a gray shirt perceived him to have higher status and higher status potential. Color did not influence perceived stability.

In Experiment 5b, we manipulated status and examined its influence on perceived attractiveness and sexual attraction. If, as expected, high status enhances perceived attractiveness and sexual attraction, it would complete the chain and validate the hypothesized mediational model. German undergraduate women were shown a black-and-white version of the target man from Experiment 5a, accompanied by a description of the man as high in status (he works as a medical doctor for an annual salary of 58,000 euros) or low in status (he works as a street cleaner for an annual salary of 12,000 euros). Following the status manipulation, participants reported their perceptions of the man's attractiveness and their sexual attraction to him. The results revealed that women in the high relative to the low status condition perceived him to be more attractive and were more sexually attracted to him. Together, Experiments 5a and 5b successfully document mediation via the experimental-causal-chain approach. In Experiments 6a and 6b, we replicated Experiments 5a and 5b with women in England using blue as the control color and a different status manipulation.

In Experiment 7, we tested mediation using the measurement-of-mediation approach. Undergraduate men in England were assigned to a red or a

blue condition; the procedure was the same as that used in Experiments 5a and 6a, except after the color manipulation and rating the target man's status, participants proceeded to report their perceptions of the man's attractiveness and their sexual attraction to him. The results indicated that women who viewed the target man wearing a red relative to a blue shirt perceived him to be more attractive and were more sexually attracted to him. In addition, women who saw the man in red perceived him to have higher status. Finally, perceived status was a positive predictor of perceived attractiveness, and the direct effect of red on perceived attractiveness was significantly diminished when perceived status was taken into account. Perceived status did not mediate sexual attraction directly but instead did so through perceptions of attractiveness. That is, the influence of color on sexual attraction was mediated by both perceived status and perceived attractiveness (see Fig. 2.15). These findings successfully document mediation via the measurement-of-mediation approach.

In a recent series of experiments, we (Pazda, Elliot, & Greitemeyer, *in press*, Experiments 1a, 1b, and 2) attended to the question of whether perceived sexual receptivity mediates the romantic red effect for men viewing women. In Experiments 1a and 1b, we examined mediation via the experimental-causal-chain approach, focusing on the first part of the mediational chain in Experiment 1a. U.S. undergraduate men were shown a head and shoulders photo of a moderately attractive woman wearing a red or a white shirt and then asked to complete a perceived sexual receptivity measure. The results indicated that men who viewed the target woman wearing a red relative to a white shirt perceived her to be more receptive. In testing the second part of the mediational chain in Experiment 1b, we manipulated sexual receptivity and examined its influence on perceived

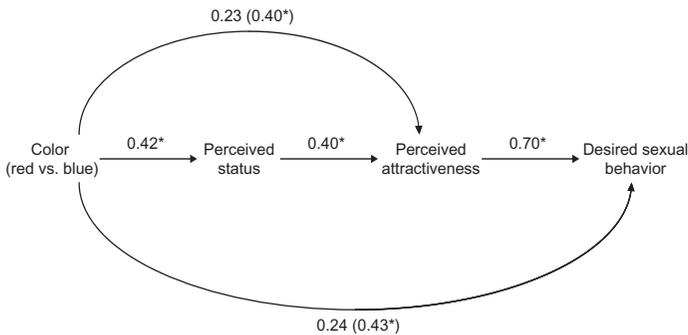


Figure 2.15 The effect of color on the shirt of the target male on perceived attractiveness and desired sexual behavior mediated by perceived status. The values in the figure represent standardized coefficients from regression analyses; the values in parentheses are from analyses of direct effects. * $p < 0.05$ (Elliot et al., 2010, Experiment 7).

attractiveness. U.S. undergraduate men were shown a black-and-white version of the target woman from Experiment 1a, along with a scenario describing the woman as high (low) in sexual receptivity:

Imagine the women in the picture are at a bar for the evening. She is acting flirtatiously (reserved), and her body language is sexy (stern) and seductive (rigid), seeming to indicate that she is (is not) interested in the possibility of having sex tonight.

Following the receptivity manipulation, participants reported their perceptions of the woman's attractiveness. The results revealed that men in the high relative to the low receptivity condition perceived the women to be more attractive. Together, Experiments 1a and 1b successfully document mediation via the experimental-causal-chain approach.

In Experiment 2, we tested mediation using the measurement-of-mediation approach. Austrian undergraduate men were assigned to a red or a green condition; the procedure was the same as that used in Experiment 1a, except after the color manipulation and rating the woman's receptivity, participants proceeded to report their perceptions of the woman's attractiveness and their sexual attraction to her. The results indicated that men who viewed the target woman wearing a red relative to a green shirt perceived her to be more attractive and were more sexually attracted to her. In addition, men who saw the woman in red perceived her to be more receptive. Finally, perceived receptivity was a positive predictor of perceived attractiveness, and the direct effect of red on perceived attractiveness was significantly diminished when perceived receptivity was taken into account. Likewise, perceived receptivity was a positive predictor of sexual attraction, and the direct effect of red on sexual attraction was significantly diminished when perceived receptivity was taken into account (see [Figure 2.16](#)). These findings successfully document mediation via the measurement-of-mediation approach.

5.5. Other research on red in the affiliation domain

Our research indicates that men interpret red on women's clothing as a signal of sexual receptivity and respond accordingly. However, research had demonstrated that men show a hyperreadiness to impute sexual intent to women's behavior ([Abbey, 1987](#); [Haselton, 2003](#)), and an important question is whether women actually use red as a sexual signal to attract men. We ([Elliot & Pazda, 2011](#)) conducted three studies to investigate this question.

In Study 1, we examined whether women on the World Wide Web anticipate that they would display red more when interested in casual sex. Participants were informed that they would read a scenario about joining a dating Web site, followed by completion of a questionnaire.

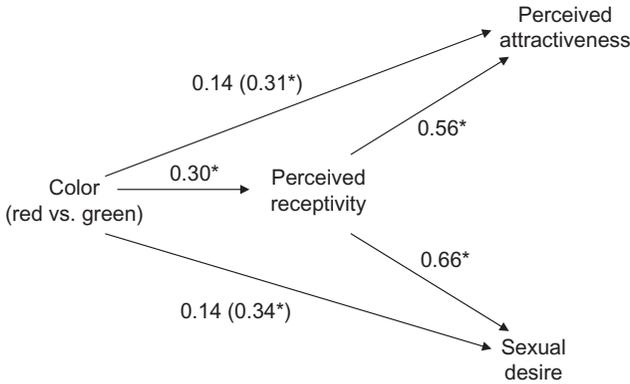


Figure 2.16 The effect of color on the shirt of the target female on perceived attractiveness and sexual desire mediated by perceived receptivity. The values in the figure represent standardized coefficients from regression analyses; the values in parentheses are from analyses of direct effects. * $p < 0.05$ (Pazda et al., 2011, Experiment 2).

They were assigned to an “interested in casual sex” or control condition in a between-subjects design. The scenarios were as follows (the casual sex condition included the parenthetical information; the control condition did not):

Imagine that you (are interested in casual sex with a guy. You) decide to join a dating Web site because you have heard that it is a good way to find a guy (for this type of relationship). The Web site allows you to post one picture, and you decide to take a picture of yourself using your cell phone.

After reading the scenario, participants were asked questions regarding how they would pose for the picture. The critical question was “In the picture, what color shirt would you wear?” with four response options: red, black, blue, and green. The other items were focused on how participants would wear their hair and whether they would wear a necklace. The results indicated that participants in the casual sex condition were more likely to select red for their picture than those in the control condition. There were no differences for any other color or any other question.

Studies 2 and 3 tested whether the anticipatory, self-report data would be borne out on actual dating Web sites. In Study 2, we randomly selected female profiles from a popular dating Web site, <http://Okcupid.com>. Profile owners indicate one or more types of relationship that they are interested in, one of which is “casual sex.” We selected 500 profiles in which “casual sex” was chosen and 500 profiles in which it was not. The most prominent clothing color on each profile picture was coded for whether it was red, black, blue, green, or “other.” The results revealed that those indicating an interest in casual sex were more likely to wear

red than those not indicating an interest in casual sex. There were no differences for any other color.

In Study 3, we sought to replicate Study 2 using type of Web site as the predictor variable. <http://Fling.com> is a Web site overtly dedicated to facilitating sexual relationships, whereas <http://Match.com> is a Web site overtly dedicated to facilitating long-term relationships (i.e., marriage). We selected 500 female profiles from <http://Fling.com> and 500 female profiles from <http://Match.com> and coded the same colors as in Study 2. The results indicated that those on <http://Fling.com> were more likely to wear red than those on <http://Match.com>. There were no differences for any other color.



6. OTHER COLORS, OTHER CONTEXTS, AND OTHER CAUSAL DIRECTIONS

Red is a special color. A term for red is present in all (or nearly all) languages that have been studied across the globe (Kuehni, 2007), and red is the first chromatic term to emerge in all (or nearly all) of these languages (Kay & Maffi, 1999). Red is thought to be the first chromatic color to be used in symbolic fashion (Knight et al., 1995; Watts, 2010) and in the arts (Henshilwood, d'Errico, & Watts, 2009; Taçon, 2008). Red is inherently linked to life in the realm of nature; this is the case with regard to eating (e.g., detecting ripe fruit or edible leaves on a green background), evaluating (e.g., determining whether a reptile or insect is poisonous), and emoting (e.g., discerning if a romantic other is sexually aroused or if an opponent is angry). Indeed, many theorists believe that the functional benefits of seeing red are a core reason that trichromatic vision evolved in vertebrates in general and primates in particular (Changizi, 2009; Gegenfurtner & Kiper, 2003; Jacobs, 2009; Leonhardt, Tung, Camden, Leal, & Drea, 2009; Mollon, 1989). This link between red, visible blood flow, and emotional state is important for contemporary humans because it allows red to function as a dynamic, quickly changing readout of basic, adaptation-relevant affective processes (and accompanying behavioral tendencies). For all of these reasons, it seems sensible to start with red when commencing a research program on color and psychological functioning in humans.

Further, achievement and affiliation are arguably the two most central domains of daily life. Nearly all life events have implications for our sense of competence or the quality of our relational bonds (Elliot & Reis, 2003; McClelland, 1985). As such, it seems sensible to begin investigating red in these two critical contexts. Finally, when considering possible links between color and psychological functioning, the most intuitive and salient idea is that perceiving color can influence psychological functioning. The

possibility that psychological states may themselves influence color perception is somewhat counterintuitive and, accordingly, less salient. Thus, it seems sensible to begin investigating the color red in achievement and affiliation contexts from the standpoint that color perception influences psychological functioning. Nevertheless, in addition to conducting research with this one color in these two contexts from this one perspective, it is important to also attend to other colors, other contexts, and other causal directions. We have begun to do so and provide a sampling of this work in the following.

With regard to other colors, we (Lichtenfeld, Elliot, Maier, & Pekrun, 2011) have recently conducted three experiments testing the influence of green on creative performance. We posited that green tends to carry the meaning of growth. The etymological root of green is “grow” in many languages (Hutchings, 2004; Wierzbicka, 1990), and green has been used to symbolize positive, growth-related concepts (fertility, life, hope) in ritual, art, literature, and folklore throughout the ages (Gage, 1999; Jobes, 1962; Versluis, 2004). Green is used to signal “go” in traffic lights (and to indicate safety in signage more generally; Derefeldt, Swartling, Berggrund, & Bodrogi, 2004) and carries nature-based and appetitive connotations in contemporary phraseology (e.g., “green thumb,” “greener pastures,” “getting the green light”). The sparse empirical work that has been conducted on green associations hints at a link between green and growth, development, and success (Elliot, Feltman, & Maier, 2011; Grieve, 1991; Moller et al., 2009). These associations may be entirely rooted in societal learning but may also be grounded, in part, in our biological heritage. For our early ancestors living on the Savanna, a distant patch of green would signal fresh vegetation and, implicitly, a source of water. Those who are oriented to and engaged in appetitive behavior toward green would have had greater access to sustenance necessary for survival and would thus have been more likely to procreate (for related arguments, see Hartmann & Apaolaza-Ibáñez, 2010; Orians & Heerwagen, 1992; Ulrich, 1993). Accordingly, selection processes may have set in place a predisposition to perceive green as an appetitive signal of growth. If green carries the meaning of growth and related positive content, it could function as an appetitive cue signaling an open, safe environment, which is precisely the type of context that facilitates the divergent, inclusive cognitive processing known to enhance creativity (Friedman & Förster, 2010; Nijstad, De Dreu, Rietzschel, & Baas, 2010). As such, we posit that a brief glimpse of green in a creativity context facilitates creative performance and does so subtly, without the intention or awareness of the perceiver.

In Experiment 1, German undergraduates were assigned to a green or a gray between-subjects condition. Participants were provided with a description and illustration of a creativity task; in order to minimize threat and evaluative pressure, a relaxing, informal atmosphere was established

with no mention of testing, performance, or creativity. Next, the cover page procedure was used for the color manipulation, with “Ideas” printed in the center of the colored rectangle. Participants then completed the creativity task. The results indicated that participants in the green condition exhibited more creativity than those in the gray condition. Color did not influence the quantity of responses, just the quality of the responses. Two subsequent experiments (Experiments 2 and 3) conceptually replicated the results of Experiment 1 using chromatic control colors and a different creativity task. These findings clearly show that green, like red, can have an important influence on psychological functioning. We are also exploring (or preparing to explore) hypotheses regarding other colors (and color attributes); two examples are as follows: Yellow means caution and leads to greater vigilance in achievement contexts, and chroma is positively associated with extremity of evaluation in person and object perception.

With regard to contexts other than domain (i.e., achievement and affiliation), we (Maier, Barchfeld, Elliot, & Pekrun, 2009, Experiments 2 and 3) conducted two experiments examining the influence of motivational valence on color preference in infants. Motivational valence represents the degree to which positive, appetitive motivation has been activated, creating a hospitable context, or the degree to which negative, aversive motivation has been activated, creating a hostile context (Cacioppo et al., 1999; Lang, 1995; Schneirla, 1959). Research shows that individuals placed in a hospitable context (e.g., primed with a happy face) evaluate objects more positively, whereas those placed in a hostile context (e.g., primed with an angry face) evaluate objects more negatively (Murphy & Zajonc, 1993). In the empirical work that we have overviewed thus far, we have shown that red can take on a negative meaning or a positive meaning depending on whether it is viewed in an achievement context or an affiliation context, respectively. Here, we posit that motivational valence, independent of content per se, can likewise moderate the meaning of red, with a hospitable context leading to a positive evaluation of (and preference for) red and a hostile context leading to a negative evaluation of (and aversion to) red.

In Experiment 2, German infants were assigned to a hospitable or hostile context in a between-subjects design. Participants were shown a black-and-white picture of a happy face (hospitable condition) or an angry face (hostile condition) immediately prior to a spontaneous selection color preference assessment. For the assessment, a cloth was removed from a table in front of the infant that contained two novel, graspable objects. One of the objects was red and the other was green, and the focal outcome was which of the two colors the participant grasped first. The results indicated that participants in the hospitable context had a clear preference for the red object, whereas those in the hostile context had a clear preference for the green object. Experiment 3 repeated Experiment 2 but added an additional colored object so that infants had an option of grasping a red, green,

or gray object. The results revealed that participants in the hospitable condition had a clear preference for the red object, whereas those in the hostile context did not prefer red but instead showed no discernable preference across colors. These findings show that motivational valence moderates preference for red, and the fact that these results were obtained with young infants hints at the provocative possibility that this context-specific variation in preference may be inherent. Additional research with younger infants is needed, however, to shed further light on this issue. Additional empirical work is also needed to examine other types of color-context moderation.

With regard to other causal directions, the empirical work that we have overviewed thus far has primarily focused on the influence of perceiving color on subsequent affective, cognitive, and behavioral outcomes (the Maier et al., 2009, work being a possible exception). Color-in-context theory contends that the reciprocal relation is also true—that affective, cognitive, and behavioral states can influence color perception. We (Fetterman, Robinson, Gordon, & Elliot, 2011) have conducted two experiments testing the influence of anger on perception of the color red. Guided by the popular metaphorical link between anger and “seeing red” (Lakoff & Johnson, 1999), we examined whether activating anger concepts and evoking anger lead individuals to be more likely to perceive red in an ambiguous color stimulus. Anger and red are presumed to have deep associations, given that anger produces a testosterone-based increase in blood flow on the face and neck (Changizi et al., 2006; Drummond, 1997), and effective and efficient perception of anger in others is an important, well-being relevant skill (Changizi, 2009; Darwin, 1874). As such, we posited that manipulating anger concepts or states would facilitate perceiving red, perhaps even when red is not even present.

In Experiment 1, U.S. undergraduates were told that they would do two alternating tasks, a word categorization task and a color categorization task. On odd-numbered trials, participants categorized words as anger-related (e.g., irate) or sadness-related (e.g., gloomy). On even-numbered trials, they indicated whether an ambiguous stimulus was red or blue; the stimuli were objectively red or blue but were degraded to the point of perceptual ambiguity. The data were analyzed in a 2 (Actual Color: red vs. blue) \times 2 (Word Prime: anger vs. sadness) within-subjects design. The most important result was a main effect of word prime, indicating that participants were more likely to perceive a color stimulus as red when it followed an anger prime. A null Actual Color \times Word Prime interaction suggested that the effect of the prime was independent of the actual color stimulus, meaning anger led participants to see red regardless of the objective color presented. Experiment 2 conceptually replicated the results of Experiment 1 using white noise blasts (vs. no noise) as the anger manipulation. Thus, consistent with the New Look and related models of

perception, these findings show that psychological states can influence basic processes of color perception. These findings also highlight the need for research on both directions of causality in the color–psychological functioning relation.

7. IMPLICATIONS AND CONCLUDING COMMENTS

In the preceding sections, we have overviewed an emerging body of research that illustrates and highlights the importance of attending to color as a psychologically relevant stimulus. Color clearly has functional, as well as aesthetic, value, and this has broad implications. Three classes of implications may be identified—conceptual, empirical, and practical—and we briefly consider each in turn.

Conceptually, color represents a nonlexical visual stimulus that can convey important information. As a nonlexical stimulus, color can communicate the same message across sex, age, culture, and even species. Thus, red in achievement (i.e., competence-relevant) contexts is presumed to convey the meaning of danger for men and women, infants and the elderly, Afghans and Zimbabweans, and organisms across many different vertebrate species. It is important to bear in mind, however, that in some contexts, the same color can communicate different messages across sex, even for those of the same age, culture, and species. Thus, in heterosexual interactions, red conveys the meaning of sexual receptivity for men viewing women but conveys the meaning of status for women viewing men. Further, heterogeneity in color meaning across some of these categories (especially culture) is likely the rule rather than the exception for some colors, and some colors likely have little, if any, functional role. In short, like words in any language, color conveys meaning in a complex and context-sensitive manner.

Communication via color is subtle. Color may be signaled quickly and in dynamic fashion, and color may be presented in diverse ways on a diversity of objects. Color processing is rudimentary and evokes basic approach–avoidance processes without intention or awareness. The downstream influence of color on affect, cognition, and behavior also usually goes undetected. Some color meanings are no doubt trivial, but some, such as those documented for red herein, are of the utmost importance (perhaps even fitness relevant). The importance of the signals conveyed by at least some color stimuli, coupled with the ubiquity with which color stimuli are perceived, makes the dearth of theoretical and empirical research in this area particularly surprising.

Empirically, the ease and subtlety with which color can evoke approach–avoidance processes and influence affect, cognition, and behavior raise important questions regarding how color is used in empirical research

on other topics (see Elliot & Maier, 2008). For example, red and green are often used as cues signaling loss/failure/bad and gain/success/good, respectively (e.g., Bigler, 1995; Dijksterhuis & Smith, 2002; Förster, Higgins, & Idson, 1998; Guarnaschelli, McKelvey, & Palfrey, 2000; Mostofsky et al., 2003; Rothermund, Wentura, & Bak, 2001; Swainson et al., 2003; Trommershauser, Maloney, & Landy, 2003; Vanbeselaere, 1996). Given the implicit associations documented for red failure and green success (Moller et al., 2009), this use of red and green unwittingly confounds the effect of color with the effect of the focal manipulation. This problem is endemic to the popular Stroop and Stroop-like paradigms in which color is a core, presumably content-free, component of the experimental procedure. Grant and Beck (2006), for example, used an emotional Stroop paradigm to investigate how the comorbidity of depression and anxiety influences attentional bias. Failure-relevant words like defeated were presented in a variety of colors, one of which was red. Again, given that red is implicitly associated with failure and facilitates responses to failure-relevant words (Moller et al., 2009), the use of red in this experiment likely influenced participants' data in a systematic way, unbeknownst to the investigators. In addition, in both of the aforementioned examples, it is undoubtedly the case that color not only varied by hue but also by lightness and chroma, thereby adding additional extraneous variance to the data. In short, given that color carries meaning, it must be used with great care in experimental research; failure to attend to this issue threatens the integrity of any data collected and raises concerns about conclusions derived therein.

Practically, the fact that color carries meaning has implications for our societal and personal use of color in daily life. If, as we suspect, at least some color-meaning associations have deep biological roots, we would do well in our use of color to exploit these associations. This is precisely what we think is occurring in the use of red, yellow, and green to signal stop, caution, and go (respectively) in traffic lights; the use of a red carpet to signal the impending arrival of celebrities or dignitaries; and the use of red lipstick, rouge, and nail polish in female beautification. In each case, we view these uses of color as emerging from, bolstering, and extending inherent, likely evolutionarily engrained, color associations. Other, more specific suggestions for application may be derived from our research on red in achievement and affiliation contexts. In achievement settings, the documented link between red and the danger of failure (and accompanying avoidance-based processes; Elliot et al., 2007, 2009) naturally leads to recommendations such as the following: that teachers mark mistakes in colors other than red; that red jerseys, equipment, and arm bands be reconsidered in competitive sports; and that red be used judiciously in sales presentations and office design. Current practices such as the use of red (and other colors) on IQ tests (e.g., Raven's Colored Progressive Matrices) must surely be called into question. Given that red takes on the meaning of threat and dominance

in physical contests (Feltman & Elliot, 2011; Hill & Barton, 2005), when personal choice is afforded in such situations, wearing red (à la Tiger Woods' "Sunday red") may be wise, as it may influence both self-perception (positively) and other-perception (negatively).

In the context of heterosexual interaction, our demonstration that red is an aphrodisiac for men viewing women (because it communicates sexual receptivity; Elliot & Niesta, 2008; Pazda et al., 2011) and women viewing men (because it communicates high status; Elliot et al., 2010) naturally leads to the recommendation that women and men alike wear red attire when going on a date with a desirable other or when taking a picture to post on a dating Web site. On the other hand, protective parents may want to extricate any and all red clothing (and accessories) from their adolescent children's wardrobe (an application of particular interest to the fathers-of-young-daughters writing this piece). More generally, our findings may be of considerable use to fashion consultants and product designers, as well as marketers, advertisers, and retailers. On a cautionary note, males in general, not just targeted males, are likely to interpret red on a woman as a sexual signal and to respond accordingly (Niesta Kayser et al., 2010; Pazda et al., 2011); thus, women would do well to use red sparingly and strategically in the mating game and beyond.

In closing, initial research in the area of color and psychological functioning bore little fruit and gained minimal traction, as it lacked theoretical guidance and methodological rigor. In this chapter, we have introduced a theoretical framework—color-in-context theory—and described carefully controlled empirical work that we hope sparks interest in and demonstrates the value of this overlooked area of inquiry. We view the experiments overviewed herein to be the tip of a very large iceberg, as we suspect that color effects in daily life are as pervasive as they are provocative. The scientific study of color and psychological functioning is no easy enterprise, as it requires careful assessment and calibration of color attributes, and necessitates mastering broad and diverse literatures in multiple disciplines well beyond psychology (e.g., anthropology, evolutionary biology, linguistics, sociology). The payoff is considerable, however, in that the knowledge gleaned enhances our understanding of basic and important aspects of affect, cognition, and behavior.

REFERENCES

- Abbey, A. (1987). Misperceptions of friendly behavior as sexual interest: A survey of naturally occurring instances. *Psychology of Women Quarterly*, 11, 173–194.
- Adams, R. J. (1987). An evaluation of color preferences in early infancy. *Infant Behavior & Development*, 10, 143–150.
- Ainsworth, R. A., Simpson, L., & Cassell, D. (1993). Effects of three colors in an office interior on mood and performance. *Perceptual and Motor Skills*, 76, 235–241.

- Andersson, M. (1994). *Sexual selection*. Princeton, NJ: Princeton University Press.
- Andres, A., & Fernandes, M. (2006). Effect of short and long exposure duration and dual-tasking on a global–local task. *Acta Psychologica*, *122*, 247–266.
- Archer, J. (2006). Testosterone and human aggression: An evaluation of the challenge hypothesis. *Neuroscience and Biobehavioral Reviews*, *30*, 319–345.
- Atkinson, J. W., & Litwin, G. H. (1960). Achievement motive and test anxiety conceived as motive to approach success and motive to avoid failure. *Journal of Abnormal and Social Psychology*, *60*, 52–64.
- Avramova, Y. R., Stapel, D. A., & Lerouge, D. (2010). Mood and context-dependence: Positive mood increases and negative mood decreases the effect of context on perception. *Journal of Personality and Social Psychology*, *99*, 203–214.
- Babin, B. J., Hardesty, D. M., & Suter, T. A. (2003). Color and shopping intentions: The intervening effect of price fairness and perceived affect. *Journal of Business Research*, *56*, 541–551.
- Bakker, T. C. M., & Sevenster, P. (1983). Determinants of dominance in male Sticklebacks (*Gasterosteus aculeatus* L.). *Behaviour*, *86*, 55–71.
- Balcetis, E., & Dunning, D. A. (2006). See what you want to see: Motivational influences on visual perception. *Journal of Personality and Social Psychology*, *91*, 612–625.
- Bamford, S., & Ward, R. (2008). Predispositions to approach and avoid are contextually sensitive and goal dependent. *Emotion*, *8*, 174–183.
- Bardin, C. W. (1996). The anabolic action of testosterone. *The New England Journal of Medicine*, *335*, 52–53.
- Barelli, C., Heistermann, M., Boesch, C., & Reichard, U. H. (2007). Sexual swellings in wild white-handed gibbon females (*Hylobates lar*) indicate the probability of ovulation. *Hormones and Behavior*, *51*, 221–230.
- Bargh, J. A. (1990). Auto-motives: Preconscious determinants of social interaction. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition* (Vol. 2, pp. 93–130). New York, NY: Guilford.
- Bargh, J. A., & Chartrand, T. L. (1999). The unbearable automaticity of being. *The American Psychologist*, *54*, 462–479.
- Barkow, J. H. (1975). Prestige and culture: A biosocial interpretation. *Current Anthropology*, *16*, 553–572.
- Barsalou, L. W. (1999). Perceptual symbol systems. *The Behavioral and Brain Sciences*, *22*, 577–660.
- Barsalou, L. W. (2008). Grounded cognition. *Annual Review of Psychology*, *59*, 617–645.
- Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of General Psychology*, *5*, 323–370.
- Bazire, M., & Brézillon, P. (2005). Understanding context before using it. In A. Dey, B. Kokinov, D. Leake, & R. Turner (Eds.), *Context* (pp. 29–40). Berlin: Springer-Verlag.
- Beehner, J. C., Bergman, T. J., Cheney, D. L., Seyfarth, R. M., & Whitten, P. L. (2006). Testosterone predicts future dominance rank and mating activity among male chacma baboons. *Behavioral Ecology and Sociobiology*, *59*, 469–479.
- Bergman, T. J., & Beehner, J. C. (2008). A simple method for measuring colour in wild animals: Validation and use of a chest patch colour in geladas (*Theropithecus gelada*). *Biological Journal of the Linnean Society*, *94*, 231–240.
- Bergman, T. J., Ho, L., & Beehner, J. C. (2009). Chest color and social status in male geladas (*Theropithecus gelada*). *International Journal of Primatology*, *30*, 791–806.
- Berlin, B., & Kay, P. (1969). *Basic color terms: Their universality and evolution*. Berkeley, CA: University of California Press.
- Bielert, C., Girolami, L., & Jowell, S. (1989). An experimental examination of the color component in visually mediated sexual arousal of the male chacma baboon (*Papio ursinus*). *Journal of the Zoological Society of London*, *219*, 569–579.

- Bigler, R. S. (1995). The role of classification skill in moderating environmental influences on children's gender stereotyping: A study of the functional use of gender in the classroom. *Child Development, 66*, 1072–1087.
- Birney, R. C., Burdick, H., & Teevan, R. C. (1969). *Fear of failure*. New York, NY: Van Nostrand-Reinhold Company.
- Blas, J., Perez-Rodriguez, L., Bortolotti, G. R., Vinuela, J., & Marchant, T. A. (2006). Testosterone increases bioavailability of carotenoids: Insights into the honesty of sexual signaling. *Proceedings of the National Academy of Sciences of the United States of America, 103*, 18633–18637.
- Boinski, S. (1987). Mating patterns in squirrel monkeys (*Saimiri oesterdii*): Implications for seasonal sexual dimorphism. *Behavioral Ecology and Sociobiology, 21*, 13–21.
- Bornstein, M. H. (1975). Qualities of color vision in infancy. *Journal of Experimental Child Psychology, 19*, 401–419.
- Bouton, M. E. (2010). The multiple forms of “context” in associative learning theory. In B. Mesquita, L. Felman-Barrett, & E. Smith (Eds.), *The mind in context* (pp. 233–258). New York, NY: Guilford Press.
- Bouton, M. E., Mineka, S., & Barlow, D. H. (2001). A modern learning theory perspective of panic disorder. *Psychological Review, 108*, 4–32.
- Boykin, R. M., & Kaiser, P. K. (1968). “Vision”: The additivity law made to work for heterochromatic photometry with bipartite fields. *Science, 161*, 366–368.
- Brauch, K., Hodges, K., Engelhardt, A., Fuhrmann, K., Shaw, E., & Heistermann, M. (2008). Sex-specific reproductive behaviours and paternity in free-ranging Barbary macaques (*Macaca sylvanus*). *Behavioral Ecology and Sociobiology, 62*, 1453–1466.
- Bruner, J. S., & Goodman, C. C. (1947). Value and need as organizing factors in perception. *Journal of Abnormal and Social Psychology, 42*, 33–44.
- Bubl, E., Kern, E., Ebert, D., Bach, M., & van Elst, L. T. (2010). Seeing gray when feeling blue? Depression can be measured in the eye of the diseased. *Biological Psychiatry, 68*, 205–208.
- Bullivant, S. B., Sellergren, S. A., Stern, K., Spencer, N. A., Jacob, S., Mennella, J. A., et al. (2004). Women's sexual experience during the menstrual cycle: Identification of the sexual phase by noninvasive measurement of luteinizing hormone. *Journal of Sex Research, 41*, 82–93.
- Burke, P. (2002). Context in context. *Common Knowledge, 8*, 152–177.
- Burley, N. T. (1981). Sex ratio manipulation and selection for attractiveness. *Science, 211*, 721–722.
- Buss, D. M. (2008). *Evolutionary psychology: The new science of mind* (3rd ed). New York: Pearson Education Inc.
- Cacioppo, J. T., Gardner, W. L., & Berntson, G. G. (1997). Beyond bipolar conceptualizations and measures: The case of attitudes and evaluative space. *Personality and Social Psychology Review, 1*, 3–25.
- Cacioppo, J. T., Gardner, W. L., & Berntson, G. G. (1999). The affect system has parallel and integrative processing components: Form follows function. *Journal of Personality and Social Psychology, 76*, 839–855.
- Caldwell, J. A., & Jones, G. E. (1985). The effect of exposure to red and blue light on physiological indices and time estimation. *Perception, 14*, 19–29.
- Camgoz, N., Yener, C., & Guvenc, D. (2003). Effects of hue, saturation, and brightness: Part 2. *Color Research and Application, 29*, 20–28.
- Castelhano, M. S., & Henderson, J. M. (2008). The influence of color on the perception of scene gist. *Journal of Experimental Psychology. Learning, Memory, and Cognition, 34*, 660–675.
- Ceranski, D. S., Teevan, R., & Kalle, R. J. (1979). A comparison of three measures of the motivation to avoid failure: Hostile press, test anxiety, and resultant achievement motivation. *Motivation and Emotion, 3*, 395–404.

- Changizi, M. A. (2009). *The color revolution: How the latest research overturns everything we thought we knew about human vision*. Dallas, TX: BenBalla Books, Inc.
- Changizi, M. A., & Hall, W. G. (2001). Thirst modulates a perception. *Perception, 30*, 1489–1497.
- Changizi, M. A., Zhang, Q., & Shimojo, S. (2006). Bare skin, blood and the evolution of primate colour vision. *Biological Letters, 2*, 217–221.
- Chen, M., & Bargh, J. A. (1999). Consequences of automatic evaluation: Immediate behavioral predispositions to approach or avoid the stimulus. *Personality and Social Psychology Bulletin, 25*, 215–224.
- Clark, A. P. (2008). Attracting interest: Dynamic displays of proceptivity increase the attractiveness of men and women. *Evolutionary Psychology, 6*, 563–574.
- Clarke, T., & Costall, A. (2008). The emotional connotations of color: A qualitative investigation. *Color Research and Application, 33*, 406–410.
- Cohn, J. (1894). Experimentelle Untersuchungen über die Gefühlsbetonung der Farben, Helligkeiten und ihrer Kombinationen [Experimental investigation of the emotional effect of color, lightness, and their combinations]. *Philosophische Studien, 10*, 562–603.
- Conway, B. R. (2009). Color vision, cones, and color-coding in the cortex. *The Neuroscientist, 15*, 274–290.
- Coombes, S. A., Cauraugh, J. H., & Janelle, C. M. (2007). Emotional state and initiating cue alter central and peripheral processes. *Emotion, 7*, 275–284.
- Cunningham, W. A., & Zelazo, P. D. (2007). Attitudes and evaluations: A social cognitive neuroscience perspective. *Trends in Cognitive Sciences, 11*, 97–104.
- Cuthill, I. C., Hunt, S., Cleary, C., & Clark, C. (1997). Color bands, dominance, and body mass regulation in male zebra finches (*Taeniopygia guttata*). *Proceedings of the Royal Society of London, B, 264*, 1093–1099.
- Darwin, C. (1874). *The descent of man and selection in relation to sex* (2nd ed). London: John Murray.
- Davidson, R. J., Schwartz, G. E., Saron, C., Bennett, J., & Goleman, D. J. (1979). Frontal versus parietal EEG asymmetry during positive and negative affect. *Psychophysiology, 16*, 202–203.
- Derefeldt, G., Swartling, T., Berggrund, U., & Bodrogi, P. (2004). Cognitive color. *Color Research and Application, 29*, 7–19.
- Derryberry, D., & Reed, M. A. (1998). Anxiety and attentional focusing: Trait, state, and hemispheric influences. *Personality and Individual Differences, 25*, 745–761.
- Detenber, B. H., Simons, R. F., Roedema, T. M., & Reiss, J. E. (2002). The effects of color clips on emotional responses. *Media Psychology, 2*, 331–355.
- DeWall, C. N., & Maner, J. K. (2008). High status men (but not women) capture the eye of the beholder. *Evolutionary Psychology, 6*, 328–341.
- Dijksterhuis, A., & Smith, P. K. (2002). Affective habituation: Subliminal exposure to extreme stimuli decreases their extremity. *Emotion, 2*, 203–214.
- Dixson, A. F. (1983). Observations on the evolution and behavioral significance of “sexual skin” in female primates. *Advances in the Study of Behavior, 13*, 63–106.
- Drummond, P. D. (1997). Correlates of facial flushing and pallor in anger-provoking situations. *Personality and Individual Differences, 23*, 575–582.
- Dubuc, C., Brent, K. J. N., Accamando, A. K., Gerald, M. S., MacLarnon, A., Semple, S., et al. (2009). *International Journal of Primatology, 30*, 777–789.
- Dunbar, R. I. M. (1984). *Reproductive decisions: An economic analysis of gelada baboon social strategies*. Princeton: Princeton University Press.
- Edwards, E. A., Hamilton, J. B., Duntley, S. Q., & Hubert, G. (1941). Cutaneous vascular and pigmentary changes in castrate and eunuchoid men. *Endocrinology, 28*, 119–128.
- Eibl-Eibesfeldt, I. (1989). *Human ethology*. New York, NY: Aldine de Gruyter.

- Elliot, A. J. (1999). Approach and avoidance motivation and achievement goals. *Educational Psychologist, 34*, 149–169.
- Elliot, A. J. (2005). A conceptual history of the achievement goal construct. In A. Elliot & C. Dweck (Eds.), *Handbook of competence and motivation* (pp. 52–72). New York, NY: Guilford Press.
- Elliot, A. J. (2006). The hierarchical model of approach and avoidance motivation. *Motivation and Emotion, 30*, 11–116.
- Elliot, A. J., & Aarts, H. (2011). Perception of the color red enhances the force and velocity of motor output. *Emotion, 11*, 445–449.
- Elliot, A. J., & Church, M. A. (2003). A motivational analysis of defensive pessimism and self-handicapping. *Journal of Personality, 71*, 369–396.
- Elliot, A. J., & Covington, M. V. (2001). Approach and avoidance motivation. *Educational Psychology Review, 13*, 73–92.
- Elliot, A. J., Feltman, R., & Maier, M. A. (2011). *The meaning of green*. Unpublished raw data, University of Rochester.
- Elliot, A. J., & Maier, M. A. (2007). Color and psychological functioning. *Current Directions in Psychological Science, 16*, 25.
- Elliot, A. J., & Maier, M. A. (2008). The color of competence motivation. In M. Maehr, S. Karabenick, & T. Urdan (Eds.), *Advances in motivation and achievement* (Vol. 15, pp. 145–170). New York, NY: Elsevier Press.
- Elliot, A. J., Maier, M. A., Binser, M. J., Friedman, R., & Pekrun, R. (2009). The effect of red on avoidance behavior in achievement contexts. *Personality and Social Psychology Bulletin, 35*, 365–375.
- Elliot, A. J., Maier, M. A., Moller, A. C., Friedman, R., & Meinhardt, J. (2007). Color and psychological functioning: The effect of red on performance attainment. *Journal of Experimental Psychology. General, 136*, 154–168.
- Elliot, A. J., & McGregor, H. A. (1999). Test anxiety and the hierarchical model of approach and avoidance achievement motivation. *Journal of Personality and Social Psychology, 76*, 628–644.
- Elliot, A. J., & McGregor, H. A. (2001). A 2x2 achievement goal framework. *Journal of Personality and Social Psychology, 80*, 501–519.
- Elliot, A. J., & Niesta, D. (2008). Romantic red: Red enhances men's attraction to women. *Journal of Personality and Social Psychology, 95*, 1150–1164.
- Elliot, A. J., Niesta Kayser, D., Greitemeyer, T., Lichtenfeld, S., Gramzow, R. H., Maier, M. A., et al. (2010). Red, rank, and romance in women viewing men. *Journal of Experimental Psychology. General, 139*, 399–417.
- Elliot, A. J., Payen, V., Brisswalter, J., Cury, F., & Thayer, J. F. (2011). A subtle threat cue, heart rate variability, and cognitive performance. *Psychophysiology, 48*, 1340–1345.
- Elliot, A. J., & Pazda, A. D. (2011). *Dressed for sex: Red as a female sexual signal in humans*. (submitted for publication).
- Elliot, A. J., & Reis, H. T. (2003). Attachment and exploration in adulthood. *Journal of Personality and Social Psychology, 85*, 317–331.
- Endler, J. A. (1990). On the measurement and classification of colour in studies of animal colour patterns. *Biological Journal of the Linnean Society, 41*, 315–352.
- Fairchild, M. D. (2005). *Color appearance models* (2nd ed). New York, NY: John Wiley.
- Fanselow, M. S. (1994). Neural organization of the defensive behavior system responsible for fear. *Psychonomic Bulletin Review, 1*, 429–438.
- Fanselow, M. S., & Lester, L. S. (1988). A functional behavioristic approach to aversively motivated behavior: Predatory imminence as a determinant of the topography of defensive behavior. In M. Beecher (Ed.), *Evolution and learning* (pp. 185–211). Hillsdale, NJ: LEA.
- Fehrman, K. R., & Fehrman, C. (2004). *Color: The secret influence* (2nd ed). Upper Saddle River, NJ: Prentice Hall.

- Feldman Barrett, L., Mesquita, B., & Smith, E. R. (2010). The context principle. In L. Feldman Barrett, B. Mesquita, & E. Smith (Eds.), *The mind in context* (pp. 1–22). New York, NY: Guilford Press.
- Feltman, R., & Elliot, A. J. (2009). Color in psychological research: Toward a systematic method of measurement. In D. Skusevich & P. Matikas (Eds.), *Color perception: Physiology, processes and analysis* (pp. 225–237). New York, NY: Nova Science Publishers, Inc.
- Feltman, R., & Elliot, A. J. (2011). The influence of red on perceptions of dominance and threat in a competitive context. *Journal of Sport & Exercise Psychology*, *33*, 308–314.
- Ferguson, M. J., & Bargh, J. A. (2004). Beyond the attitude object: Implicit attitudes spring from object-centered contexts. In B. Wittenbrink & N. Schwartz (Eds.), *Implicit measures of attitudes* (pp. 216–246). New York, NY: Guilford Press.
- Fetterman, A. K., Robinson, M. D., Gordon, R. D., & Elliot, A. J. (2011). Anger as seeing red: Perceptual sources of evidence. *Social Psychological and Personality Science*, *2*, 311–316.
- Folstad, I., & Karter, A. J. (1992). Parasites, bright males, and the immunocompetence handicap. *The American Naturalist*, *139*, 603–622.
- Förster, J., Friedman, R. S., Özelsel, A., & Denzler, M. (2006). Enactment of approach and avoidance behavior influence the scope of perceptual and conceptual attention. *Journal of Experimental Social Psychology*, *42*, 133–146.
- Förster, J., Higgins, E. T., & Idson, L. C. (1998). Approach and avoidance strength during goal attainment: Regulatory focus and the “goal looms larger effect” *Journal of Personality and Social Psychology*, *75*, 1115–1131.
- Frank, M. G., & Gilovich, T. (1988). The dark side of self and social perception: Black uniforms and aggression in professional sports. *Journal of Personality and Social Psychology*, *54*, 74–85.
- Friedman, B. H., & Thayer, J. F. (1998). Anxiety and autonomic flexibility: A cardiovascular approach. *Biological Psychology*, *49*, 303–323.
- Friedman, B. H. (2007). An autonomic flexibility-neurovisceral integration model of anxiety and cardiac vagal tone. *Biological Psychology*, *74*, 185–199.
- Friedman, R. S., & Förster, J. (2010). Implicit affective cues and attentional tuning: An integrative review. *Psychological Bulletin*, *136*, 875–893.
- Gage, J. (1999). *Color and meaning: Art, science, and symbolism*. Berkeley, CA: University of California Press.
- Gamberale-Stille, G., & Tullberg, B. S. (2001). Fruit or aposematic insect? Context-dependent colour preferences in domestic chicks. *Proceedings of the Royal Society of London*, *268*, 2525–2529.
- Garth, T. R., & Collado, I. R. (1929). The color preferences of Filipino children. *Journal of Comparative Psychology*, *9*, 397–404.
- Garth, T. R., & Porter, E. P. (1934). The color preferences of 1,032 young children. *The American Journal of Psychology*, *46*, 448–451.
- Gasper, K. (2004). Do you see what I see? Affect and visual information processing. *Cognition and Emotion*, *18*, 405–421.
- Gawronski, B., Rydell, R. J., Vervliet, B., & De Houwer, J. (2010). Generalization versus contextualization in automatic evaluation. *Journal of Experimental Psychology: General*, *139*, 683–701.
- Gawronski, B., & Stritharan, R. (2010). Formation, change, and contextualization of mental associations: Determinants and principles of variations in implicit measures. In B. Gawronski & B. Payne (Eds.), *Handbook of implicit social cognition: Measurement, theory, and applications* (pp. 216–240). New York, NY: Guilford Press.
- Geen, R. G. (1987). Test anxiety and behavioral avoidance. *Journal of Research in Personality*, *21*, 481–488.
- Gegenfurtner, K. R., & Kiper, D. C. (2003). *Color Vision*, *26*, 181–206.

- Gerald, M. (2003). How color may guide the primate world: Possible relationships between sexual selection and sexual dichromatism. In C. Jones (Ed.), *Sexual selection and reproductive competition in primates: New perspectives and directions* (pp. 141–172). Norman, OK: American Society of Primatologists.
- Gerald, M., Waits, C., & Little, A. C. (2009). Pregnancy coloration in macaques may act as a warning signal to reduce antagonism by conspecifics. *Behavioural Processes*, *80*, 7–11.
- Gibson, J. J. (1979). *The ecological approach to visual perception*. Boston, MA: Houghton-Mifflin.
- Gilliam, J. E. (1991). The effects of Baker-Miller pink on physiological and cognitive behavior of emotionally disturbed and regular education students. *Behavioral Disorders*, *17*, 47–55.
- Gilliam, J. E., & Unruh, D. (1988). The effects of Baker-Miller pink on biological, physical, and cognitive behavior. *Journal of Orthomolecular Medicine*, *3*, 202–207.
- Goethe, J. W. (1810). *Zür Farbenlehre*. Translation by C. L. Eastlake (1840) from German. Reprinted in 1970, Cambridge, MA: The MIT Press.
- Goldstein, K. (1942). Some experimental observations concerning the influence of colors on the function of the organism. *Occupational Therapy and Rehabilitation*, *21*, 147–151.
- Goodfellow, R. A., & Smith, P. C. (1973). Effects of environmental color on two psychomotor tasks. *Perceptual and Motor Skills*, *37*, 296–298.
- Grammer, K., Renninger, L., & Fischer, B. (2005). Disco clothing, female sexual motivation, and relationship status: Is she dressed to impress? *Journal of Sex Research*, *41*, 66–74.
- Grant, D. M., & Beck, J. G. (2006). Attentional biases in social anxiety and dysphoria: Does comorbidity make a difference? *Anxiety Disorders*, *20*, 520–529.
- Graves, H. G., Hable, C. P., & Jenkins, T. H. (1985). Sexual selection in Gallus: Effect of morphology and dominance on female special behavior. *Behavioral Processes*, *11*, 189–197.
- Gray, J. A., & McNaughton, N. (1997). The neuropsychology of anxiety: Reprise. *Nebraska Symposium on Motivation*, *28*, 61–134.
- Green, W. K., Hasson, S. M., Mohammed, S. K., Phillips, C. L., Richards, P. E., Smith, M. E., et al. (1982). Effect of viewing selected colors on the performance of gross and fine motor tasks. *Perceptual and Motor Skills*, *54*, 778.
- Greenfield, A. B. (2005). *A perfect red: Empire, espionage, and the quest for the color of desire*. New York, NY: HarperCollins Books.
- Greenlees, I. A., & McGrew, W. C. (1994). Sex and age differences in preferences and tactics of mate attraction: Analysis of published advertisements. *Ethology and Sociobiology*, *15*, 59–72.
- Grieve, K. W. (1991). Traditional beliefs and colour perception. *Perceptual and Motor Skills*, *72*, 1319–1323.
- Guarnaschelli, S., McKelvey, R. D., & Palfrey, T. R. (2000). An experimental study of jury decision rules. *American Political Science Review*, *94*, 407–423.
- Halpern, L., & Kugelmas, S. (1953). The variability of reaction time in the sensorimotor induction syndrome with special reference to the effective of colors. *The Journal of Psychology*, *41*, 255–269.
- Hammes, J. A., & Wiggins, S. L. (1962). Perceptual-motor steadiness, manifest anxiety, and color illumination. *Perceptual and Motor Skills*, *14*, 59–61.
- Hansen, T., Olkkonen, M., Walter, S., & Gegenfurtner, K. R. (2006). Memory modulates color appearance. *Nature Neuroscience*, *9*, 1367–1368.
- Hård, A., Sivak, L., & Tonnquist, G. (1996). NCS, natural color system—From concept to research and applications, Part I. *Color Research and Application*, *21*, 180–205.
- Hartmann, P., & Apaolaza-Ibáñez, V. (2010). Beyond savanna: An evolutionary and environmental psychology approach to behavioral effects of nature scenery in green advertising. *Journal of Environmental Psychology*, *30*, 119–128.
- Haselton, M. G. (2003). The sexual overperception bias: Evidence of a systematic bias in men from a survey of naturally occurring events. *Journal of Research in Personality*, *37*, 34–47.

- Haselton, M. G., Mortezaie, M., Pillsworth, E. G., Bleske-Rechek, A., & Frederick, D. A. (2007). Ovulatory shifts in human female ornamentation: Near ovulation, women dress to impress. *Hormones and Behavior*, *51*, 40–45.
- Hatfield, E. (1984). The dangers of intimacy. In V. Derlega (Ed.), *Communication, intimacy, and close relationships* (pp. 207–220). New York, NY: Academic.
- Healey, M., Uller, T., & Olsson, M. (2007). Seeing red: Morph-specific contest success, and survival rates, in a colour-polymorphic agamid lizard. *Animal Behaviour*, *73*, 337–341.
- Hembree, R. (1988). Correlates, causes, effects, and treatment of test anxiety. *Review of Educational Research*, *58*, 47–77.
- Hemphill, M. (1996). A note on adult's color-emotion associations. *Journal of Genetic Psychology*, *157*, 275–280.
- Hendrie, C. A., Mannion, H. D., & Godfrey, G. K. (2009). Evidence to suggest that nightclubs function as human sexual display grounds. *Behaviour*, *146*, 1331–1348.
- Henshilwood, C., d'Errico, F., & Watts, I. (2009). Engraved ochres from the Middle Stone Age levels at Blombos Cave, South Africa. *Journal of Human Evolution*, *57*, 27–47.
- Hill, G. E. (2002). *A red bird in a brown bag: The function and evolution of ornamental plumage coloration in the house finch*. Oxford: Oxford University Press.
- Hill, R. A., & Barton, R. A. (2005). Red enhances human performance in contests. *Nature*, *435*, 293.
- Hillman, C. H., Rosengren, K. S., & Smith, D. P. (2004). Emotion and motivated behavior: Postural adjustments to affective picture viewing. *Biological Psychology*, *66*, 51–62.
- Holden, W. A., & Bosse, K. K. (1900). The order of development of color perception and the color preference in the child. *Archives of Ophthalmology*, *29*, 261–277.
- Hrdy, S. B., & Whitten, P. L. (1987). Patterning of sexual activity. In B. Smuts, D. Cheney, R. Seyfarth, R. Wrangham, & T. Struhsaker (Eds.), *Primate societies* (pp. 370–384). Chicago: University of Chicago Press.
- Hurlbert, A. C., & Ling, Y. (2007). Biological components of sex differences in color preference. *Current Biology*, *17*, R623–R625.
- Hutchings, J. (1997). Folklore and symbolism of green. *Folklore*, *108*, 55–64.
- Hutchings, J. (2004). Colour in folklore and tradition—The principles. *Color Research and Application*, *29*, 57–66.
- Hyge, S., & Knez, I. (2001). Effect of noise, heat, and indoor lighting on cognitive performance and self-reported affect. *Journal of Environmental Psychology*, *21*, 291–299.
- Ingram, F., & Lieberman, L. R. (1985). Effects of expectations on the performance of hand grip after viewing selected hues. *Perceptual and Motor Skills*, *61*, 370.
- Ives, H. E. (1912). Studies of the photometry of lights of different colors. I. Spectral luminosity curves obtained by the equality of brightness photometer and the flicker photometer under similar conditions. *Philosophical Magazine*, *24*, 149–188.
- Jacobs, G. H. (1981). *Comparative color vision*. New York, NY: Academic Press.
- Jacobs, G. H. (2009). Evolution of color vision in mammals. *Philosophical Transactions of the Royal Society, B*, *364*, 2957–2967.
- Jacobs, K. W., Keown, C., Worthley, R., & Ghymn, K. I. (1990). Cross-cultural comparisons: Global markers beware!. *International Marketing Review*, *8*, 21–30.
- James, W. T., & Domingos, W. R. (1953). The effect of color shock on motor performance and tremor. *The Journal of General Psychology*, *48*, 187–193.
- Jobes, G. (1962). *Dictionary of mythology, folklore, and symbols*. New York, NY: Scarecrow Press.
- Johnson, R. R. (2005). Police uniform color and citizen impression formation. *Journal of Police and Criminal Psychology*, *20*, 58–66.
- Jordan, T. R., Sherman, S. M., & Tonkin, R. P. (2007). Constructing isoluminant stimuli for word recognition research: A precautionary study. *Behavior Research Methods*, *39*, 494–501.

- Kaiser, P. K. (1984). Psychological response to color: A cultural review. *Color Research and Application*, 9, 29–36.
- Katchadourian, H. A. (1984). *Fundamentals of human sexuality* (4th ed). New York, NY: Holt, Reinhart, & Winston.
- Kay, P., & Maffi, L. (1999). Color appearance and the emergence and evolution of basic color lexicons. *American Anthropologist*, 101, 743–760.
- Kaya, N., & Epps, H. H. (2004). Relationship between color and emotion: A study of college students. *College Student Journal*, 38, 396–405.
- Keddy, A. C. (1986). Female mate choice in vervet monkeys (*Cercopithecus aethiops*). *American Journal of Primatology*, 10, 125–143.
- Kenrick, D. T., Trost, M. R., & Sundie, J. M. (2004). Sex-roles as adaptations: An evolutionary perspective on gender differences and similarities. In A. Eagly, A. Beall, & R. Sternberg (Eds.), *The psychology of gender* (pp. 69–91). New York, NY: Guilford Publications.
- Kimchi, R., & Palmer, S. E. (1982). Form and texture in hierarchically constructed patterns. *Journal of Experimental Psychology: Human Perception and Performance*, 8, 521–535.
- Kinsch, W., & Mangalath, P. (2011). The construction of meaning. *Topics in Cognitive Science*, 3, 346–370.
- Klinkova, E., Hodges, J. K., Fuhrmann, K., de Jong, T., & Heistermann, M. (2005). Male dominance rank, female mate choice and male mating and reproductive success in captive chimpanzees. *International Journal of Primatology*, 26, 357–384.
- Knight, C. D., Powers, C., & Watts, I. (1995). The human symbolic revolution: A Darwinian account. *Cambridge Archeological Journal*, 5, 75–119.
- Kohn, M. (1999). *As we know it: Coming to terms with the evolved mind*. London: Granta Books.
- Kristjánsson, A., Vuilleumier, P., Malhotra, P., Husain, M., & Driver, J. (2005). Priming of color and position during visual search in unilateral spatial neglect. *Journal of Cognitive Neuroscience*, 17, 859–873.
- Kuehni, R. G. (2007). Nature and culture: An analysis of individuals focal color choices in world color survey languages. *Journal of Cognition and Culture*, 7, 151–172.
- Küller, R., Mikellides, B., & Janssens, J. (2009). Color, arousal, and performance—A comparison of three experiments. *Color Research and Application*, 34, 141–152.
- Kwallek, N., Woodson, H., Lewis, C. M., & Sales, C. (1997). Impact of three interior color schemes on worker mood and performance relative to individual environmental sensitivity. *Color Research and Application*, 22, 121–132.
- Lakoff, G., & Johnson, M. (1999). *Philosophy in the flesh: The embodied mind and its challenge to Western thought*. New York, NY: Basic Books.
- Lang, P. J. (1995). The emotion probe: Studies of motivation and attention. *The American Psychologist*, 50, 372–385.
- Langguth, B., Eichhammer, P., Pickert, K., Frank, U., Perna, M., Landgrebe, M., et al. (2009). Stable motor cortex excitability in red and green lighting conditions. *Neuroscience Letters*, 460, 32–35.
- Leonhardt, S. D., Tung, J., Camden, J. B., Leal, M., & Drea, C. M. (2008). Seeing red: Behavioral evidence of trichromatic color vision in strepsirrhine primates. *Behavioral Ecology*, 20, 1–12.
- Levenson, R. W. (2003). Blood, sweat, and fears: The automatic architecture of emotion. In P. Ekman, J. J. Campos, R. J. Davidson, & F. B. M. de Waal (Eds.), *Emotions inside out: 130 years after Darwin's the expression of the emotions in man and animals* (pp. 348–366). New York, NY: New York University Press.
- Levy, I. B. (1984). Research into the psychological meaning of color. *American Journal of Art Therapy*, 23, 58–62.
- Lewin, K. (1935). *A dynamic theory of personality*. New York, NY: McGraw-Hill.

- Li, N. P., Bailey, J., Kenrick, D. T., & Linsenmeier, J. A. W. (2002). The necessities and luxuries of mate preferences: Testing the tradeoffs. *Journal of Personality and Social Psychology*, *82*, 947–955.
- Lichtenfeld, S., Elliot, A. J., Maier, M. A., & Pekrun, R. (2011). *Green facilitates creative performance*. *Personality and Social Psychology Bulletin*. (submitted for publication).
- Lichtenfeld, S., Maier, M. A., Elliot, A. J., & Pekrun, R. (2009). The semantic red effect: Processing the word red undermines intellectual performance. *Journal of Experimental Social Psychology*, *45*, 1273–1276.
- Ling, J., & Blades, M. (1996). Further evidence for automatic coding of colour by children and adults. *British Journal of Developmental Psychology*, *20*, 537–544.
- Luckiesh, M. (1916). A note on color preference. *The American Journal of Psychology*, *27*, 251–255.
- MacKinnon, D. P., Fairchild, A. J., & Fritz, M. S. (2007). Mediation analysis. *Annual Review of Psychology*, *58*, 593–614.
- Maier, M. A., Barchfeld, P., Elliot, A. J., & Pekrun, R. (2009). Context specificity of implicit preferences: The case of human preference for red. *Emotion*, *9*, 734–738.
- Maier, M. A., Elliot, A. J., & Lichtenfeld, S. (2008). Mediation of the negative effect of red on intellectual performance. *Personality and Social Psychology Bulletin*, *34*, 1530–1540.
- Manav, B. (2007). Color-emotion associations and color preferences: A case study for residences. *Color Research and Application*, *32*, 144–150.
- Mazur, A. (2005). *Biopsychology of dominance and deference*. London: Rowman & Hudson Ltd.
- McClelland, D. C. (1985). *Human motivation*. New York, NY: Cambridge University Press.
- Mehta, P. H., Jones, A. C., & Josephs, R. A. (2008). The social endocrinology of dominance: Basal testosterone predicts cortisol changes and behavior following victory and defeat. *Journal of Personality and Social Psychology*, *94*, 1078–1093.
- Meier, B. P., & Robinson, M. D. (2004). Why the sunny side is up: Associations between affect and vertical position. *Psychological Science*, *15*, 243–247.
- Meier, B. P., Robinson, M. D., & Caven, A. J. (2008). Why a Big Mac is a good mac: Associations between affect and size. *Basic and Applied Social Psychology*, *30*, 46–55.
- Meier, B. P., Robinson, M. D., & Clore, G. L. (2004). Why good guys wear white—Automatic inferences about stimulus valence based on brightness. *Psychological Science*, *15*, 82–87.
- Mikulincer, M., Kedem, P., & Paz, D. (1990). Anxiety and categorization: 1. The Structure and boundaries of mental categories. *Personality and Individual Differences*, *11*, 805–814.
- Miller, N. (1944). Experimental studies of conflict. In J. McV Hunt (Ed.), *Personality and the behavioral disorders* (Vol. 1, pp. 431–465). New York, NY: Ronald Press.
- Mills, B. D., & French, L. M. (1996). Assertive behavior and jersey color in the national hockey and football leagues: The black uniform myth and reality. *Journal of Human Movement*, *31*, 47–60.
- Mitterer, H., Horschig, J. M., Müseler, J., & Majid, A. (2009). The influence of memory on perception: It's not what things look like, it's what you call them. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *35*, 1557–1562.
- Moller, A. C., Elliot, A. J., & Maier, M. A. (2009). Basic hue-meaning associations. *Emotion*, *9*, 898–902.
- Mollon, J. D. (1989). Tho' she kneel'd in that place where they grow. . . . *Journal of Experimental Biology*, *146*, 21–38.
- Moscoso del Prado Martín, F., Hauk, O., & Pulvermüller, F. (2006). Category specificity in the processing of color-related and form-related words. *NeuroImage*, *29*, 29–37.
- Mostofsky, S. H., Schafer, J. G., Abrams, M. T., Goldberg, M. C., Flower, A. A., Boyce, A., et al. (2003). fMRI evidence that the neural basis of response inhibition is task dependent. *Cognitive Brain Research*, *17*, 419–430.

- Muehlenbein, M. P., & Bribiescas, R. G. (2005). Testosterone-mediated immune functions and male life histories. *American Journal of Human Biology*, *17*, 527–558.
- Muller, M. N., & Wrangham, R. W. (2004). Dominance, aggression, and testosterone in wild chimpanzees: A test of the “challenge hypothesis” *Animal Behavior*, *67*, 113–123.
- Munsell Color Company, Inc (1976). *Munsell book of color: Matte finish collection*. Baltimore, MD: Munsell Color.
- Murphy, S. T., & Zajonc, R. B. (1993). Affect, cognition, and awareness: Affective priming with optimal and suboptimal stimulus exposures. *Journal of Personality and Social Psychology*, *64*, 723–739.
- Nakashian, J. S. (1964). The effects of red and green surroundings on behavior. *The Journal of General Psychology*, *70*, 143–162.
- Neiss, R. (1988). Reconceptualizing arousal: Psychobiological states in motor performance. *Psychological Bulletin*, *103*, 345–366.
- Neiss, R. (1990). Ending arousal’s reign of error: A reply to Anderson. *Psychological Bulletin*, *107*, 101–105.
- Nickels, E. (2008). Good guys wear black: Uniform color and citizen impressions of police. *Policing—An international Journal of Police Strategies and Management*, *31*, 77–92.
- Niesta Kayser, D., Elliot, A. J., & Feltman, R. (2010). Red and romantic behavior in men viewing women. *European Journal of Social Psychology*, *40*, 901–908.
- Nijstad, B. A., De Dreu, C., Rietzschel, E. F., & Baas, M. (2010). The dual pathway to creativity model: Creative ideation as a function of flexibility and persistence. *European Review of Social Psychology*, *21*, 34–77.
- Norman, R., & Scott, W. (1952). “Color and affect”: A review and semantic evaluation. *The Journal of General Psychology*, *46*, 185–223.
- Nunn, C. L. (1999). The evolution of exaggerated sexual swellings in primates and the graded-signal hypothesis. *Animal Behavior*, *58*, 229–246.
- O’Connell, B., Harper, R. S., & McAndrew, F. T. (1985). Grip strength as a function of exposure to red or green visual stimulation. *Perceptual and Motor Skills*, *61*, 1157–1158.
- O’Connor, Z. (2010). Colour harmony revisited. *Color Research and Application*, *35*, 267–273.
- O’Regan, J. K., & Noë, A. (2001). A sensorimotor account of vision and visual consciousness. *Behavior and Brain Sciences*, *24*, 939–1011.
- Orians, G. H., & Heerwagen, J. H. (1992). Evolved responses to landscapes. In J. Barkow, L. Cosmides, & J. Tooby (Eds.), *The adapted mind: Evolutionary psychology and the generation of culture* (pp. 555–579). New York, NY: Oxford University Press.
- Osborne, J. W. (1995). Academics, self-esteem, and race: A look at the underlying assumptions of the disidentification hypothesis. *Personality and Social Psychology Bulletin*, *21*, 449–455.
- Oxford English Dictionary. (1989) (2nd ed). Oxford: Oxford University Press (Online).
- Palmer, S. E., & Schloss, K. B. (2010). An ecological valence theory of human color preference. *Proceedings of the National Academy of Sciences of the United States of America*, *107*, 8877–8882.
- Patel, H., Blades, M., & Andrade, J. (2002). Children’s incidental learning of the colors of objects and clothing. *Cognitive Development*, *16*, 965–985.
- Payen, V., Elliot, A. J., Coombes, S. A., Chalabaev, A., Brisswalter, J., & Cury, F. (2011). Viewing red prior to a strength test inhibits motor output. *Neuroscience Letters*, *495*, 44–48.
- Pazda, A., Elliot, A. J., & Greitemeyer, T. (in press). *Mediation of the romantic red effect for men viewing women*. *Journal of Experimental Social Psychology*.
- Pierce, D. H., & Weinland, J. D. (1934). The effect of color on workmen. *The Personnel Journal*, *13*, 34–38.
- Poirel, N., Pineau, A., & Mellet, E. (2006). Implicit identification of irrelevant local objects interacts with global/local processing of hierarchical stimuli. *Acta Psychologica*, *122*, 321–336.

- Pokorny, J., Smith, V. C., & Lutze, M. (1989). Heterochromatic modulation photometry. *Journal of the Optical Society of America*, *6*, 1618–1623.
- Pressey, S. L. (1921). The influence of color upon mental and motor efficiency. *The American Journal of Psychology*, *32*, 327–356.
- Pridmore, R. W. (2007). Effects of luminance, wavelength, and purity on the color attributes: Brief review with new data and perspectives. *Color Research and Application*, *32*, 208–222.
- Proffitt, D. (2006). Distance perception. *Current Directions in Psychological Science*, *15*, 131–135.
- Profusek, P. J., & Rainey, D. W. (1987). Effects of Baker–Miller pink and red on state anxiety, grip strength, and motor precision. *Perceptual and Motor Skills*, *65*, 941–942.
- Pryke, S. R., Andersson, S., Lawes, M. J., & Piper, S. E. (2001). Carotenoid status signaling in captive and wild red-collared widowbirds: Independent effects of badge size and color. *Behavioral Ecology*, *13*, 622–631.
- Pryke, S. R., & Griffith, S. C. (2006). Red dominates black: Agonistic signalling among head morphs in the color polymorphic Gouldian finch. *Proceedings of the Royal Society: B*, *273*, 949–957.
- Reis, H. T., & Shaver, P. (1988). Intimacy as an interpersonal process. In S. Duck (Ed.), *Handbook of personal relationships* (pp. 367–389). Chichester, England: Wiley.
- Rhodes, L., Argersinger, M. E., Gantert, L. T., Friscino, B. H., Hom, G., Pikounis, B., et al. (1997). Effects of the administration of testosterone, dihydrotestosterone, oestrogen and fadrozole, an aromatase inhibitor, on sex skin colour in intact male Rhesus macaques. *Journal of Reproductive Fertility*, *111*, 51–57.
- Robinson, M. D., Wilkowski, B. M., & Meier, B. P. (2008). Approach, avoidance, and self-regulatory conflict: An individual differences perspective. *Journal of Experimental Social Psychology*, *44*, 65–79.
- Romney, A. K. (2008). Relating reflectance spectra space to Munsell color appearance space. *Journal of the Optical Society of America*, *25*, 658–666.
- Roseman, I. (1984). Cognitive determinants of emotions: A structural theory. *Review of Personality and Social Psychology*, *5*, 11–36.
- Rosenstein, L. D. (1985). Effect of color of the environment on task performance and mood of males and females with high or low scores on the Scholastic Aptitude Test. *Perceptual and Motor Skills*, *60*, 550.
- Rothermund, K., Wentura, D., & Bak, P. M. (2001). Automatic attention to stimuli signalling chances and dangers: Moderating effects of positive and negative goal and action contexts. *Cognition & Emotion*, *15*, 231–248.
- Sadalla, E. K., Kenrick, D. T., & Vershure, B. (1987). Dominance and heterosexual attraction. *Journal of Personality and Social Psychology*, *52*, 730–738.
- Schauss, A. G. (1979). Tranquilizing effect of color reduces aggressive behaviour and potential violence. *Journal of Orthomolecular Psychiatry*, *8*, 218–220.
- Schmidt, V., & Schaefer, H. M. (2004). Unlearned preference for red may facilitate recognition of palatable food in young omnivorous birds. *Evolutionary Psychology Research*, *6*, 919–925.
- Schmitt, D. P., & Buss, D. M. (1996). Strategic self-promotion and competitor derogation: Sex and context effects on the perceived effectiveness of mate attraction tactics. *Journal of Personality and Social Psychology*, *70*, 1195–1204.
- Schmitt, D. P., Couden, A., & Baker, M. (2001). The effects of sex and temporary context on feelings of romantic desire: An experimental evaluation of sexual strategies theory. *Personality and Social Psychology Bulletin*, *27*, 833–847.
- Schneirla, T. C. (1959). An evolutionary and developmental theory of biphasic processes underlying approach and withdrawal. *Nebraska Symposium on Motivation*, *7*, 1–43.
- Schwartz, N. (2007). Attitude construction: Evaluation in context. *Social Cognition*, *25*, 638–656.

- Schwartz, P. L., Harrop, P. F. N., Love, T. W., Marchand, J. R., & Read, C. J. (1983). The color pink and muscle strength. *The New Zealand Medical Journal*, *96*, 740–741.
- Setchell, J. M., & Dixson, A. F. (2001). Circannual changes in the secondary sexual adornments of semifree-ranging male and female mandrills (*Mandrillus sphinx*). *American Journal of Primatology*, *56*, 9–25.
- Setchell, J. M., Smith, T., Wickings, E. J., & Knapp, L. A. (2008). Social correlates of testosterone and ornamentation in male mandrills. *Hormones and Behavior*, *54*, 365–372.
- Setchell, J. M., & Wickings, E. J. (2004). Sexual swelling in mandrills (*Mandrillus sphinx*): A test of the reliable indicator hypothesis. *Behavioral Ecology*, *15*, 438–445.
- Setchell, J. M., & Wickings, E. J. (2005). Dominance, status signals, and coloration in male mandrills (*Mandrillus sphinx*). *Ethology*, *111*, 25–50.
- Setchell, J. M., Wickings, E. J., & Knapp, L. A. (2006). Signal content of red facial coloration in Female mandrills (*Mandrillus sphinx*). *Proceedings of the Royal Society of Biology*, *273*, 2395–2400.
- Shapley, R., & Hawken, M. J. (2011). Color in the cortex: Single- and double-opponent cells. *Vision Research*, *51*, 701–717.
- Sherman, G. D., & Clore, G. L. (2009). The color of sin: White and black are perceptual symbols of moral purity and pollution. *Psychological Science*, *20*, 1019–1025.
- Shevell, S. K., & Kingdom, F. A. A. (2008). Color in complex scenes. *Annual Review of Psychology*, *59*, 143–166.
- Shick, J. (1975). Effect of target color on throwing accuracy. *Research Quarterly*, *46*, 389–390.
- Simmons, W. K., Ramjee, V., Beauchamp, M. S., McRae, K., Martin, A., & Barsalou, L. W. (2007). A common neural substrate for perceiving and knowing about color. *Neuropsychologia*, *45*, 2802–2810.
- Simpson, J. A., & Gangstead, S. W. (2001). Evolution and relationships: A call for integration. *Personal Relationships*, *8*, 341–355.
- Slob, A. K., Bax, C. M., Hop, W. C., Rowland, D. L., & van der Werff ten Bosch, J. J. (1996). Sexual arousability and the menstrual cycle. *Psychoneuroendocrinology*, *21*, 545–558.
- Soldat, A. S., Sinclair, R. C., & Mark, M. M. (1997). Color as an environmental processing cue: External affective cues can directly affect processing strategy without affecting mood. *Social Cognition*, *15*, 55–71.
- Spence, I., Wong, P., Rusan, M., & Rastegar, N. (2006). How color enhances visual memory for natural scenes. *Psychological Science*, *17*, 1–6.
- Spencer, S. J., Zanna, M. P., & Fong, G. T. (2005). Establishing a causal chain: Why experiments are often more effective than mediational analyses in examining psychological processes. *Journal of Personality and Social Psychology*, *89*, 845–851.
- St. George, M. W. (1938). Color preferences of college students with reference to chromatic pull, learning, and association. *The American Journal of Psychology*, *51*, 714–716.
- Stallman, R. R., & Froehlich, J. W. (2000). Primate sexual swellings as coevolved signal systems. *Primates*, *41*, 1–16.
- Stellar, J. R., & Stellar, E. (1985). *The neurobiology of motivation and reward*. New York, NY: Springer-Verlag.
- Stephen, I. D., Coetzee, V., Law Smith, M., & Perrett, D. I. (2009). Skin blood perfusion and oxygenation colour affect perceived human health. *PLoS One*, *4*, 5083.
- Stockley, P., & Bro-Jørgensen, J. (2011). Female competition and its evolutionary consequences in mammals. *Biological Reviews*, *86*, 341–366.
- Stokes, M., Fairchild, M. D., & Berns, R. S. (1992). Precision requirements for digital color reproduction. *ACM Transactions on Graphics*, *11*, 406–422.
- Stone, N. J., & English, A. J. (1998). Task type, posters, and workspace color on mood, satisfaction, and performance. *Journal of Environmental Psychology*, *18*, 175–185.
- Suk, H., & Irtel, H. (2009). Emotional response to color across media. *Color Research and Application*, *35*, 64–77.

- Sutton, S. K., & Davidson, R. J. (1997). Prefrontal brain asymmetry: A biological substrate of the behavioral approach and inhibition systems. *Psychological Science, 8*, 204–210.
- Swainson, R., Cunnington, R., Jackson, G. M., Rorden, C., Peters, A. M., Morris, P. G., et al. (2003). Cognitive control mechanisms revealed by ERP and fMRI: Evidence from repeated task switching. *Journal of Cognitive Neuroscience, 15*, 785–799.
- Taçon, P. (2008). Rainbow colour and power among the Waanyi of Northwest Queensland. *Cambridge Archaeological Journal, 18*, 163–176.
- Tiraki, M. E. (2005). Assessing whether black uniforms affect the decisions of Turkish soccer referees: Is finding of Frank and Gilovich's study valid for Turkish culture? *Perceptual and Motor Skills, 100*, 51–57.
- Titchener, E. B. (1900). The equipment of a psychological laboratory. *The American Journal of Psychology, 11*, 251–265.
- Toral, G. M., Figuerola, J., & Negro, J. J. (2008). Multiple ways to become red: Pigment identification in red feathers using spectrometry. *Comparative Biochemistry and Physiology. Part B, 150*, 147–152.
- Townsend, J. M. (1998). *What women want—What men want: Why the sexes still see love and commitment so differently*. Oxford: Oxford University Press.
- Trommershauser, J., Maloney, L. T., & Landy, M. S. (2003). Statistical decision theory and the selection of rapid, goal-directed movements. *Journal of the Optical Society of America, 20*, 1419–1433.
- Ulrich, R. S. (1993). Biophilia, biophobia, and natural landscapes. In S. A. Kellert & E. O. Wilson (Eds.), *The biophilia hypothesis* (pp. 74–137). Washington, DC: Island Press.
- Ural, S. E., & Yilmazer, S. (2010). The architectural colour design process: An evaluation of sequential media via semantic ratings. *Color Research and Application, 35*, 343–351.
- Valdez, P., & Mehrabian, A. (1994). Effects of color on emotions. *Journal of Experimental Psychology. General, 123*, 394–409.
- Van Berkum, J. J. A. (2009). Understanding sentences in context: What brain waves can tell us. *Current Directions in Psychological Science, 17*, 376–380.
- Van den Berghe, P. L., & Frost, P. (1986). Skin color preference, sexual dimorphism, and sexual selection: A case of gene–culture co–evolution? *Ethnic and Racial Studies, 9*, 87–113.
- Vanbeselaere, N. (1996). The impact of differentially valued overlapping categorizations upon the differentiation between positively, negatively, and neutrally evaluated social groups. *European Journal of Social Psychology, 26*, 75–96.
- Vandenburgh, J. G. (1965). Hormonal basis of sex skin in male Rhesus Monkeys. *General and Comparative Endocrinology, 5*, 31–34.
- Versluis, A. (2004). *Restoring paradise: Western esotericism, literature, art, and consciousness*. Albany, NY: SUNY-Albany Press.
- Viviani, P., & Aymoz, C. (2001). Colour, form, and movement are not perceived simultaneously. *Vision Research, 41*, 2909–2918.
- Vrij, A. (1997). Wearing black clothes: The impact of offenders' and suspects' clothing on impression formation. *Applied Cognitive Psychology, 11*, 47–53.
- Vrij, A., & Akehurst, L. (1997). The existence of a black clothing stereotype: The impact of a victim's black clothing on impression formation. *Psychology Crime and Law, 3*, 227–237.
- Wagner, G., & Boynton, R. M. (1972). Comparison of four methods of heterochromatic photometry. *Journal of the Optical Society of America, 62*, 1508–1515.
- Waitt, C., Gerald, M. S., Little, A. C., & Krasieburd, E. (2006). Selective attention toward female secondary sexual characteristics. *American Journal of Primatology, 68*, 738–744.
- Wallner, B., Aspernig, D., Millesi, E., & Machatschke, I. H. (2011). Non-lactating versus lactating females: A comparison of sex steroids, sexual coloration, and sexual behavior in Japanese macaques. *Primates, 52*, 69–75.
- Watts, I. (2010). The pigments from Pinnacle Cave 13B, Western Cape, South Africa. *Journal of Human Evolution, 59*, 392–411.

- Waynforth, D., & Dunbar, R. I. M. (1995). Conditional mate choice strategies in humans: Evidence from “lonely hearts” advertisements. *Behaviour*, *132*, 755–779.
- Wexner, L. B. (1954). The degree to which colors (hues) are associated with mood-tones. *The Journal of Applied Psychology*, *38*, 432–435.
- Whitfield, T. W., & Whiltshire, T. J. (1990). Color psychology: A critical review. *Genetic, Social, and General Psychology Monographs*, *116*, 385–411.
- Wiedermann, M. W. (1993). Evolved gender differences in mate preferences: Evidence from personal advertisements. *Ethology and Sociobiology*, *14*, 331–352.
- Wierzbicka, A. (1990). The meaning of color terms: Semantics, culture, and cognition. *Cognitive Linguistics*, *1*, 99–150.
- Wilkins, A. J., Sihra, N., & Myers, A. (2005). Increasing reading speed by using colours: Issues concerning reliability and specificity, and their theoretical and practical implications. *Perception*, *34*, 109–120.
- Wyszecki, G., & Stiles, W. S. (1982). *Color science: Concepts and methods, quantitative data and formulae* (2nd ed). New York, NY: Wiley.
- Yildirim, K., Akalin-Baskaya, A., & Hidayetoglu, M. L. (2007). Effects of indoor color on mood and cognitive performance. *Building and Environment*, *42*, 3233–3240.
- Zachar, G., Schrott, A., & Kabai, P. (2008). Context-dependent prey avoidance in chicks persists following complete telencephalotomy. *Brain Research Bulletin*, *76*, 289–292.
- Zajonc, R. (1998). Emotion. In D. Gilbert, S. Fiske, & G. Lindzey (Eds.), *The handbook social psychology* (4th ed., pp. 591–632). New York, NY: McGraw-Hill.
- Zemach, I. K., & Teller, D. Y. (2007). Infant color vision: Infants’ spontaneous color preferences are well behaved. *Vision Research*, *47*, 1362–1367.
- Zimmermann, A., Lorenz, A., & Oppermann, R. (2007). An operational definition of context. In A. Dey, B. Kokinov, D. Leake, & R. Turner (Eds.), *Context* (pp. 558–571). Berlin: Springer-Verlag.
- Zuckerman, M., Kieffer, S. C., & Knee, C. R. (1998). Consequences of self-handicapping: Effects on coping, academic performance, and adjustment. *Journal of Personality and Social Psychology*, *74*, 1619–1628.
- Zuk, M., & Decruyenaere, J. G. (1994). Measuring individual variation in colour: A comparison of two techniques. *Biological Journal of the Linnean Society*, *53*, 165–173.

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IMPLICIT THEORIES SHAPE INTERGROUP RELATIONS

Priyanka B. Carr, Aneeta Rattan, *and* Carol S. Dweck

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Abstract

It is often assumed that improving intergroup relations is simply a matter of directly addressing prejudice. In this chapter, we show that this is not the case. Instead, we illuminate through our research how implicit theories give rise to prejudice and how they disrupt intergroup relations even in people who are low in prejudice. In particular, we demonstrate that those who believe that people have fixed attributes (an entity theory) are more likely to form, invest in, and act on stereotypes, and are more likely to show problematic intergroup relations above and beyond their level of prejudice compared to those who believe that people are capable of change (an incremental theory). These compromised intergroup relations are shown for both majority-group and minority-group members. This chapter sheds new light on the processes that drive intergroup relations and suggests a novel path to improving intergroup relations—changing implicit theories.

Department of Psychology, Stanford University, Stanford, California, USA

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Much research has focused on the impact of stereotypes and prejudice on intergroup relations (e.g., Dovidio, Kawakami, & Gaertner, 2002; McConnell & Leibold, 2001; Richeson & Shelton, 2003). However, we now know that there are fundamentally different ways of construing people, groups, and even prejudice and that these differences shape intergroup relations. In this chapter, we examine people's implicit theories—their beliefs about the malleability versus fixedness of people, groups, and prejudice—to sharpen our understanding of intergroup relations. This analysis illuminates when stereotypes and prejudice are most likely to emerge and when they are likely to have the most negative consequences. But it also shows that stereotypes and prejudice are far from the whole story in intergroup relations.

In this chapter, then, we provide an overview of implicit theories about the malleability versus fixedness of human qualities and demonstrate their importance for intergroup relations. Along the way, we show how fixed theories of people and groups set up stereotypes and prejudice and magnify their influence, how fixed theories can dampen people's willingness to confront bias when it occurs, and how fixed theories of prejudice itself (the belief that one's prejudice cannot be changed) can create the signature characteristics of prejudiced behavior even in people who are low in attitudinal prejudice. Importantly, we also show how implicit theories can be changed to produce changes in intergroup relations. In this way, the work not only sheds light on the processes underlying intergroup relations but also holds new promise for understanding how those relations can be improved.

1. IMPLICIT THEORIES OF MALLEABILITY

1.1. What are implicit theories?

Implicit theories are people's beliefs about the nature of human attributes. People differ substantially and meaningfully in the beliefs they hold about human characteristics. While most people may agree on the basic principles that are the foundation of the physical world (e.g., gravity), there is much more variation in people's understanding of the basic principles of the social world—of the workings and characteristics of people and groups. Research on implicit theories focuses specifically on beliefs about people's potential for change, growth, and development (Dweck, 1999). “Entity” theorists believe that human characteristics are relatively fixed, whereas “incremental” theorists believe that human characteristics can be changed and developed. It is important to note that an incremental theory does not imply that everyone starts out with the same talent or potential or that everyone has unlimited potential. Nor do implicit theories reflect a belief about the mere

stability of characteristics—their tendency to vary or not vary spontaneously over time. Instead, at their core, implicit theories are beliefs about people's ability to control or change attributes when motivation, opportunity, and instruction are present. For example, both those who hold an entity theory and those who hold an incremental one may believe that some people start out with more talent than others and that aptitude can deteriorate with age, but they will differ in their beliefs about people's potential to create change and improve upon their ability.

Individuals may hold an entity or incremental theory about people in general (Chiu, Hong, & Dweck, 1997), about groups of people (Rydell, Hugenberg, Ray, & Mackie, 2007), about specific attributes such as intelligence (Dweck & Leggett, 1988), and about specific domains such as math (Good, Rattan, & Dweck, *in press*), arriving at different answers to questions such as, “Can the kind of person someone is be changed?,” “Can groups change their character?,” “Can intelligence be improved?,” and “Can math ability be developed?.” These theories are assessed with items that ask whether the object in question can or cannot be changed; for instance, “Everyone, no matter who they are, can significantly change their basic characteristics” versus “The kind of person someone is, is something very basic about them and it can't be changed very much.” While implicit theories about different attributes and domains are correlated, the correlation is low to moderate and people may differ in their beliefs about malleability or fixedness by domain. For example, one may believe that personality is quite malleable and able to be developed but that intellectual abilities are not very amenable to being molded by effort (Dweck, Chiu, & Hong, 1995a; Dweck, Chiu, & Hong, 1995b). Further, implicit theories about a domain are not typically correlated with ability in that domain. Both people high and low in current intellectual ability may believe that intelligence is unchangeable by effort (see Dweck, 1999).

The implicit theories people endorse can be relatively stable within individuals and can consistently affect motivation and behavior over time (e.g., Robins & Pals, 2002). However, importantly, while these theories can be stable, they are also dynamic. They can be triggered by strong situational cues (e.g., Mueller & Dweck, 1998) and can be changed through instruction and exposure to different schools of thought (e.g., Chiu, Hong, et al., 1997; Hong, Chiu, Dweck, Lin, & Wan, 1999; Kray & Haselhuhn, 2007). Researchers have changed people's theories temporarily by having them read scientific articles arguing that attributes can or cannot be changed (e.g., Chiu, Hong, et al., 1997) or in more long-term ways through workshops that teach individuals about the potential for growth (e.g., Good, Aronson, & Inzlicht, 2003). Indeed, changing theories can have a long-lasting influence on motivation and behavior (Aronson, Fried, & Good, 2002; Blackwell, Trzesniewski, & Dweck, 2007; Good et al., 2003). In sum, though people's theories can be stable,

potent situations and instruction can change them and the downstream consequences they trigger.¹

It is important to note that implicit theories are conceptually related to other important variables, such as essentialist beliefs (e.g., Bastian & Haslam, 2006) and beliefs about genetic determinism (e.g., Keller, 2005). All these beliefs capture thinking about whether people have somewhat immutable natures, and the research on all these related beliefs tends to produce parallel and consistent findings (Levy, Chiu, & Hong, 2006).

1.2. What are the general effects of implicit theories?

In this section, to lay the groundwork, we show how implicit theories shape perceptions, judgments, motivations, and behavior outside the domain of intergroup relations. In later sections, we show how these very same processes play a critical role in intergroup relations, that is, in the formation and maintenance of stereotypes, in reactions to intergroup conflict, and in behaviors in intergroup situations.

Entity and incremental theories are important to our understanding of human behavior because people's theories impact so many aspects of their psychology. Indeed, an implicit theory creates a "meaning system" (Molden & Dweck, 2006), an interpretive lens that serves to organize and make sense of the world. As will be seen, the "entity" meaning system, organized around a belief in fixed traits, biases people to simply label and categorize others according to their fixed characteristics. In contrast, the "incremental" meaning system, organized around a belief in malleable qualities, orients people toward understanding others and fostering their learning and growth (Chiu, Hong, et al., 1997; Erdley & Dweck, 1993). These implicit theory-based meaning systems also affect people as they focus on themselves, determining the extent to which they are driven to validate their own fixed qualities or to challenge themselves and grow (Blackwell et al., 2007; Dweck & Leggett, 1988; Robins & Pals, 2002).

Here, we first explore research that illuminates how implicit theories shape perceptions and reasoning about others, especially the propensity to infer traits and to label individuals. We then examine research on how implicit theories shape people's own motivations and behaviors, especially their motivations and behaviors aimed at validating their qualities. These effects will be especially important later for our understanding of intergroup relations—for our understanding of how people perceive and react to individuals from other groups and in our understanding of people's own motivations and behaviors in intergroup situations.

¹ In this chapter, we use the term entity theorists and incremental theorists to refer to those who hold entity and incremental theories—both to those whose theories have been measured and to those whose theories have been induced or manipulated.

1.2.1. Interpreting others

If one believes people's traits are fixed, then diagnosing people's traits from their behavior, rather than understanding the situational forces that shape people's behavior, takes center stage. Let us see how this works. (The reader may already begin to see how such a focus on traits can affect how readily people stereotype outgroups and how they react to difficult intergroup situations.)

1.2.1.1. Attaching unchangeable labels Research finds that people holding an entity theory of personality are more likely than those holding an incremental theory to draw inferences about people's traits from preliminary or one-time behavioral information. In one study, [Chiu, Hong, and colleagues \(1997\)](#) presented participants with lists of behaviors that were mildly positive (e.g., making one's bed), very positive (e.g., risking one's life for another), mildly negative (e.g., interrupting a speaker), or very negative (e.g., stealing a car). Participants were asked to imagine witnessing these behaviors and were given no other information about the people enacting these behaviors. They then rated how indicative these behaviors—these single instances devoid of any other contextual information—were of a person's moral goodness. Entity personality theorists found such behaviors, even the mild ones such as making one's bed, to be more indicative of a person's moral character than incremental theorists did. Importantly, entity and incremental theorists did not differ in their judgments about the valence or extremity of these behaviors: It was not the case that entity theorists saw these behaviors as more extreme. The difference was in their willingness to draw trait inferences from the same behavior. Establishing a causal role, researchers also manipulated implicit theories about personality and found that those given an entity theory compared to an incremental one were more willing to draw trait inferences about goodness and badness from a single, decontextualized instance of behavior.

Entity personality theorists, compared to incremental ones, not only are more ready to judge traits based on a small sample of behavior but also in line with their theory they are also more likely to believe in their global and enduring nature. [Erdley and Dweck \(1993\)](#) presented children with information about a new boy in school (John). The children learned that John felt anxious in this new setting and engaged in several dishonest behaviors (such as lying to impress other students or trying to copy from another student's test). John was portrayed as nervous and struggling with these decisions, and none of his depicted actions were malicious. Both entity and incremental personality theorists agreed with the statement that John is dishonest, a statement clearly supported by the information given. However, entity but not incremental theorists generalized this information more broadly and inferred global traits from his behavior. Entity theorists rated John as more "mean," "nasty," and "bad" than incremental theorists did, giving less weight to John's

situation, motivations, and psychological fears. In addition, when asked to imagine seeing John again in a few weeks (i.e., after he had a chance to get used to his new situation) and to think about what he would be like then, incremental theorists thought, on average, that he would be somewhat different, while entity theorists thought, on average, that he would be somewhat the same. The two groups also differed substantially in whether they thought John would be a troublemaker several years later, with incremental theorists tending to say no and entity theorists tending to say yes. Entity theorists, true to their theory, believed less in his capacity to change.

In a related vein, [Chiu, Hong, and colleagues \(1997\)](#) found that while entity theorists believe in the rigid, cross-situational nature of traits, incremental theorists view them as more fluid and responsive to situations: Entity theorists predicted that a person who exhibited more of a trait (e.g., friendliness) than another person in one situation would again exhibit more of it than the other person even in a very different situation.

Consistent with this line of research, [Molden, Plaks, and Dweck \(2006\)](#) found that entity theorists are drawn to trait information but do not adjust for situational information. When people are cognitively burdened, they prioritize and give attention to information that is meaningful to them. Under cognitive burden, entity theorists adjusted their initial judgments of a person behaving anxiously to account for trait information but not for information about the situation's demands on the person. That is, even given information about a powerful situation a person was in (she was in an anxiety-provoking situation and asked to publicly discuss her most embarrassing moments), entity theorists did not update their judgments about that person's anxious nature. Further, research shows that the quick trait inferences entity theorists draw can impact weighty decisions. In one line of research, entity personality theorists were more likely than incremental ones to use information such as the clothing of a defendant on a day of the murder (a leather jacket vs. a suit) to infer the defendant's moral character and his guilt ([Gervey, Chiu, Hong, & Dweck, 1999](#)).

In sum, research shows that an entity personality theory compared to an incremental one leads individuals to focus on deciphering traits and draws their attention away from situations and motivations that may exert influence on people's actions. For entity theorists, traits are believed to be easily detectable and appear to carry important predictive value. Though incremental theorists may also use trait information, they are more cautious about labeling people with traits and treat traits as more tentative and updatable descriptors of people ([Erdley & Dweck, 1993](#)).

1.2.1.2. Engagement and compromise with others during difficult social interactions Given their differences in trait inferences, will entity and incremental theorists react differently to individuals with whom they have negative or difficult interactions?

One line of research investigated people's responses when faced with disagreement or conflict with another person. [Kammrath and Dweck \(2006\)](#) asked participants to report an instance of difficult conflict with a partner in a close relationship and indicate how they responded to this conflict. Entity and incremental personality theorists did not differ in the severity of the conflict they reported but differed substantially in the strategies they adopted in response to the conflict. During conflicts, incremental theorists (those who believed that others could change) engaged actively with their partner, voicing their concerns and trying to work out a solution (e.g., endorsing statements like "I openly discussed the situation with my partner."). Entity theorists (those who believed that people were not capable of change), however, disengaged from their partner, choosing to hide their feelings and choosing not to work toward a solution (e.g., endorsing strategies like "I learned to live with it."). In another study, these researchers asked participants to keep a daily diary of the conflicts they experienced in their relationships. They found again that, especially with more serious conflicts, incremental theorists voiced their opinions, actively and constructively engaged with their partner, and tried to find a solution. Entity theorists withdrew and avoided, bottling up their anger and thinking about ending the relationship with their partner. For entity theorists—trying to change their partner and influence their relationship with the partner was less of an option—it was a "take it or leave it" situation.

These findings are similar to those that emerge in research examining the effects not of implicit theories of personality but of implicit theories of relationships—beliefs that relationships are fixed and destined (believing, e.g., that a relationship was "meant to be") or open to growth and change (believing, e.g., that challenges help grow and deepen relationships; see [Knee, Patrick, & Lonsbary, 2003](#)). [Knee, Patrick, Vietor, and Neighbors \(2004\)](#) found that while those who endorsed fixed beliefs about relationships became more dissatisfied with their relationship when they had disagreements, those who endorsed growth beliefs did not. Similarly, when those who held fixed beliefs discussed problems with their partner, they became much less committed to their relationship. This was not the case for those who endorsed growth beliefs. Again, it seems that believing in an inability to change and grow makes disagreement and conflict particularly negative and fosters the desire to avoid and leave, rather than engage and solve.

Other research too finds that entity theories can interfere with positive conflict resolution strategies, such as compromise and negotiation. [Chiu, Dweck, Tong, and Fu \(1997\)](#) asked college students to imagine a scenario in which a professor's changing of the rules late in the semester led to their receiving a lower grade than they had initially thought they would. Students were asked to indicate what they would do in this conflict situation. Those who endorsed an incremental rather than an entity theory about people sought to engage with the professor—the wrongdoer—and try to negotiate

with him to restore a fair outcome. In contrast, those who endorsed an entity theory, not believing in the wrongdoer's ability to change, were more likely to focus on revenge or punishment.

In sum, entity theorists, who believe in the fixedness of people and relationships and are prone to inferring stable and global traits from even a few instances of behavior, are more likely to shut down, pull back, or retaliate when interactions with others become difficult. In these difficult situations, incremental theorists are more likely to see engagement with, education of, and negotiations with others as a preferable option. Though withdrawing from difficult social situations can be a viable strategy and even the preferred one in dangerous relationships, an entity theory, by making it the default strategy, may rob individuals of potentially positive relationships. In addition, an entity theory, by making negotiation and compromise less likely, may thwart progress toward more positive relationships.

1.2.2. The self's motivations and behaviors

Thus far, we have focused on the implications of people's implicit theories (particularly their theories about the personalities of others) for how they judge and react to others. However, as mentioned, people's implicit theories also affect them as they turn inward—affecting their reasoning about the self, their goals for the self, and their self-related choices. In this section, we examine research exploring these issues. We focus particularly on people's theories about their intelligence, since this is the area in which these issues have been most extensively explored. As will be seen, implicit theories have powerful effects in situations in which people's ability can be evaluated or in which they have the opportunity to learn and grow their abilities. However, keep in mind that intergroup relations are also an arena in which people can be evaluated and in which they can learn and grow.

As we seek to understand the effects of implicit theories, it is important to consider what people aim for in situations in which achievement is important and evaluation is possible. In these situations, people can aim to demonstrate their ability and prove how competent they are (a performance goal) or aim to develop their ability and master something new (a learning goal). Depending on the situation, almost everyone pursues both performance and learning goals, and both goals play a role in achievement. However, people differ in which goal is their predominant focus.

Entity and incremental theories, in part, drive that focus. One would expect that, for those who believe that a characteristic—like intelligence—is largely unchangeable, the possibility of discovering or demonstrating that they do not possess the valuable trait should be highly aversive. Thus, validating that they possess this trait by performing well or avoiding a poor performance should take center stage. In contrast, those with a more incremental belief about traits like intelligence—believing intelligence can be developed—should be less worried at any given moment about having or

proving a trait. For them, evaluation and current performance should be less critical, and learning should take center stage.

Research supports this expectation. For entity theorists, motivation tends to be organized more around affirming their fixed traits through performance goals. For incremental theorists, motivation tends to be organized more around refining their malleable qualities through learning goals (Blackwell et al., 2007; Dweck & Leggett, 1988; Robins & Pals, 2002; see also Beer, 2002; Kray & Haselhuhn, 2007). Illustratively, one line of research examining brain-wave data (event-related potentials or ERPs) finds that while entity theorists become alert and engaged when presented with performance-relevant information but not learning-relevant information that can help them improve, incremental theorists consistently engage with learning-relevant information (Mangels, Butterfield, Lamb, Good, & Dweck, 2006).

How does the different motivational focus on validating the self versus growing the self play out?

1.2.2.1. Avoiding challenges One way it plays out is in how willing people are to engage with challenging situations—situations that carry the potential of poor performance and a diagnosis of their abilities. Research finds that entity theorists become more anxious in anticipation of these evaluative situations (Cury, Da Fonseca, Zahn, & Elliot, 2008; Rhodewalt, 1994). For example, they report engaging in more self-handicapping (Rhodewalt, 1994). Self-handicapping occurs when people put up barriers to their success, such as partying before an important test. These ultimately self-defeating strategies are designed to ensure that the challenging situation, whatever the outcome, does not allow for a negative diagnosis of the person's ability. Poor performance can be attributed to external factors (such as lack of sleep), allaying an entity theorist's fears that they will prove themselves to be lacking in ability.

Given their concerns about validating their ability, entity theorists should avoid challenging situations that put their ability in question, while incremental theorists should more readily embrace these situations that also allow an opportunity for growth. In one line of research, Dweck and Leggett (1988) examined whether implicit theories of intelligence predicted different behavioral choices of challenging tasks. Adolescents were given a choice between tasks that were unchallenging for them and/or sure to validate their ability ("fairly easy, so I'll do well" or "problems that are hard enough to show I'm smart") or tasks that presented the opportunity to learn but carried the potential for poor performance (problems that are hard, new, and different so that I could learn). While 61% of incremental theorists chose the challenging task that risked poor performance but supported learning, only 18% of entity theorists did so. Thus, those with an entity theory, worried about projecting and validating their intelligence, shied

away from a challenging task that offered them an opportunity for growth. In parallel with these findings, research by Beer (2002), which examined entity and incremental theories not about intelligence but about shyness, found that shy people who endorsed an incremental theory about shyness, compared to those who endorsed an entity theory, chose to enter more challenging social situations even while controlling for their level of shyness.

1.2.2.2. *Not wishing to learn* If people do not believe in growth, then their interest in learning should wane—even for learning tasks that are not particularly threatening or challenging. We saw in the study conducted by Mangels and colleagues (2006) described above that entity theorists pay less attention than incremental theorists to information they can learn from. Hong and colleagues (1999) also found that entity theorists were less likely than incremental theorists to take advantage of learning opportunities. The researchers manipulated people's theories of intelligence and then gave them an intelligence test. After the test, some participants were told that their performance had been unsatisfactory and were offered a choice between an unrelated task or a task that could help them improve their performance on the next round of problems. Of those in the incremental theory condition, 73% chose the remedial task that would allow them to improve. However, only 13% of those in the entity theory condition chose this task.

In fact, Nussbaum and Dweck (2008) found that entity theorists, after a poor performance, preferred dwelling on other people's failure rather than enhancing their own learning. These researchers manipulated entity and incremental theories of intelligence and examined people's responses after failure. After experiencing failure on a test, people in the incremental theory condition chose to learn and improve by reviewing the tests of others who had performed *better* than them. However, people in the entity theory condition actually chose to review the tests of individuals who had performed *worse* than them. Viewing these tests of poorly performing individuals did not give people the opportunity to learn how to do better. Instead, it provided an opportunity to repair self-esteem by feeling superior to others.

This research clearly indicates that an entity theory devalues opportunities to learn and instead fosters a primary focus on performance and affirming one's ability.

1.2.2.3. *Reactions in challenging situations* As we have seen, entity theorists are more motivated to avoid challenging situations that put their ability in question. What happens when challenging situations cannot be avoided?

In the research on incremental and entity theories about shyness discussed above (Beer, 2002), researchers examined shy individuals' behaviors

in social interactions with new people—a challenging situation for them. Entity and incremental theorists behaved very differently in these interactions. Entity theorists exhibited more avoidant and anxious behavior—pulling back and avoiding eye contact with their interaction partners—while incremental theorists were more open and engaging. In fact, entity theorists were judged by perceivers to be more shy and aloof because of these behaviors.

A study by [Mueller and Dweck \(1998\)](#) also examined responses to challenging situations. Students were given a set of moderately difficult items from an IQ test (Raven's Progressive Matrices; [Raven, Styles, & Raven, 1998](#)), were told that they had performed well on this test, and were praised for their performance. Some were given praise for being intelligent (intelligence praise), some for working hard (effort praise), and some were given no additional praise (control). These different types of praise oriented students toward different theories of intelligence. Intelligence praise—which cast intelligence as a trait—created more of an entity belief about intelligence. Effort praise—which put the emphasis on hard work—created more of an incremental belief about intelligence. The students then experienced a challenge as they struggled with a second, very difficult set of problems from the same IQ test. After this challenge, they received a third set of problems that was matched in difficulty to the first set. How did the students perform on this third set? One might expect that, because of the practice and exposure the students had, they would perform better on this set compared to the first one. Those in the control group met this expectation: they slightly improved their performance. Those given the effort praise (oriented toward an incremental theory) improved their performance significantly. But, those given intelligence praise (oriented toward an entity theory) performed significantly *worse* on the third set than the first one and significantly worse than the other two groups on this third set. In addition, after a challenge, those given intelligence praise compared to effort praise reported less enjoyment of the task and less desire to continue with it. Thus, those put in an entity mindset seemed highly disrupted by the challenging situation.

This research demonstrates that situations in which ability could be evaluated are more negative experiences for entity than incremental theorists—marked by more anxiety and more disengagement. These reactions make sense given heightened worry about validating ability and increased concern about being seen as lacking in ability. Indeed, neuroscience research shows that entity theorists about intelligence find negative feedback about their intellectual performance on a difficult test more emotionally significant than incremental theorists ([Mangels et al., 2006](#)). In addition, entity theorists become more defensive after encountering poor performance on difficult tests, lying about their performance ([Mueller & Dweck, 1998](#)). And their self-esteem takes a bigger hit after poor performance. [Niiya,](#)

Crocker, and Bartmess (2004) found that among those who cared very much about academics and whose self-esteem was tied to academics, entity intelligence theorists, but not incremental ones, suffered anxiety and low self-esteem after poor performance.

In short, entity theorists, focused on validating their abilities, appear to be more anxious in challenging situations—situations that put their abilities in question—than incremental theorists. Ironically, this anxiety can result in poorer performance, leading entity theorists to look less intelligent, even though they are no less able. For instance, in one line of research, Cury, Elliot, Da Fonseca, and Moller (2006) taught adolescents either an entity or an incremental theory of intelligence and then measured their performance on an IQ test. Those taught an entity theory performed significantly worse on this IQ test than those taught an incremental theory. Importantly, the two groups of participants did not differ in preexisting intellectual ability—their performance was equal on an IQ test administered before their implicit theories about intelligence were influenced (see also Cury et al., 2008; Mueller & Dweck, 1998).

1.2.3. Summary

The literature reviewed above reveals that entity and incremental theories create meaning systems for people (Molden & Dweck, 2006), and these meaning systems change the nature of person perception. Those who believe in the fixedness of people focus more on deciphering stable traits, believe more in the predictive validity of these traits, are less likely to update their trait inferences based on situational information, and are more likely to withdraw from or avoid people with whom they have difficult interactions. Those who believe in people's capacity to change and grow do not label as readily, do not believe in the validity of labels as strongly, and are more likely to persist through difficult interactions and proactively work toward a solution.

In following sections, we explore whether these effects extend to perceptions of social groups. We examine whether those who hold an entity rather than incremental theory are also more prone to stereotyping—a process in which trait labels are applied to groups of people (often on the basis of limited information), in which situational and motivational influences are deemphasized, and in which trait inferences are not readily updated (Allport, 1954). We also examine how implicit theories influence people's strategies—their propensities for engagement and compromise—in intergroup situations marked by conflict, difficulty, and tension.

The literature reviewed above also highlights the fact that meaning systems created by implicit theories change the nature of people's motivations related to the self. Those who believe in the fixedness of attributes like intelligence are more driven to validate their ability and are more anxious about situations that may put their aptitude in question. In contrast, those

with more of an incremental theory tend to embrace challenges that could help them stretch their ability.

In the next sections, we explore how these very patterns play out in the domain of intergroup relations—in people’s drive to validate their lack of prejudice and in their anxiety in intergroup interactions.

2. IMPLICIT THEORIES AND INTERGROUP RELATIONS

More and more research is revealing the important role that implicit theories play in people’s behaviors in intergroup settings—the behavior that emerges when “individuals belonging to one group interact, collectively or individually, with another group or its members in terms of their group identification” (Sherif, 1966; p. 12). As ethnic and racial diversity increases in societies like the United States, intergroup interactions become increasingly important and virtually inevitable (Feagin & O’Brien, 2004). Nevertheless, intergroup interactions and interracial interactions in particular are frequently avoided and, when they do occur, are often marked by stereotyping, prejudice, anxiety, and unfriendliness (Mendes, Blascovich, Lickel, & Hunter, 2002; Norton, Sommers, Apfelbaum, Pura, & Ariely, 2006; Richeson & Trawalter, 2005; Shelton, 2003; Trawalter & Richeson, 2008; Vorauer, Main, & O’Connell, 1998; for reviews, see Shelton & Richeson, 2006; Trawalter, Richeson, & Shelton, 2009).

Implicit theories can help us understand why this is so. Though much past research has focused on negative intergroup attitudes and cognitive associations as the major drivers of intergroup relations (e.g., Allport, 1954; Dovidio et al., 2002; Greenwald, McGhee, & Schwartz, 1998; McConnell & Leibold, 2001; Richeson & Shelton, 2003), implicit theories also wield great influence in the intergroup context. Below, we examine how implicit theories affect the formation of stereotypes, the maintenance of stereotypes, the expression of bias, and the responses of individuals targeted by prejudice or embroiled in intergroup conflict. We also examine how implicit theories affect openness to intergroup encounters, anxiety in these encounters, and willingness to work toward improvement of intergroup relations. This analysis enriches our understanding of the forces shaping intergroup relations and opens doors to new ways of improving these relations.

2.1. Interpreting others

The effects of implicit theories extend beyond the interpretation of individuals to the interpretation of social groups and those encountered in intergroup interactions. Here, we ask: When are stereotypes most likely to arise and how do those targeted by them react? We also explore how

implicit theories about people and groups shape behaviors and attitudes toward outgroup members encountered in intergroup conflict.

2.1.1. Attaching unchangeable labels to groups

We have seen that entity theorists are more likely to draw trait inferences about individuals (even based on sparse information), more likely to over-generalize traits as reflections of global character, and less likely to account for situational determinants of behavior (Chiu, Hong, et al., 1997; Erdley & Dweck, 1993; Molden et al., 2006). In short, they are more prone to concluding that what people do reflects who they truly are and will be. How does this propensity affect the inferences people make about groups, that is, the process of stereotyping?

2.1.1.1. Stereotype endorsement and formation Levy, Stroessner, and Dweck (1998) investigated the effects of implicit theories about the malleability of people on the endorsement of stereotypes and the emergence of stereotypes. Levy and colleagues (1998) had participants list societal stereotypes (positive, negative, and other) about various ethnic, racial, and religious groups—African Americans, Asians, Whites, Latinos, and Jews. They found that those who held an entity theory and those who held an incremental theory about people were equally knowledgeable about the content of societal stereotypes. But they differed in the degree to which they believed the stereotypes were true (stereotypes such as African Americans are less intelligent and Asians are hardworking): Entity theorists gave more credence to stereotypes. In addition, compared to incremental theorists, entity theorists were more likely to believe that stereotypes were reflections of the group's innate character and less likely to believe they arose from changeable environmental or societal factors.

Levy and colleagues (1998) also investigated how stereotypes come into being. People were told about a novel group—a student group at another university about which they had no preconceptions. Everyone received information about behaviors performed by 18 members of that group. Half learned about a student group in which a majority (two-thirds) of those members had engaged in negative behaviors (e.g., pushed to the front of a line at a movie theater) and a smaller group (one-third) had engaged in neutral behaviors (e.g., played a video game at the arcade). The other half learned about a group in which two-thirds had engaged in positive behaviors (e.g., offered to share an umbrella with a stranger) and one-third had engaged in neutral ones. Participants then provided an open-ended description and several ratings of the group they had learned about. Those endorsing an entity theory rather than an incremental theory listed more traits and were more extreme in their use of traits (using words such as “extremely”) when they described the group (both the predominantly positive and negative ones). On their ratings of the group on dimensions like

bad–good, immoral–moral, and evil–virtuous, entity theorists made more positive ratings of the positive group and more negative ratings of the negative group. They were also faster than incremental theorists in their trait judgments and were more likely to believe they had sufficient information (one behavior per group member) to form a fair impression of the group. These findings highlight that entity theorists more readily ascribed global traits to groups and perceived the members of the group as more homogeneous on these traits. Though everyone learned that one-third of the members had behaved differently from the other two-thirds, entity theorists were more likely to believe that the group members were similar to each other. Such perceptions of homogeneity within a group are important in the process of stereotyping—the process of applying labels to an entire group of people (Park & Judd, 1990).

The studies described so far measured implicit theories of personality to examine their impact on seeing a group as an “entity” made of similar people and defined by stereotypes that reflect their innate character. However, because of their correlational nature, these studies cannot answer whether implicit theories *cause* differences in the formation and endorsement of stereotypes. To address this important question, Levy and colleagues (1998) manipulated individuals’ beliefs about the malleability of personality. People were given one of two compelling “scientific” articles on the nature of personality that claimed it was either fixed or malleable. In the “entity” condition, people read an article entitled “Personality, like plaster, is pretty stable over time” that argued personality was relatively unchangeable. In the “incremental” condition, participants read an article entitled “Personality is changeable and can be developed.” Both articles presented the same evidence and data—case studies, longitudinal data, and intervention programs—but differed in the key findings and conclusions reached. These articles successfully changed people’s beliefs about the malleability of personality. After reading these articles, participants rated the degree to which they believed in stereotypes about racial groups (e.g., African Americans are unintelligent) and occupational groups (e.g., lawyers are greedy). Establishing that a fixed belief about human nature causes increased stereotyping, those who were (temporarily) taught an entity view of human characteristics more strongly endorsed stereotypes about groups (both racial and occupational) than those who were taught an incremental view of human nature.

Even children work this way. Levy and Dweck (1999) measured sixth graders’ beliefs about the malleability of people’s characteristics and presented them with information about the behaviors of students in schools they had not heard of. Just like adults, children with a more entity view of personality more readily formed stereotypes about the schools based on small samples of behavior (nine children, six of whom performed good or bad actions), making more extreme trait ratings of each school and seeing

students within these schools as more similar on important traits. The research also explored the consequences of this stereotyping. Children were asked to make judgments of a student who was absent the day the researchers observed the behaviors of students in his school. Let us take the example of the student who went to a “negative” school—a school in which a majority of students (six of nine) had exhibited negative behaviors. Entity theorists, compared to incremental theorists, rated the novel student—about whom they knew nothing—as more mean and bad. In addition, entity theorists were more likely than incremental theorists to want to avoid any contact with students from the “negative” school. Research by [Karafantis and Levy \(2004\)](#) also underscores the impact of implicit theories on biased behaviors toward other groups. Children who believed in an entity theory about personality rather than an incremental one held more negative attitudes toward a disadvantaged outgroup (homeless and UNICEF-funded children), saw them as more distant and dissimilar from themselves, were less interested in having social contact with them, and were less interested in volunteering to help them.

This research indicates that for entity theorists, there is something very “real” about group membership and the labels ascribed to groups. For them, groups have decipherable traits that are shared by its members and that provide a good way to understand individuals from that group. In other research, [Eberhardt, Dasgupta, and Banaszynski \(2003\)](#) pointedly demonstrated the power labels hold for entity theorists, affecting even their visual perception. Participants were presented with an image of a biracial individual (created by morphing an African American face and a White face) and were told that what they were seeing was an image of either an African American or a White individual. When they were later asked to identify or draw the face that they had seen, those who believed in an entity theory of people chose/drew an image that was strikingly closer to the label, while those who believed in an incremental theory chose/drew an image that was far less stereotypical of the racial label they had been given.

Last, though we have focused on implicit theories about individuals, recent research has identified a different kind of implicit theory that also affects stereotyping—one about the malleability of groups ([Rydell et al., 2007](#)). Theories about the malleability of groups are measured by agreement with items such as “Groups can change even their most basic qualities.” Though theories about people and groups are positively related to each other, implicit theories about groups produce effects above and beyond those of implicit theories about people. [Rydell and colleagues \(2007\)](#) found that those who believed or were taught that groups are relatively fixed (that their characteristics are static rather than malleable) saw groups as more “entitative”—as more tied together by the shared goals and investment of their members. As a result, they endorsed group stereotypes to a greater degree.

In sum, those with an entity view of people and groups more readily apply labels—stereotypes—to groups and literally see the world according to these stereotypes. And, this increased stereotyping has behavioral consequences, such as lowered interest in engaging with or helping people from groups stereotyped as negative.

2.1.1.2. *Stereotype maintenance* People are motivated to protect their meaning system. They may allow their theory to be replaced by another, but they do not want to be left theory-less, that is, without a way to organize and predict their world. When information violates the predictions people derive from their implicit theories, they experience anxiety and seek to regain control (Plaks, Grant, & Dweck, 2005). As described above, one of the core predictions arising from an entity theory is that stereotypes are valid and are useful predictors of behavior. Those with entity theories, thus, expect people from a group to behave in line with stereotypes about their group (to be stereotype-consistent) while those who endorse incremental views do not imbue stereotypes with such predictive power and do not expect such stereotype consistency (Levy & Dweck, 1999; Levy et al., 1998). Motivated to affirm their theories, entity theorists should therefore seek and be attentive to information that confirms the stereotype rather than stereotype-inconsistent information. Incremental theorists should show no such preference for stereotype consistency and might perhaps prefer stereotype-inconsistent information.

Research by Plaks, Stroessner, Dweck, and Sherman (2001) examined this hypothesis by testing how entity and incremental person theorists attended to stereotype-consistent and stereotype-inconsistent information. They found that entity theorists tuned out information that challenged their stereotypes (e.g., a disadvantaged boy excelling on a test) and preferentially attended to and remembered information that confirmed their stereotypes (and therefore their beliefs in the validity and stability of traits). In fact, they found that the more stereotype-inconsistent the information was the more entity theorists turned their attention away from it. Incremental theorists, in contrast, tended to pay more attention to stereotype-inconsistent information than stereotype-consistent information. This suggests that entity theorists are not just more likely to form stereotypes, but, by tuning out information that challenges their stereotype and selectively attending to information that confirms it, also more likely to maintain them. Incremental theorists are more open to stereotype-disconfirming evidence that may render the stereotype obsolete and inconsequential.

2.1.1.3. *Summary* Driven by their different meanings systems, entity and incremental theorists follow very different paths in their judgments about groups, with entity theorists being more likely to form stereotypes and to process incoming information in a way that maintains them. Importantly,

the research does not support the conclusion that entity theorists are driven to see others and other groups as negative. In fact, they are also more likely than incremental theorists to form and endorse positive stereotypes (Levy et al., 1998).

It is also important to note that beliefs in fixedness do not always lead to greater prejudice. Haslam and Levy (2006) found that believing gay individuals' sexual preference was inborn and unchangeable resulted in less prejudice against gay individuals. In this case, believing that sexual preference is a choice that can be "unchosen" seems to fuel prejudice. It would be fascinating for future research to examine the conditions under which people are blamed more when they are seen as in control of their attributes as opposed to when they are seen as having attributes that are unchangeable.

In sum, entity theorists are in general more likely to form, endorse, maintain, and therefore act on stereotypes, which often are negative, which rob people of individuality even when they are positive, and which often hold negative consequences for those targeted by stereotypes. Should we be disheartened that entity theorists (approximately 40% of the population; Dweck, 1999) exhibit such propensities toward stereotyping, a major hurdle to positive intergroup relations? We believe that these findings instead offer hope for improving intergroup relations. They suggest that much stereotyping may follow not from animus but from people's beliefs about the malleability of individuals. By changing people's implicit theories—by teaching them that people, groups, and their attributes are potentially malleable—we may create an environment in which stereotypes are less likely flourish. And research indicates that such change in theories is possible. Though individuals are resistant to information that violates their theories (Plaks et al., 2005), they are open to replacing their theories (e.g., Levy et al., 1998; Rydell et al., 2007). Future research may focus on more intensive interventions (such as those used to change theories of intelligence; e.g., Blackwell et al., 2007; Good et al., 2003) to create more lasting change in stereotyping, prejudice, and intergroup relations.

2.1.2. Engagement and compromise with others during intergroup conflict

The research on implicit theories and interpersonal conflict, reviewed above, shows that those who hold a more entity theory and believe others will not change do not tend to address conflict in a direct, constructive way. Instead, they often withdraw from conflict in their close relationships rather than voicing their concerns (Kammrath & Dweck, 2006), and they often choose not to engage or negotiate with wrongdoers (Chiu, Dweck, et al., 1997). In this section, we explore the consequences of implicit theories for dealing with conflict in intergroup contexts as we examine people's willingness to confront perpetrators of prejudice and their willingness to negotiate and compromise with outgroup members.

2.1.2.1. Engagement with perpetrators of prejudice Conflict in intergroup contexts—particularly conflict related to prejudice—may raise the stakes relative to other interpersonal conflicts. There is an uneven playing field in situations in which prejudice occurs, and members of groups targeted by prejudice may face the risk of material, social, and even physical repercussions for engaging with the conflict and confronting prejudice. However, speaking out against prejudice also has many positive consequences, such as educating the perpetrators of prejudice, communicating anti-prejudice norms, and creating changes in bias (Blanchard, Crandall, Brigham, & Vaughn, 1994; Czopp, Monteith, & Mark, 2006). Indeed, there are prominent historical examples that simultaneously represent triumphs of action and cautionary tales of the dangers of speaking out against prejudice. Martin Luther King, Jr. is one such example.

Even today, members of stereotyped groups regularly experience prejudice. For example, studies of the everyday experiences of African American and female undergraduates indicate that they experience explicit expressions of prejudice approximately once every 2 weeks (Swim, Hyers, Cohen, & Ferguson, 2001; Swim, Hyers, Cohen, Fitzgerald, & Bylsma, 2003). Many members of stereotyped groups anticipate they would speak up against bias, but when actually faced with it most do not (Swim & Hyers, 1999; Woodzicka & LaFrance, 2001, 2005).

Potential costs (see Shelton & Stewart, 2004; Stangor, Swim, Van Allen, & Sechrist, 2002) aside, how are we to understand such reluctance to confront prejudice? Research by Rattan and Dweck (2010) has found that implicit theories are a key determinant of willingness to confront expressions of bias. In one study, the researchers brought African American and Latino undergraduates into the lab for a study on impression formation. Students' implicit theories of personality were assessed and, after some filler questionnaires, they engaged in an online conversation about the undergraduate application and admission process with another student (a White male named Matt). After a series of innocuous statements about the application process, Matt uttered a biased statement: "I was really worried that I had to be even more overqualified because of the whole diversity admissions thing . . . so many schools reserve admissions for students who don't really qualify the same way so I was pretty freaked out."

It was then the student's turn to respond. Those who held a more incremental theory were significantly more likely to directly confront the biased statement. While those who held a more entity theory simply focused on other topics and avoided bringing up the bias, the incremental theorists explicitly identified the biased comment and disagreed with it. This was true even though entity and incremental theorists did not differ in their evaluation of the statement. Thus, in the context of intergroup conflict—when faced with an expression of prejudice against their group—minority-group members were more likely to speak out if they believed that people could change.

Although the statement in the above example was rated as biased by the participants, it may not represent the most blatant form of prejudice. Therefore, in two additional studies, [Rattan and Dweck \(2010\)](#) explored people's responses to more extreme bias. In these studies, participants imagined being in a business setting, where a coworker said, "I'm really surprised at the types of people who are working here . . . with all of this 'diversity' hiring—women, minorities, foreigners, etc., I wonder how long this company will stay on top?" In one study, participants—minority-group members and females, all of whom were targeted by the biased statement (and rated it as highly offensive)—were more likely to report that they would confront the biased statement if they held an incremental rather than entity theory. In addition, entity theorists were more likely than incremental theorists to endorse avoidance strategies, such as leaving the situation and pretending it did not happen. Another study used scientific articles to manipulate people's implicit theories and found that inducing an incremental theory, rather than an entity theory, caused targets of prejudice to become more willing to confront prejudice and less likely to avoid the situation.

Across these studies, an entity theory was associated with silence while an incremental theory predicted greater speaking up. But [Rattan and Dweck \(2010\)](#) also wondered who would be more willing to engage in the future with the person who uttered the biased statement—the incremental theorists, who tended to confront more, or the entity theorists, who "kept the peace"? Perhaps the belief that people can change, which led to the confronting of prejudice, might also leave targets willing to give the perpetrator of bias another chance. In the two scenario studies described above, people who held a more incremental theory reported greater willingness to engage in future social and professional interactions with the person who expressed bias. Entity theorists, seeing little hope for that person to change, were more likely to avoid that person in the future. The study that manipulated implicit theories allowed for a causal conclusion to be drawn: Believing in fixedness fosters silence and avoidance, while believing others can change leads to both a higher likelihood of confronting and a greater openness to continued interactions with someone who expressed bias.

Even when entity theorists are given evidence that someone has changed, they are reluctant to believe it. In a scenario study, [Rattan and Dweck \(2011\)](#) led people to imagine they had confronted biased behavior and then provided them with evidence that the person they had confronted acted very differently on a future occasion. Entity theorists were significantly less likely than incremental theorists to believe that this altered behavior represented true change. In other words, an entity theory made people less likely to believe that confronting prejudice can create change even when they see evidence that it has.

2.1.2.2. *Compromise in intergroup conflict* Sometimes, as in geopolitical conflicts, large groups of people collide over seemingly intractable issues. In the Israeli–Palestinian crisis, these issues involve national borders, the right to Jerusalem, or the right of return for Palestinian refugees. Most traditional approaches to conflict resolution involve bringing the warring parties together or teaching each group positive or empathy-promoting things about the other group. However, these approaches may create reactance and lead groups to close themselves off to these messages. Can implicit theories foster more positive attitudes and greater willingness to compromise without risking reactance? Halperin, Russell, Trzesniewski, Gorss, and Dweck (2011) examined the role of implicit theories about groups—beliefs about groups’ abilities to change—in the Israeli–Palestinian conflict. They found that when those who were involved in the conflict—Israeli Jews, Palestinians in Israel, or Palestinians in the West Bank—believed or were taught a malleable rather than fixed view of groups, they had more positive attitudes toward the outgroup and were more willing to make important compromises that could create peace (e.g., compromise over the status of Jerusalem). West-Bank Palestinians, many of whom were members of Hamas and Fatah, also indicated greater willingness to meet with Israelis and hear their views.

In teaching a malleable theory, no mention was made of the groups involved in the Israeli–Palestinian conflict. Instead, the focus was on teaching that violent groups (in general) could change, with examples of groups that once would have been considered violent but now appear to be peaceful. This new construal of groups and their nature then changed people’s attitudes toward outgroups they were in conflict with.

Learning that others’ negative behaviors do not emanate from their fixed traits can remove roadblocks to peace and conflict resolution. Future research should examine ways in which an incremental belief can be maintained even in the face of continued negative behavior.

2.1.2.3. *Summary* Intergroup bias and conflict unfortunately persist. In the case of prejudice, majority-group members rarely confront expressed bias (Kawakami, Dunn, Karmali, & Dovidio, 2009) and often look to minority-group members to determine if bias has even occurred (Crosby, Monin, & Richardson, 2008). These findings suggest that, unfair though it may be, in reality it may fall upon targets of prejudice to be the ones who label bias and confront it when appropriate. On the positive side, addressing bias when it occurs both can communicate important anti-prejudice norms (Blanchard et al., 1994) and can be effective in reducing stereotyping among majority-group members (Czopp et al., 2006). However, holding an entity theory may prevent the targets of prejudice from engaging in social action that could change bias and from even believing that social change efforts can be effective.

In addition, in the context of geopolitical conflict, research finds that an entity theory about groups may fuel tension. It may drive negative attitudes toward outgroups and prevent players in a conflict from coming together to negotiate. Taken together, the research reviewed shows that fostering beliefs about the malleability of people and groups can promote more positive outcomes in intergroup conflict.

2.2. The self's motivations and behaviors in intergroup contexts

We showed earlier how entity and incremental theories change individuals' motivational focus. An entity theory puts the focus on validating one's personal qualities. An incremental theory instead makes learning and growing more primary, taking the pressure off confirming one's qualities in any one instance (Blackwell et al., 2007; Mangels et al., 2006; Robins & Pals, 2002). How do these different motivations for the self affect critical choices and behaviors in intergroup relations?

2.2.1. Avoiding intergroup encounters

One way they do so is by shaping people's choices about engaging in challenging intergroup situations. In many parts of the United States, the lack of prejudice is a highly valued attribute, especially for majority-group members. Indeed, research finds that being or being labeled racist is a very negative experience for many White Americans (Crandall, Eshleman, & O'Brien, 2002). Thus, many White individuals value not having, or not being seen as having, prejudice.

What are the challenging situations in this context? In the domain of intelligence, challenging situations are situations in which intelligence may be evaluated or questioned. Similarly, for majority-group members in the intergroup domain, situations in which prejudice may surface or be evaluated—such as interracial interactions or a class on the history of discrimination—might be considered challenging situations. (Of course, if individuals do not value a lack of prejudice and believe that society does not value a lack of prejudice, then evaluation of prejudice would likely not be challenging.)

Based on this analysis, recent research (Carr, Dweck, & Pauker, 2011) has examined a new kind of implicit theory—majority-group members' implicit theories about the malleability of prejudice. People's beliefs about the malleability versus fixedness of prejudice are assessed by items such as "People can learn how to act like they're not prejudiced, but they can't really change their prejudice deep down." In one study, White participants' implicit theories of prejudice were assessed in one session. In a second session 2–4 weeks later (presented as unrelated to the first), the researchers examined participants' interest in interactions with members of other racial

groups (by assessing agreement with items such as “I like meeting and getting to know people from ethnic groups other than my own.”). People also rated their interest in various activities—some that brought with them the possibility of provoking prejudiced thoughts (such as tutoring disadvantaged minority middle-schoolers or reading about the civil rights movement) and some that did not involve this possibility (such as reading about biology). The researchers reasoned that those with an entity theory of prejudice would avoid these “challenging” situations in which prejudiced thoughts or behaviors may arise. Those with an incremental theory might more willingly engage in intergroup interactions and opportunities to learn about other groups. The results supported the predictions. The more people believed prejudice was unchangeable, the less they wanted to have contact with members of other racial groups or engage in activities like learning about those groups’ history. Even during a seemingly benign activity such as learning about the history of another racial group, a prejudiced thought may pop into one’s mind. Underscoring that those with an entity theory of prejudice are not just less interested in all activities, people’s theories of prejudice were unrelated to their interest in activities in which prejudice could not surface.

One possibility is that those with more fixed theories of prejudice are just more prejudiced—hold more negative attitudes about other racial groups—and therefore are less interested in interracial interactions. However, Carr and colleagues (2011) also measured participants’ racial attitudes and found that those with more of an entity theory were not any more prejudiced and that the effects described above held when controlling for participants’ prejudice. In addition, they found that implicit theories of prejudice, though positively related to implicit theories about people, affected participants’ choices in intergroup situations independent of any effects of implicit theories about people. Thus, an entity theory of prejudice and its attendant concerns about validating a lack of prejudice appears to be a powerful predictor of intergroup behaviors. It results in White participants exhibiting behaviors that could be deemed prejudiced—for instance avoiding people of other races—even when they are not high in prejudice.

To provide causal evidence, the researchers ran another study in which they manipulated White participants’ understanding of the malleability of prejudice (Carr et al., 2011). People thought they were participating in two separate studies. In the first, they were presented with several scientific articles and asked to rate their interest in them. One of these articles contained the manipulation. It was a compelling article, modeled on articles designed to change people’s theories about personality (e.g., Chiu, Hong, et al., 1997; Rattan & Dweck, 2010), that either claimed prejudice was relatively fixed (titled “Prejudice, like plaster, is pretty stable over time”) or claimed that it was malleable and changeable (titled “Prejudice is changeable and can be reduced”). Both these articles presented the same kinds of data—

anecdotes and longitudinal studies—but differed in the conclusions derived from the data about the malleability of prejudice. Participants then moved on to what they thought was a different study in which they completed over a dozen questionnaires. Most of these questionnaires were completely unrelated to prejudice or intergroup situations. However, one contained the key dependent variable—participants’ interest in engaging in interracial interactions. The results of this study revealed that the articles successfully changed people’s theories about prejudice and established the causal role of theories of prejudice: Those taught an entity theory of prejudice were less interested in interactions with members of other racial groups than those taught an incremental theory of prejudice. In addition, this effect of an entity theory of prejudice was significantly mediated by participants’ concerns about uncovering or appearing prejudiced in intergroup encounters (measured by items such as “I am concerned that I might find myself thinking or feeling in a racially prejudiced way around people of other races”). In sum, an entity theory of prejudice created more concerns about having prejudice or being seen as having prejudice and resulted in dampened interest in interracial interactions.

2.2.1.1. Summary Past research has shown that intergroup contact and openness to learning about others is a fruitful way to reduce prejudice and improve intergroup relations (Page-Gould, Mendoza-Denton, & Tropp, 2008; Pettigrew & Tropp, 2006; Tropp & Pettigrew, 2005). However, such contact and learning is often avoided, especially by majority-group members (Shelton & Richeson, 2006; Trawalter et al., 2009). While persistent prejudice and racial animus may certainly be a reason why, our research indicates that people’s beliefs, not about members of other racial groups but about prejudice itself, may also be an important determinant of the frequency of intergroup contact. The research we have just described suggests that a powerful way to increase willingness to engage in interracial interactions is to lead majority-group members to change their conceptions of prejudice—to see it as changeable. Such a belief in the malleability of prejudice may reduce worry about being a “racist” and open people up to these interactions, which though they might be challenging also offer unparalleled opportunity for growth.

2.2.2. Not wishing to learn about prejudice

The evidence clearly indicates that majority-group members with an entity theory of prejudice, compared to those with an incremental theory of prejudice, avoid challenging situations in the domain of intergroup relations. However, we have seen that an entity theory about intelligence also leads to another thing—low interest in learning. Do implicit theories of prejudice also affect interest in opportunities to learn—to reduce one’s prejudice?

In another study (Carr et al., 2011), White participants were given feedback that they had been found to have some “anti-Black racial prejudice.” They were then asked to rate their interest in various activities they could participate in during the remainder of the study. Two of these activities presented opportunities to improve their prejudice. They offered tutorials to reduce prejudice and more detailed information about the source and nature of their prejudice. Importantly, these activities were private and relatively unthreatening—all that people had to do was get information about prejudice and prejudice reduction from a computer. Nonetheless, those who endorsed more of an entity theory of prejudice were much less interested in undertaking efforts to learn about or try to reduce their prejudice than were those who endorsed an incremental theory.

In this way, implicit theories of prejudice may shape the course of intergroup relations, which are still marked by prejudice and have much room for improvement.

2.2.3. Reactions in intergroup encounters

Challenging situations cannot always be avoided. This is especially true in the intergroup context, as diversity continues to increase in the United States (Feagin & O’Brien, 2004). In this section, we show how implicit theories shape actual behavior in challenging intergroup contexts. We look not only at majority-group members’ behaviors but also at the concerns and responses of minority-group members—the targets of prejudice.

2.2.3.1. Majority-group members in intergroup encounters: The case of interracial interactions In one study, Carr and colleagues (2011) measured people’s theories of prejudice and later monitored their behavior in interracial interactions. White participants came into the lab and met another individual, purportedly another participant in the same session, but actually a confederate. Participants were randomly assigned to meet a confederate who was either the same race as them (White) or a different race (African American). The two confederates were matched on attractiveness and trained to act in an equally friendly manner. After meeting, the participant and confederate went into separate rooms to fill out some questionnaires. A short while later, participants were told that the rest of the study involved having a conversation with the person they had met earlier (the confederate). Participants were taken to the “conversation room” and asked to pull up two chairs stacked against the wall and arrange them facing each other for their conversation, while the experimenter finished some other tasks. The distance of the two chairs has been used in past research as an index of anxiety about interracial interactions (Goff, Steele, & Davies, 2008). Participants also filled out a questionnaire, which

among other questions asked participants how long they would want to spend in their upcoming interaction if they had unlimited free time that day.

Strikingly, those with a more entity theory of prejudice positioned their chair almost 10in. farther away from an African American interaction partner than those with an incremental theory. They also wanted a much shorter interaction with the African American partner. When it came to interacting with another White person, entity and incremental theorists both had about 20min to spare. When it came to interacting with an African American individual, incremental theorists had on average 30min to spare. Entity theorists had only 5min. And the effects of implicit theories of prejudice on behaviors in interracial interactions emerged above and beyond participants' racial prejudice against African Americans, which was measured with an Implicit Association Test (Nosek, Banaji, & Greenwald, 2002) and which was not related to participants' implicit theories of prejudice. Thus, those who believed more in an entity theory of prejudice sat farther away from and sought to minimize interactions with different-race partners, even though they were actually no more prejudiced!

In the study we just reviewed, people did not actually engage in the interaction. The study ended after they had arranged the chairs and completed the questionnaire. However, in another study, Carr and colleagues (2011) manipulated White individuals' implicit theories about prejudice (using the scientific articles described earlier) and then had them interact with a White or an African American individual. People believed they were participating in two separate studies. The first one contained the manipulation of implicit theories about prejudice. The second one involved a 10min interaction with a White or an African American experimenter. This interaction was videotaped, and coders (who were blind to implicit theory condition and the race of the experimenter participants were interacting with) rated participants' behavior on several dimensions of behavioral anxiety (such as decreased eye contact, increased speech dysfluency, nervous laughter, and body rigidity) and made overall ratings of the participants' anxiety and friendliness in the interaction. In addition, participants' physiological reactivity (heart rate) was measured during the interaction to provide a physiological index of their anxiety.

How did theories about prejudice affect White individuals' anxiety during the course of an interracial interaction? Those who had been taught an entity theory of prejudice rather than an incremental theory behaved far more anxiously in the interracial interaction. They exhibited greater anxiety on every behavioral marker (for instance making less eye contact with their interaction partner), were judged by coders to be more anxious than their incremental counterparts, and showed more physiological anxiety, exhibiting a higher heart rate in the interaction. Importantly, they were judged to be significantly less friendly. This was not the case in their interaction with a White individual. Thus, those who were led to believe prejudice

was fixed—apparently experiencing heightened concerns about having prejudice—behaved more anxiously and appeared less friendly in an interracial interaction than a same-race one. Being taught that prejudice was malleable eliminated this “biased” behavior. Again, it appears an entity theory of prejudice can lead individuals to act in seemingly prejudiced ways, even when they are no more prejudiced than others.

The evidence clearly indicates that majority-group members with an entity theory of prejudice, compared to those with a malleable theory of prejudice, are more anxious and threatened in interracial interactions (but not same-race ones). This evidence is consistent with research showing that emphasizing learning goals in general (not just about prejudice) can reduce White individuals’ anxiety in interracial interactions. Goff and colleagues (2008) found that when White participants were asked to focus on learning (a focus that arises when one holds an incremental theory), they did not anxiously sit farther from a Black compared to White interaction partner. However, when learning goals were not emphasized, participants were more focused on performance and sat farther from the Black compared to White interaction partner. Further supporting the findings that an entity theory of prejudice is associated with increased anxiety in interracial interactions, research finds that heightening concerns about performance (a dominant concern of those with an entity theory) exacerbates majority-group members’ anxiety in interactions with minority-group members (Richeson & Trawalter, 2005) and that increased external motivation to control prejudice (motivation to not be seen as prejudiced by others because of normative pressure; Plant & Devine, 1998) heightens the threat experienced by majority-group members in interracial interactions (Butz & Plant, 2009).²

2.2.3.2. *Minority-group members in intergroup encounters: The case of stereotype threat* Minority-group members also have concerns in intergroup situations—concerns about being the targets of stereotypes and prejudice. Preliminary research suggests that minority-group members’ beliefs about the fixedness of others’ prejudice against them can affect their interest and anxiety in intergroup interactions (Carr & Dweck, 2011). This research is still in its early stages. However, research on stereotype threat speaks directly to implications of implicit theories for minority-group members’ motivations, concerns, and behaviors in intergroup situations

² Note that external motivation to control prejudice, however, is not the same as concerns about having or uncovering prejudice (the mediator used in work on implicit theories of prejudice). While the former taps the source of people’s felt pressure to hide prejudice (e.g., “I try to hide any negative thoughts about Black people in order to avoid negative reactions from others”; Plant & Devine, 1998), the latter taps concerns about the implications of having prejudice—about even having negative thoughts that might indicate “fixed” prejudice.

Stereotype threat—the threat of confirming a negative stereotype about one’s group—is experienced by those targeted by negative stereotypes (Steele & Aronson, 1995). This threat emerges in situations in which the ability impugned by the negative stereotype can be tested, and by heightening anxiety and concerns about stereotypes, it hampers performance. For instance, research finds that African Americans, threatened by the negative stereotype held by others that their group is unintelligent, underperform relative to White individuals when a test is presented as diagnostic of their intellectual ability. However, when the same test is presented as not diagnostic of intelligence—making the stereotype irrelevant in this situation—African American participants perform as well as their White counterparts (Steele & Aronson, 1995). Though stereotype-threat situations are not traditionally thought of as instances of intergroup interactions, they can readily be conceptualized as such. Stereotype threat is not about those targeted by stereotypes believing the stereotype to be true; it is about those targeted by stereotypes worrying about how they are perceived by others (Quinn, 2009; Steele, 1997; Walton & Carr, 2011). An African American individual taking a stereotype-threatening intelligence test is often doing so in the presence (real or symbolic) of a majority-group evaluator. As such, a stereotype-threat situation provides an important avenue for gaining insight into how implicit theories may affect those targeted by stereotypes in these intergroup encounters.

How, more specifically, does stereotype threat create its pernicious effects? Under the burden of a stereotype about their group’s innate intellectual status, people are understandably not focused on maximizing learning and absorbing information but instead are focused on disproving, through their performance, the negative stereotypes that question their ability (see Cadinu, Maass, Rosabianca, & Kiesner 2005; Krendl, Richeson, Kelley, & Heatherton, 2008; Schmader & Johns, 2003; Schmader, Johns, & Forbes, 2008). One can imagine then that stereotype threat would be all the more threatening if one believes that the negatively stereotyped ability is fixed or is seen as fixed by the evaluator. In contrast, an incremental frame on ability may make stereotypes less meaningful and any test of them less threatening.

Research supports this expectation. Aronson (2000) gave an entity, incremental, or neutral framing to a test, telling African American students that a verbal standardized test tapped a fixed ability or an acquirable ability, or no mention of the nature of the ability was made. He found that stereotype threat was indeed intensified by holding an entity theory and alleviated by holding an incremental one about a diagnostic test. Relatedly, Dar-Nimrod and Heine (2006) suggested to females that gender differences in math ability were genetically determined (more of an entity theory) or environmentally determined (more of an incremental theory). Believing that math ability was genetically determined heightened stereotype threat, leading women to underperform on a math test. Thus, believing ability is

fixed or innate exacerbates the effects of stereotype threat, while believing it is fluid and situationally determined weakens it (see also Sawyer & Hollis-Sawyer, 2005; Thoman, White, Yamawaki, & Koishi, 2008).

Further, several intervention studies show that teaching incremental theories can buffer against the negative effects of stereotype threat in real-world academic settings. In one such study, Good and colleagues (2003) sought to change theories of intelligence to lessen the effects of stereotype threat in girls studying math. Junior high school students were assigned to receive either training that intelligence was malleable or no such training (receiving antidrug training instead) over their seventh grade year. The researchers then examined performance on a standardized math test at the end of the year. In the control group, replicating stereotype-threat effects, boys outperformed girls. In the group that received training that intelligence was changeable, this gender gap was substantially reduced. Although the boys in this group also tended to improve their performance relative to those in the control group, the positive effect was more robust for the stereotype-threatened participants—the girls.

Similarly, Aronson et al. (2002) found that an intervention that changed implicit theories about intelligence also reduced the effects of stereotype threat on African American college students' grades. In this study, White and African American college students were assigned to one of the three conditions. In the incremental condition, they learned that intelligence was malleable and wrote letters to pen pals teaching them that intelligence, "like a muscle," could be developed and strengthened. In a control condition, participants did not learn about the malleability of intelligence and instead wrote letters explaining that there were different kinds of intelligence (with no mention of malleability). The third condition was a no-treatment control. The researchers examined students' GPA 9 weeks later. In both the control conditions, the stereotype-threat effect emerged. African American students underperformed relative to the White students. However, among those taught that intelligence was malleable, the stereotype-threat-created performance gap disappeared. African American and White students did not significantly differ in their GPAs. Though the White students in the incremental condition also tended to improve their performance, this effect was only marginally significant. For the African American students—burdened by stereotype threat—the performance improvement was robust and significant. In short, an incremental belief about intelligence significantly increased stereotyped students' GPA and helped reduce an achievement gap created by stereotype threat.

Stereotype threat does not only exert negative effects on performance; it can also affect the degree to which members of stereotyped groups are willing to pursue different fields of study. Good, Rattan, and Dweck (in press) surveyed female and male math students at a competitive private university at three times during a calculus course they were taking. The

women in that calculus course are the very females that society hopes will enter and remain in the math pipeline. The researchers found that, even among these already high-achieving and highly invested students, the theory of math intelligence they believed was prevalent in their math environment made a great difference. When females perceived that they were in a math environment dominated by an entity theory and they encountered high degrees of gender stereotyping (i.e., when they perceived an environment that indicated “ability is fixed and your group doesn’t have it”), their sense of belonging in math eroded. In comparison, when females perceived an incremental theory in their math environment, even when they encountered a high degree of gender stereotyping, their sense of belonging in math remained strong. This sense of belonging, in turn, predicted females’ intentions to pursue math in the future and their final grades in the course. In other words, perceiving an incremental (rather than entity) theory of math ability in the environment buffered females from the negative effects of gender stereotyping, allowing them to maintain a positive sense of belonging, a desire to pursue the field, and high grades.

Is an entity theory ever good? Yes—for those on the positive end of the stereotype. [Mendoza-Denton, Kahn, and Chan \(2008\)](#) found that for individuals who are positively stereotyped (men taking a math test), learning that ability was determined by innate factors (an entity view) rather than effort (an incremental view) fueled improved performance on a math test. In short, if individuals think, “It’s fixed and we have it,” performance can be enhanced. However, if those same individuals suddenly find that they are not in the well-endowed group, they are vulnerable. Indeed, even White men suffer stereotype threat and performance decrements on a math test when told they are being compared to Asians, a group stereotyped as being superior in math ([Aronson et al., 1999](#)). Thus, it appears that an entity theory can boost performance only as long as one’s supremacy is not questioned.

Taken together, the research clearly indicates the role of implicit theories in stereotype threat. An entity view on negatively stereotyped abilities makes performing under stereotype threat all the more threatening. In fact, one can conceptualize majority-group members’ anxiety about being prejudiced in intergroup interactions as a form of stereotype threat—worry about confirming the stereotype that White individuals are racist (see [Frantz, Cuddy, Burnett, Ray, & Hart, 2004](#); [Goff et al., 2008](#)). However, minority-group members and historically disadvantaged groups are more pervasively negatively stereotyped ([Steele, Spencer, & Aronson, 2002](#)), thus making the effects of implicit theories about ability particularly important for understanding their experiences. The findings suggest that an emphasis on the malleability of abilities may reduce the achievement gaps created by stereotype threat and thus weaken one of the most negative consequences of stereotypes and prejudice.

2.2.3.3. Summary We have shown that implicit theories have important consequences for both sides of an intergroup interaction. For majority-group members, an entity theory about prejudice can make people behave in seemingly more prejudiced ways—becoming anxious and looking unfriendly in interracial interactions—even when they are not more prejudiced. For minority-group members, an entity theory of intellectual ability can make them seem less able—creating poor performance—even though they are no less able. In both cases, people’s fears of fulfilling a stereotype or confirming an undesirable trait may sabotage their behavior and make their worst fears more likely to come true. These lines of research highlight the importance of broadening our focus beyond stereotypes and prejudice to peoples’ implicit theories in order to improve intergroup relations and curb the negative effects of stereotypes.



3. BROADER LESSONS AND IMPLICATIONS FOR INTERGROUP RELATIONS

Despite the rise in norms of egalitarianism and despite a decline in overt prejudice, intergroup relations have sadly remained threatening and uncomfortable (e.g., Mendes et al., 2002; Richeson & Trawalter, 2005; Shelton, 2003; Shelton & Richeson, 2006; Trawalter & Richeson, 2008; Trawalter et al., 2009; Vorauer et al., 1998). The findings reviewed here bring a fresh theoretical perspective to the study of intergroup relations, enriching our understanding of these relations. Much previous research has focused on majority-group members’ qualities and cognitive associations—their racism or their implicit racial associations—to uncover the bases for persistently troubled intergroup relations. While these dimensions are certainly important, they leave out a vital part of the story.

The research we have described in this chapter brings to light a different factor—people’s *theories* about human qualities and attributes. These implicit theories, on the surface, may often seem as though they have little to do with stereotyping and prejudice, and yet this research underscores the significance of implicit theories for the perpetration of stereotyping, prejudice, and bias and for the experience of those targeted by bias. Below, we review key insights from this research that shift our thinking about intergroup relations.

3.1. Stereotyping is not a given

For a long while, stereotyping has been characterized as a relatively inevitable consequence of the need for cognitive simplicity, of intergroup competition, and of the societal prevalence of negative representations of certain

groups (e.g., Devine, 1989; Guimond, 2000; LeVine & Campbell, 1972; Pettigrew, 1958; Wigboldus, Sherman, Franzese, & van Knippenberg, 2004). But the research reviewed in this chapter shows that stereotyping is not necessarily a given. Meaning systems characterized by the belief that people are fixed create fertile ground for stereotypes to emerge and flourish and imbue stereotypes with power and validity. However, meaning systems characterized by a belief in malleability and dynamism are much less conducive to stereotyping. In fact, for those with malleability beliefs, stereotyping holds little cognitive appeal and information that violates stereotypes becomes more attractive (Plaks et al., 2001). These findings force us to reconsider the nature of stereotyping. Stereotyping is not simply a reflection of a human need for cognitive simplicity, of a drive to denigrate, or of societal representations, but a consequence of people's beliefs about the value of traits and labels and their motivation to protect these beliefs.

This theoretical insight has important practical consequences. It suggests that interventions that create long-lasting beliefs in the malleability of people—interventions modeled on those to create beliefs about the malleability of intelligence—may be highly effective in curtailing the development and maintenance of stereotypes. It also suggests that existing interventions, such as counter-stereotypic training (e.g., Kawakami, Dovidio, & van Kamp, 2007), may not have the desired impact for many people. An intervention that exposes participants to counter-stereotypic exemplars may not change stereotyping among entity theorists, who do not readily attend to or remember counter-stereotypic information (Plaks et al., 2001). It is important not only to target the content of stereotypes but also to simultaneously target the meaning systems that sustain them. An intervention that fosters a malleable belief while also presenting counter-stereotypic information may be especially powerful in reducing stereotyping.

3.2. Stereotypes can be robbed of their power

The research in this chapter also indicates that stereotypes do not inflict their negative effects equally across all individuals targeted by them. Past work on stereotype threat has taught us that this threat's negative consequences are particularly strong among those who are identified with the stereotyped group and with the stereotyped ability (Aronson et al., 1999; Schmader, 2002; Spencer, Steele, & Quinn, 1999). Intuitively, if a woman does not identify with her gender or with math, a stereotype doubting women's abilities in math has less personal relevance or consequence for her. However, disidentification with one's group or a domain is a disheartening, isolating, and often self-defeating way to protect oneself from stereotypes. Research on implicit theories and stereotype threat shows another, potentially more productive way of blunting the effects of stereotypes among those targeted by them. It shows that the lens people hold on the world can

rob stereotypes of their power to inflict harm. When stereotyped abilities are seen as fixed, stereotypes become powerful and threatening. However, when they are seen as not fixed or innate, stereotypes become less threatening and an instance in which the stereotyped ability is tested becomes less anxiety provoking.

While an ideal world would not have groups of people impugned by negative stereotypes, that world does not currently exist. As we continue to work to eradicate stereotypes and prejudice, we can empower those targeted by them by fostering environments that support a malleable view of abilities. We have already described several interventions that have created beliefs in the malleability of intelligence and reduced achievement gaps created by stereotype threat (Aronson et al., 2002; Good et al., 2003). We see great potential to scale such interventions up, to disseminate them more broadly, and to incorporate them in standard school curricula and in human resource programs within organizations.

By showing us when stereotypes have the most negative consequences, research on implicit theories shows us that stereotypes need not be so powerful.

3.3. To motivate progress in intergroup conflicts, people's belief systems must be addressed

Reducing prejudice and creating progress in intergroup conflict require action, but who is willing to take this action? Reasonably, one might answer that people targeted by prejudice will take action if the situation allows them to—if the social, physical, and financial costs of such action are not too high (e.g., Shelton & Stewart, 2004; Stangor et al., 2002). Yet, as we have seen, people's implicit theories—their belief that people are fixed—can set up roadblocks to taking action to confront prejudice or to be willing to compromise in a peace process.

Creating a belief in the malleability of individuals in people targeted by stereotypes encourages them to stand up to bias and to educate the perpetrators of bias. Creating a belief in the malleability of groups encourages positive attitudes toward the other side in a conflict and promotes willingness to compromise. These consequences, in turn, could lay the groundwork for more positive intergroup relations.

3.4. Biased behavior can emerge in the absence of bias

Prejudiced behavior has understandably been seen largely as a reflection of underlying bias or animus. One could reasonably assume that a White individual who is unfriendlier to an African American individual than a White one holds racial prejudice or negative racial associations. In that conceptualization, behaviors reflect attitudes and associations. However,

the research reviewed in this chapter creates a more nuanced understanding of behavior that seems prejudiced. It indicates that, in a society in which prejudice is frowned upon, behavior that appears prejudiced may arise not just from prejudice but from people's beliefs that prejudiced is fixed. Strikingly, the research indicates that even if prejudice and negative group associations were eradicated, biased behavior and its pernicious consequences may still persist. African American employees may still be robbed of opportunities because their White employers believe in the fixedness of prejudice and are uncomfortable in interactions with them. Latino students may still suffer a lack of belonging and poor performance (Walton & Cohen, 2007) because their teachers' belief in an entity theory of prejudice leads to apparently unfriendly behavior and an unwillingness to discuss their groups' history.

Many interventions that target prejudice rely on creating positive intergroup contact. (e.g., Page-Gould et al., 2008; Pettigrew & Tropp, 2006; Tropp & Pettigrew, 2005). However, we also know that intergroup contact is often avoided and when it occurs is often negative (Shelton & Richeson, 2006; Trawalter et al., 2009). An incremental theory of prejudice can open majority-group members up to engaging in intergroup contact and make this contact more comfortable and successful. By doing so, it has the potential to greatly enhance the positive impact of intergroup contact.

4. CONCLUSION

Research on implicit theories is enriching our theoretical understanding of the nature of stereotyping, bias, and intergroup relations. The practical implications are clear and hopeful. Fostering a belief in the malleability of people and their attributes has the potential to reduce stereotyping, diminish the power of stereotypes, increase intergroup contact, and create a better climate for intergroup relations. Of course, as we academics are fond of saying, more research is needed, and it is our hope that this chapter will stimulate that research.

REFERENCES

- Allport, G. W. (1954). *The nature of prejudice*. Oxford, England: Addison-Wesley.
- Aronson, J. (2000). *The effects of conceiving ability as fixed or improvable on responses to stereotype threat*. New York University, New York, NY.
- Aronson, J., Fried, C. B., & Good, C. (2002). Reducing the effects of stereotype threat on African American college students by shaping theories of intelligence. *Journal of Experimental Social Psychology*, 38, 113–125.
- Aronson, J., Lustina, M. J., Good, C., Keough, K., Steele, C. M., & Brown, J. (1999). When White men can't do math: Necessary and sufficient factors in stereotype threat. *Journal of Experimental Social Psychology*, 35, 29–46.

- Bastian, B., & Haslam, N. (2006). Psychological essentialism and stereotype endorsement. *Journal of Experimental Social Psychology, 42*, 228–235.
- Beer, J. S. (2002). Implicit self-theories of shyness. *Journal of Personality and Social Psychology, 83*, 1009–1024.
- Blackwell, L. S., Trzesniewski, K. H., & Dweck, C. S. (2007). Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal study and an intervention. *Child Development, 78*, 246–263.
- Blanchard, F. A., Crandall, C. S., Brigham, J. C., & Vaughn, L. A. (1994). Condemning and condoning racism: A social context approach to interracial settings. *Journal of Applied Psychology, 79*, 993–997.
- Butz, D. A., & Plant, E. A. (2009). Prejudice control and interracial relations: The role of motivation to respond without prejudice. *Journal of Personality, 77*, 1311–1341.
- Cadinu, M., Maass, A., Rosabianca, A., & Kiesner, J. (2005). Why do women underperform under stereotype threat? Evidence for the role of negative thinking. *Psychological Science, 16*, 572–578.
- Carr, P. B., & Dweck, C. S. (2011). *Beliefs about the malleability of prejudice shape minority-group members' experiences in cross-race interactions*. Unpublished raw data.
- Carr, P. B., Dweck, C. S., & Pauker, K. (2011). *'Prejudiced' behavior without prejudice: Beliefs about the malleability of prejudice affect interracial interactions* (submitted for publication).
- Chiu, C., Dweck, C. S., Tong, J. Y., & Fu, J. H. (1997). Implicit theories and conceptions of morality. *Journal of Personality and Social Psychology, 73*, 923–940.
- Chiu, C., Hong, Y., & Dweck, C. S. (1997). Lay dispositionism and implicit theories of personality. *Journal of Personality and Social Psychology, 73*, 19–30.
- Crandall, C. S., Eshleman, A., & O'Brien, L. (2002). Social norms and the expression and suppression of prejudice: The struggle for internalization. *Journal of Personality and Social Psychology, 82*, 359–378.
- Crosby, J., Monin, B., & Richardson, D. (2008). Where do we look during potentially offensive behavior? *Psychological Science, 19*, 226–228.
- Cury, F., Da Fonseca, D., Zahn, L., & Elliot, A. (2008). Implicit theories and IQ test performance: A sequential mediational analysis. *Journal of Experimental Social Psychology, 44*, 783–791.
- Cury, F., Elliot, A. J., Da Fonseca, D., & Moller, A. C. (2006). The social-cognitive model of achievement motivation and the 2 × 2 achievement goal framework. *Journal of Personality and Social Psychology, 90*, 666–679.
- Czopp, A. M., Monteith, M. J., & Mark, A. Y. (2006). Standing up for a change: Reducing bias through interpersonal confrontation. *Journal of Personality and Social Psychology, 90*, 784–803.
- Dar-Nimrod, I., & Heine, S. J. (2006). Exposure to scientific theories affects women's math performance. *Science, 314*, 435.
- Devine, P. G. (1989). Stereotypes and prejudice: Their automatic and controlled components. *Journal of Personality and Social Psychology, 56*, 5–18.
- Dovidio, J. F., Kawakami, K., & Gaertner, S. L. (2002). Implicit and explicit prejudice and interracial interaction. *Journal of Personality and Social Psychology, 82*, 62–68.
- Dweck, C. S. (1999). *Self-theories: Their role in motivation, personality, and development*. New York: Psychology Press.
- Dweck, C. S., Chiu, C., & Hong, Y. (1995a). Implicit theories and their role in judgments and reactions: A world from two perspectives. *Psychological Inquiry, 6*, 267–285.
- Dweck, C. S., Chiu, C., & Hong, Y. (1995b). Implicit theories: Elaboration and extension of the model. *Psychological Inquiry, 6*, 322–333.
- Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review, 95*, 256–273.

- Eberhardt, J. L., Dasgupta, N., & Banaszynski, T. L. (2003). Believing is seeing: The effects of racial labels and implicit beliefs on face perception. *Personality and Social Psychology Bulletin*, 29, 360–370.
- Erdley, C. A., & Dweck, C. S. (1993). Children's implicit personality theories as predictors of their social judgments. *Child Development*, 64, 863–878.
- Feagin, J. R., & O'Brien, E. (2004). *White men on race*. Boston, MA: Beacon.
- Frantz, C. M., Cuddy, A. J. C., Burnett, M., Ray, H., & Hart, A. (2004). A threat in the computer: The race implicit association test as a stereotype threat experience. *Personality and Social Psychology Bulletin*, 30, 1611–1624.
- Gervey, B. M., Chiu, C., Hong, Y., & Dweck, C. S. (1999). Differential use of person information in decisions about guilt versus innocence: The role of implicit theories. *Personality and Social Psychology Bulletin*, 25, 17–27.
- Goff, P. A., Steele, C. M., & Davies, P. G. (2008). The space between us: Stereotype threat and distance in interracial contexts. *Journal of Personality and Social Psychology*, 94, 91–107.
- Good, C., Aronson, J., & Inzlicht, M. (2003). Improving adolescents' standardized test performance: An intervention to reduce the effects of stereotype threat. *Journal of Applied Developmental Psychology*, 24, 645–662.
- Good, C., Rattan, A., & Dweck, C. S. (in press). Why do women opt out? Sense of belonging and women's representation in mathematics. *Journal of Personality and Social Psychology*.
- Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology*, 74, 1464–1480.
- Guimond, S. (2000). Group socialization and prejudice: The social transmission of intergroup attitudes and beliefs. *European Journal of Social Psychology*, 30, 335–354.
- Halperin, E., Russell, A. G., Trzesniewski, K. H., Gorss, J. J., & Dweck, C. S. (2011). Promoting the Middle East peace process by changing beliefs about group malleability. *Science*, 333, 1767–1769.
- Haslam, N., & Levy, S. R. (2006). Essentialist beliefs about homosexuality: Structure and implications for prejudice. *Personality and Social Psychology Bulletin*, 32, 471–485.
- Hong, Y., Chiu, C., Dweck, C. S., Lin, D. M., & Wan, W. (1999). Implicit theories, attributions, and coping: A meaning system approach. *Journal of Personality and Social Psychology*, 77, 588–599.
- Kammrath, L. K., & Dweck, C. (2006). Voicing conflict: Preferred conflict strategies among incremental and entity theorists. *Personality and Social Psychology Bulletin*, 32, 1497–1508.
- Karafantis, D. M., & Levy, S. R. (2004). The role of children's lay theories about the malleability of human attributes in beliefs about and volunteering for disadvantaged groups. *Child Development*, 75, 236–250.
- Kawakami, K., Dovidio, J. F., & van Kamp, S. (2007). The impact of counterstereotypic training and related correction processes on the application of stereotypes. *Group Processes & Intergroup Relations*, 10, 139–156.
- Kawakami, K., Dunn, L., Karmali, F., & Dovidio, J. F. (2009). Mispredicting affective and behavioral responses to racism. *Science*, 323, 276–278.
- Keller, J. (2005). In genes we trust: The biological component of psychological essentialism and its relationship to mechanisms of motivated social cognition. *Journal of Personality and Social Psychology*, 88, 686–702.
- Knee, C. R., Patrick, H., & Lonsbary, C. (2003). Implicit theories of relationships: Orientations toward evaluation and cultivation. *Personality and Social Psychology Review*, 7, 41–55.
- Knee, C. R., Patrick, H., Vietor, N. A., & Neighbors, C. (2004). Implicit theories of relationships: Moderators of the link between conflict and commitment. *Personality and Social Psychology Bulletin*, 30, 617–628.

- Kray, L. J., & Haselhuhn, M. P. (2007). Implicit negotiation beliefs and performance: Experimental and longitudinal evidence. *Journal of Personality and Social Psychology, 93*, 49–64.
- Krendl, A. C., Richeson, J. A., Kelley, W. M., & Heatherton, T. F. (2008). The negative consequences of threat: A functional magnetic resonance imaging investigation of the neural mechanisms underlying women's underperformance in math. *Psychological Science, 19*, 168–175.
- LeVine, R. A., & Campbell, D. T. (1972). *Ethnocentrism: Theories of conflict, ethnic attitudes, and group behavior*. Oxford, England: John Wiley & Sons.
- Levy, S. R., Chiu, C., & Hong, Y. (2006). Lay theories and intergroup relations. *Group Processes & Intergroup Relations, 9*, 5–24.
- Levy, S. R., & Dweck, C. S. (1999). The impact of children's static versus dynamic conceptions of people on stereotype formation. *Child Development, 70*, 1163–1180.
- Levy, S. R., Stroessner, S. J., & Dweck, C. S. (1998). Stereotype formation and endorsement: The role of implicit theories. *Journal of Personality and Social Psychology, 74*, 1421–1436.
- Mangels, J. A., Butterfield, B., Lamb, J., Good, C., & Dweck, C. S. (2006). Why do beliefs about intelligence influence learning success? A social cognitive neuroscience model. *Social Cognitive and Affective Neuroscience, 1*, 75–86.
- McConnell, A. R., & Leibold, J. M. (2001). Relations among the Implicit Association Test, discriminatory behavior, and explicit measures of racial attitudes. *Journal of Experimental Social Psychology, 37*, 435–442.
- Mendes, W. B., Blascovich, J., Lickel, B., & Hunter, S. (2002). Challenge and threat during social interaction with white and black men. *Personality and Social Psychology Bulletin, 28*, 939–952.
- Mendoza-Denton, R., Kahn, K., & Chan, W. (2008). Can fixed views of ability boost performance in the context of favorable stereotypes? *Journal of Experimental Social Psychology, 44*, 1187–1193.
- Molden, D. C., & Dweck, C. S. (2006). Finding “meaning” in psychology: A lay theories approach to self-regulation, social perception, and social development. *American Psychologist, 61*, 192–203.
- Molden, D. C., Plaks, J. E., & Dweck, C. S. (2006). ‘Meaningful’ social inferences: Effects of implicit theories on inferential processes. *Journal of Experimental Social Psychology, 42*, 738–752.
- Mueller, C. M., & Dweck, C. S. (1998). Praise for intelligence can undermine children's motivation and performance. *Journal of Personality and Social Psychology, 75*, 33–52.
- Niiya, Y., Crocker, J., & Bartmess, E. N. (2004). From vulnerability to resilience: Learning orientations buffer contingent self-esteem from failure. *Psychological Science, 15*, 801–805.
- Norton, M. I., Sommers, S. R., Apfelbaum, E. P., Pura, N., & Ariely, D. (2006). Color blindness and interracial interaction: Playing the political correctness game. *Psychological Science, 17*, 949–953.
- Nosek, B. A., Banaji, M., & Greenwald, A. G. (2002). Harvesting implicit group attitudes and beliefs from a demonstration web site. *Group Dynamics: Theory, Research, and Practice, 6*, 101–115. Special Issue: Groups and Internet.
- Nussbaum, A. D., & Dweck, C. S. (2008). Defensiveness versus remediation: Self-theories and modes of self-esteem maintenance. *Personality and Social Psychology Bulletin, 34*, 599–612.
- Page-Gould, E., Mendoza-Denton, R., & Tropp, L. R. (2008). With a little help from my cross-group friend: Reducing anxiety in intergroup contexts through cross-group friendship. *Journal of Personality and Social Psychology, 95*, 1080–1094.
- Park, B., & Judd, C. M. (1990). Measures and models of perceived group variability. *Journal of Personality and Social Psychology, 59*, 173–191.

- Pettigrew, T. F. (1958). Personality and sociocultural factors in intergroup attitudes: A cross-national comparison. *Journal of Conflict Resolution*, 2, 29–42.
- Pettigrew, T. F., & Tropp, L. R. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology*, 90, 751–783.
- Plaks, J. E., Grant, H., & Dweck, C. S. (2005). Violations of implicit theories and the sense of prediction and control: Implications for motivated person perception. *Journal of Personality and Social Psychology*, 88, 245–262.
- Plaks, J. E., Stroessner, S. J., Dweck, C. S., & Sherman, J. W. (2001). Person theories and attention allocation: Preferences for stereotypic versus counterstereotypic information. *Journal of Personality and Social Psychology*, 80, 876–893.
- Plant, E. A., & Devine, P. G. (1998). Internal and external motivation to respond without prejudice. *Journal of Personality and Social Psychology*, 75, 811–832.
- Quinn, D. M. (2009). *Understanding the predicament of stereotype threat: Evidence that the threat is social*. Unpublished manuscript, University of Connecticut, Storrs, CT.
- Rattan, A., & Dweck, C. S. (2010). Who confronts prejudice? The role of implicit theories in the motivation to confront prejudice. *Psychological Science*, 21, 952–959.
- Rattan, A., & Dweck, C. S. (2011). *Believe the change you wish to see in the world: The role of implicit theories in targets' responses to explicit bias* (Doctoral Dissertation). Stanford University, Stanford, CA.
- Raven, J. C., Styles, I., & Raven, M. A. (1998). *Raven's progressive matrices: SPM plus test booklet*. Oxford, England: Oxford Psychologists Press.
- Rhodewalt, F. (1994). Conceptions of ability, achievement goals, and individual differences in self-handicapping behavior: On the application of implicit theories. *Journal of Personality*, 62, 67–85.
- Richeson, J. A., & Shelton, J. N. (2003). When prejudice does not pay: Effects of interracial contact on executive function. *Psychological Science*, 14, 287–290.
- Richeson, J. A., & Trawalter, S. (2005). Why do interracial interactions impair executive function? A resource depletion account. *Journal of Personality and Social Psychology*, 88, 934–947.
- Robins, R. W., & Pals, J. L. (2002). Implicit self-theories in the academic domain: Implications for goal orientation, attributions, affect, and self-esteem change. *Self and Identity*, 1, 313–336.
- Rydell, R. J., Hugenberg, K., Ray, D., & Mackie, D. M. (2007). Implicit theories about groups and stereotyping: The role of group entitativity. *Personality and Social Psychology Bulletin*, 33, 549–558.
- Sawyer, T. P. Jr., & Hollis-Sawyer, L. A. (2005). Predicting stereotype threat, anxiety, and cognitive ability test performance: An examination of three models. *International Journal of Testing*, 5, 225–246.
- Schmader, T. (2002). Gender Identification Moderates Stereotype Threat Effects on Women's Math Performance. *Journal of Experimental Social Psychology*, 38, 194–201.
- Schmader, T., & Johns, M. (2003). Converging evidence that stereotype threat reduces working memory capacity. *Journal of Personality and Social Psychology*, 85, 440–452.
- Schmader, T., Johns, M., & Forbes, C. (2008). An integrated process model of stereotype threat effects on performance. *Psychological Review*, 115, 336–356.
- Shelton, J. N. (2003). Interpersonal concerns in social encounters between majority and minority group members. *Group Processes & Intergroup Relations*, 6, 171–185.
- Shelton, J. N., & Richeson, J. A. (2006). Interracial interactions: A relational approach. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 38, pp. 121–181). San Diego, CA: Elsevier Academic Press.
- Shelton, J. N., & Stewart, R. E. (2004). Confronting perpetrators of prejudice: The inhibitory effects of social costs. *Psychology of Women Quarterly*, 28, 215–223.

- Sherif, M. (1966). *In common predicament: Social psychology of intergroup conflict and cooperation*. Boston, MA: Houghton Mifflin.
- Spencer, S. J., Steele, C. M., & Quinn, D. M. (1999). Stereotype threat and women's math performance. *Journal of Experimental Social Psychology, 35*, 4–28.
- Stangor, C., Swim, J. K., Van Allen, K., & Sechrist, G. B. (2002). Reporting discrimination in public and private contexts. *Journal of Personality and Social Psychology, 82*, 69–74.
- Steele, C. M. (1997). A threat in the air: How stereotypes shape intellectual identity and performance. *American Psychologist, 52*, 613–629.
- Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology, 69*, 797–811.
- Steele, C. M., Spencer, S. J., & Aronson, J. (2002). Contending with group image: The psychology of stereotype and social identity threat. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 34, pp. 379–440). San Diego, CA: Academic Press.
- Swim, J. K., & Hyers, L. L. (1999). Excuse me—What did you say?! Women's public and private responses to sexist remarks. *Journal of Experimental Social Psychology, 35*, 68–88.
- Swim, J. K., Hyers, L. L., Cohen, L. L., & Ferguson, M. J. (2001). Everyday sexism: Evidence for its incidence, nature, and psychological impact from three daily diary studies. *Journal of Social Issues, 57*, 31–53.
- Swim, J. K., Hyers, L. L., Cohen, L. L., Fitzgerald, D. C., & Bylsma, W. H. (2003). African American college students' experiences with everyday racism: Characteristics of and responses to these incidents. *Journal of Black Psychology, 29*, 38–67.
- Thoman, D. B., White, P. H., Yamawaki, N., & Koishi, H. (2008). Variations of gender-math stereotype content affect women's vulnerability to stereotype threat. *Sex Roles, 58*, 702–712.
- Trawalter, S., & Richeson, J. A. (2008). Let's talk about race, baby! When Whites' and Blacks' interracial contact experiences diverge. *Journal of Experimental Social Psychology, 44*, 1214–1217.
- Trawalter, S., Richeson, J. A., & Shelton, J. N. (2009). Predicting behavior during interracial interactions: A stress and coping approach. *Personality and Social Psychology Review, 13*, 243–268.
- Tropp, L. R., & Pettigrew, T. F. (2005). Relationships between intergroup contact and prejudice among minority and majority status groups. *Psychological Science, 16*, 951–957.
- Vorauer, J. D., Main, K. J., & O'Connell, G. B. (1998). How do individuals expect to be viewed by members of lower status groups? Content and implications of meta-stereotypes. *Journal of Personality and Social Psychology, 75*, 917–937.
- Walton, G. M., & Carr, P. B. (2011). Social belonging and the motivation and intellectual achievement of negatively stereotyped students. In M. Inzlicht & T. Schmader (Eds.), *Stereotype threat: Theory, process, and application*. Oxford, England: Oxford University Press.
- Walton, G. M., & Cohen, G. L. (2007). A question of belonging: Race, social fit, and achievement. *Journal of Personality and Social Psychology, 92*, 82–96.
- Wigboldus, D. H. J., Sherman, J. W., Franzese, H. L., & van Knippenberg, A. (2004). Capacity and comprehension: Spontaneous stereotyping under cognitive load. *Social Cognition, 22*, 292–309.
- Woodzicka, J. A., & LaFrance, M. (2001). Real versus imagined gender harassment. *Journal of Social Issues, 57*, 15–30.
- Woodzicka, J. A., & LaFrance, M. (2005). The effects of subtle sexual harassment on women's performance in a job interview. *Sex Roles, 53*, 67–77.

REACTIONS TO VANGUARDS: ADVANCES IN BACKLASH THEORY

Laurie A. Rudman,^{*} Corinne A. Moss-Racusin,[†] Peter Glick,[‡] and
Julie E. Phelan[§]

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^{*} Department of Psychology, Rutgers University, New Brunswick, NJ, USA

[†] Department of Psychology, Yale University, New Haven, CT, USA

[‡] Department of Psychology, Lawrence University, Appleton, WI, USA

[§] Langer Research Associates, New York, NY, USA

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Abstract

Backlash refers to social and economic penalties for counterstereotypical behavior (Rudman, 1998). By penalizing vanguards (atypical role models), backlash reinforces cultural stereotypes as normative rules. We present the Backlash and Stereotype Maintenance Model (BSMM), supported by studies of gender and racial vanguards (Phelan & Rudman, 2010a; Rudman & Fairchild, 2004). The BSMM illuminates when and why backlash occurs, as well as its effects on potential targets. We provide evidence for the Status Incongruity Hypothesis, which posits that targets who violate status expectations are especially likely to suffer backlash because system-justification motives play a key role in backlash (Moss-Racusin, Phelan, & Rudman, 2010; Rudman, Moss-Racusin, Phelan, & Nauts, 2011). The Backlash Avoidance Model describes how fear of backlash not only limits people's aspirations but also undermines their performance in atypical domains (Moss-Racusin, 2011; Moss-Racusin & Rudman, 2010). Finally, we discuss how advances in backlash theory might guide future research.

1. INTRODUCTION

Individuals who disconfirm stereotypes about their groups, labeled here as *vanguards*, directly challenge cultural beliefs that legitimize social hierarchies and group-based roles. Retrospectively, vanguards may be celebrated for their accomplishments (e.g., Jackie Robinson for breaking baseball's "color barrier" or Sally Ride for becoming the first female American astronaut). These positive attitudes recognize society's interest in removing barriers based on the group membership that unfairly limit people from developing and using their talents, thereby reducing society's human capital. However, while prominent vanguards may eventually be feted for their accomplishments, they often first endure hostile reactions. Specifically, vanguards are at risk for *backlash*, defined as social and economic penalties for behaving counterstereotypically (Rudman, 1998), including excelling at activities and roles previously denied to one's group members (Rudman & Fairchild, 2004). We seek to understand when and why vanguards elicit backlash, how fear of backlash affects potential vanguards, and how backlash might be prevented.

Even in highly egalitarian cultures in which people view stereotypes as unfair and distorted, stereotypes persist and pervasively affect social

perception (Schneider, 2004). In part, stereotypes influence even well-meaning perceivers because they automatically come to mind and consequently affect judgments unless perceivers are both motivated and have the cognitive resources to override them (e.g., Brewer, 1988; Fiske & Neuberg, 1990). The default impression formation process can be characterized in three steps: (1) perceivers spontaneously categorize targets based on attributes that indicate group membership (e.g., gender, race, and age); (2) categorization elicits stereotype activation; and (3) stereotypes guide person perception, unless the perceiver deliberately interrupts the process. Nonetheless, this process heavily depends on targets' characteristics because perceivers tend to individuate people who unambiguously disconfirm stereotypes and treat them as "special cases" unlike others in their social group. For example, even perceivers who stereotype math as male-typed will recognize the mathematical talent of a woman who clearly demonstrates her skill. In this way, vanguards can escape stereotypical assumptions about their abilities (Kunda & Thagard, 1996).

But what happens next? In theory, individuation should lead to a positive outcome. After all, the target escapes being reduced to a stereotype, and perceivers avoid forming an erroneous impression. However, backlash represents a further barrier that not only discourages potential vanguards from achieving their goals and aspirations but also prevents them from serving as visible, outstanding exemplars who undermine cultural stereotypes (Phelan & Rudman, 2010a; Rudman & Fairchild, 2004; for reviews, see Phelan & Rudman, 2010b; Rudman & Glick, 2008; Rudman & Phelan, 2008). Consistent with the Japanese proverb that "the nail that sticks out gets pounded down," individuals who fail to conform to stereotypes often elicit hostile reactions. Further, when people fear backlash from others, they tend to avoid activities and fields in which they might otherwise excel, keep their talents under wraps, or quit in discouragement along the way. This creates a vicious cycle by reducing the number and visibility of successful vanguards, reinforcing (rather than undermining) cultural stereotypes, and providing fewer role models to inspire future vanguards. Although backlash has been demonstrated as a cost of gender atypicality since the 1970s (e.g., Cherry & Deaux, 1978; Costrich, Feinstein, Kidder, Maracek, & Pascale, 1975; Derlega & Chaiken, 1976; Dipboye & Wiley, 1977; Hagen & Kahn, 1975; Powers & Zuroff, 1988; for a review, see Rudman, 1998), the mechanisms underlying backlash and its generalization beyond gender to racial vanguards have only recently been systematically investigated.

This chapter presents evidence for the Backlash and Stereotype Maintenance Model (BSMM; Rudman & Fairchild, 2004), which describes how both perceivers and actors (the targets of backlash) play active roles in perpetuating cultural stereotypes, the former by imposing penalties and the latter through defensive maneuvers designed to avoid them. On the perceiver's side of the equation, we introduce the Status Incongruity

Hypothesis (SIH), which specifies how and why perceivers justify penalizing gender vanguards (Moss-Racusin, Phelan, & Rudman, 2010; Rudman, Moss-Racusin, Phelan, & Nauts, 2012). We then demonstrate how the BSMM and the SIH generalize to perceivers' treatment of racial vanguards (Phelan & Rudman, 2010a). On the actor's side of the equation, we present the Backlash Avoidance Model, which expands on the BSMM by showing how fear of backlash undermines potential vanguards' ability to perform well in counterstereotypical domains, even when doing so is necessary for success (Moss-Racusin, 2011; Moss-Racusin & Rudman, 2010). Finally, we discuss how advances in backlash theory inform extant social psychological frameworks and possible future directions for research.

2. THE ROLE OF BACKLASH IN STEREOTYPE MAINTENANCE

Vanguards have the power to strongly affect cultural stereotypes. For example, at one time, African Americans were thought to be so physically incapable that they were prevented from competing in professional sports and the Olympics. Today, that stereotype has transformed into its opposite, with Blacks regarded as more athletically talented than Whites (Amodio & Devine, 2006; Devine & Baker, 1991; Stone, Lynch, Sjomeling, & Darley, 1999). Similarly, education was once thought to be wasted on women; today, more women than men graduate from college (Peter & Horn, 2005). Clearly, stereotypes can be woefully inaccurate, yet they will persist unless challenged by vanguards. We argue that backlash is rooted in motivations to maintain stereotypes as a means of preserving the social status quo.

Stereotypes organize information, aid in decision making, provide social norms, and legitimize social hierarchies, among other functions (Ashmore & Del Boca, 1981; Jackman, 1994; Jost & Banaji, 1994; Schimel et al., 1999; Snyder & Miene, 1994). Because stereotypes serve so many purposes, they represent a cultural heritage that everyone is exposed to and influenced by, whether or not individuals personally endorse their validity (Devine, 1989). Given their many functions and cultural embeddedness (e.g., in media and literature), it should not be surprising that perceivers often strive to preserve stereotypes, and rejecting vanguards is one means to that end (Rudman & Fairchild, 2004).

The overlap between stereotypes and social norms represents a key to understanding backlash. Just as people who violate injunctive norms are often penalized (e.g., healthy drivers who park in a handicapped zone not only risk being ticketed but yelled at by passersby), people who violate stereotype-based expectancies often attract negative attention (Cialdini & Trost, 1998). For example, stay-at-home fathers are gossiped about more

than traditional fathers (Brescoll & Uhlmann, 2005), and a woman who campaigns to be President of the United States receives more intense media scrutiny than a male candidate (Lawrence & Rose, 2009). Pressures to conform to stereotypic norms and avoid the stigma of deviance can lead people to restrict their aspirations and behaviors in ways that cater to others' expectancies (e.g., Goffman, 1963; von Baeyer, Sherk, & Zanna, 1981; Zanna & Pack, 1975). This pressure is often overt, as in the case of gender stereotypes. Children are socialized early and often to "act like a boy" or "behave like a girl," and punishment for crossing gender bounds can be severe, ranging from playground taunts to being diagnosed with gender identity disorder (Martin, 1990; Zucker, Bradley, & Sanikhani, 1997). As a result, people police themselves, conforming to stereotypes to avoid backlash; they also keep others in line by rejecting nonconformists (Schachter, 1951). In this way, perceivers and actors work in concert to perpetuate cultural stereotypes, whether or not they intend to do so.

3. THE BACKLASH AND STEREOTYPE MAINTENANCE MODEL

Figure 4.1 presents the BSMM, which describes the role backlash plays in reinforcing cultural stereotypes from the standpoint of both perceivers and actors (Rudman & Fairchild, 2004). The top row focuses on perceivers, proposing that cultural beliefs evoke a normative standard to which perceivers compare targets; when individuals fail to meet the standard, perceivers may regard them as deviant (Kobrynowicz & Biernat, 1998). If perceivers feel justified (i.e., if they can legitimize hostility), they then engage in backlash (e.g., social rejection, hiring discrimination, and sabotage). This prediction accords with other theories positing that prejudice is not evoked or acted on arbitrarily but is expressed only when perceivers feel justified (Crandall & Eshleman, 2003; Yzerbyt, Schadron, Leyens, & Rocher, 1994). Backlash, in turn, reinforces cultural stereotypes by curbing the success and visibility of people who challenge them. Because vanguards effectively undermine stereotypes (Brewer, 1988; Fiske & Neuberg, 1990), backlash serves a crucial role in system maintenance by defeating potential vanguards. Finally, the BSMM argues that punishing vanguards benefits perceivers psychologically via self-esteem maintenance (Branscombe & Wann, 1994; Fein & Spencer, 1997; Spencer, Fein, Wolfe, Fong, & Dunn, 1998; Tesser, 2000, Tesser & Smith, 1980). This may be especially true when people engage in backlash in response to threats to their own self-worth (e.g., when vanguards outperform perceivers) because rejecting atypical targets can protect perceivers' self-esteem (Parks-Stamm, Heilman, & Hearn, 2008; Phelan & Rudman, 2010a; Rudman & Fairchild, 2004).

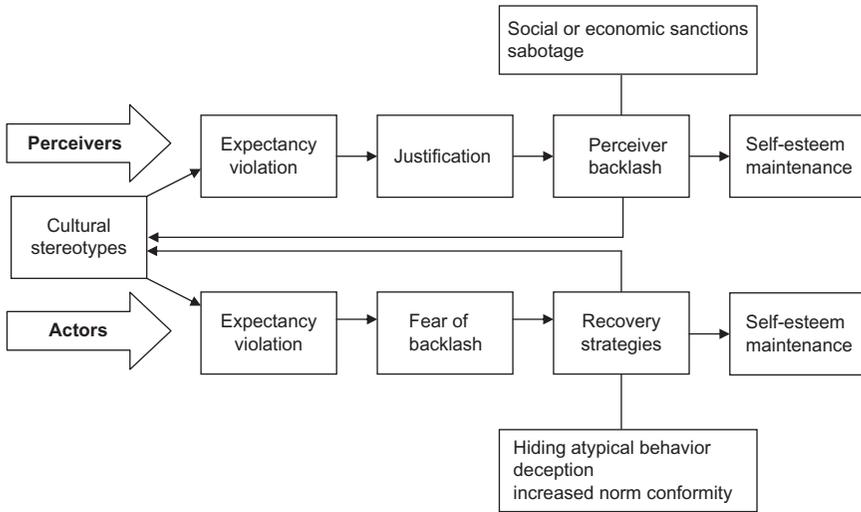


Figure 4.1 The backlash and stereotype maintenance model (BSMM; Rudman & Fairchild, 2004). The top and bottom rows show the role of backlash in preserving cultural stereotypes from the standpoint of perceivers and actors, respectively.

The bottom row of Fig. 4.1 presents the BSMM from the actor's standpoint. Because actors are also aware of cultural stereotypes, they may (rightly) fear backlash for deviating from them. The fear of social rejection is sufficiently powerful that people will go against their better judgment to avoid it. Ostracism activates the same region of the brain that is activated when suffering physical pain (the dorsal anterior cingulate cortex; Eisenberger, Lieberman, & Williams, 2003). Social rejection damages people's sense of belonging and, thus, their self-esteem (Leary & Baumeister, 2000; Williams, 2007). Ostracized individuals employ many countermeasures to reinstate themselves as worthy members of a group (Williams, Bernieri, Faulkner, Grahe, & Gada-Jain, 2000). However, people do not need to actually suffer rejection to experience conformity pressures—the mere threat of becoming a social outcast will suffice (Asch, 1955; Deutsch & Gerard, 1955; Janis, 1982; Noelle-Neumann, 1993).

For these reasons, the BSMM predicts that people who fear backlash will attempt to avoid it by engaging in prevention and recovery strategies, such as hiding or lying about their atypical talents or behaviors. Actors may also hyper-conform to stereotypes to maintain the appearance that they are normative group members, thereby overcompensating for their deviance. As a result, cultural stereotypes are reinforced rather than challenged. Finally, because social rejection diminishes self-esteem (Leary & Baumeister, 2000; Williams, 2007), the model predicts that avoiding backlash (through the use of recovery strategies) likely protects atypical actors' self-worth.

We next describe evidence supporting the BSMM in investigations of perceivers' and actors' reactions to gender deviance (Rudman & Fairchild, 2007), which has been the focus of most backlash research. Later, we feature research on perceivers' and actors' reactions to racial deviance, which provides evidence that the BSMM generalizes beyond gender to other social categories (Phelan & Rudman, 2010a).

3.1. The perceiver's role

To test the top half of the BSMM, Rudman and Fairchild (2004) trained male and female confederates to perform at a high level on computer knowledge tests. Competing against a naïve participant, confederates then succeeded either on a test that required knowledge of child development (a feminine domain) or football (a masculine domain). Participants were told that if they lost the computer knowledge test, termed the "elimination phase," they would be ineligible to win a cash prize. However, the victor would be able to win a prize provided he or she passed one more test, termed the "qualifying phase." If he or she succeeded, the victor's name would also be publicized on a Web site advertising the computer knowledge tests. After losing to the confederate, participants were then given the opportunity to program the qualifying phase by selecting the test items, and thereby undermine the confederate's success.

Consistent with the BSMM, people who lost a competition to a gender-atypical target (e.g., a woman who performed well on a masculine task) were more likely to sabotage the target's future success (by loading up on extremely difficult questions for the qualifying round) than participants who lost to a normative target. As Fig. 4.2 illustrates, the results were similar regardless of the confederate's gender—men who aced the feminine knowledge test were just as likely to be sabotaged as women who aced the football test. Further, both male and female perceivers punished gender-atypical (relative to normative) confederates.

These results suggest that vanguards' successes can elicit active harm from others. Indeed, we asked participants whether they knew they were causing harm; those who chose difficult questions fully expected to undermine their victims (i.e., asking tough questions was not a sign of respect). Of importance (both practically and for the BSMM), because confederates who failed to "qualify" would not receive public acclaim (e.g., by having their success advertised on a Web site), sabotage helped to ensure that cultural stereotypes would not be challenged. Perceivers who sabotaged atypical targets realized this consequence as well, estimating greater gender stereotyping on the part of future perceivers, suggesting they were aware of the crucial role that vanguards play in dismantling stereotypes (Brewer, 1988; Fiske & Neuberg, 1990). Finally, we measured participants' state self-esteem before the competition and after the sabotage task (Heatherton & Polivy,

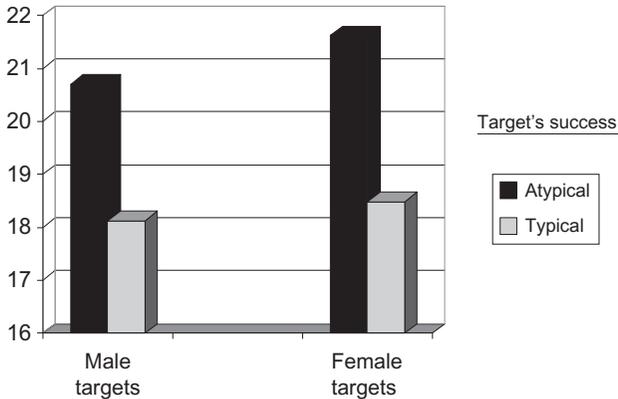


Figure 4.2 Sabotage as a function of target's success condition and gender. Possible range: 10–30. Adapted from Rudman and Fairchild (2004, Experiment 1).

1991). At Time 2, sabotaging vanguards was associated with increased self-esteem, $r(98)=0.48, p<0.01$, whereas sabotaging normative targets was associated with decreased self-esteem, $r(87)=-0.53, p<0.01$. These results show that backlash can psychologically benefit perceivers, as the BSMM posits. The negative relationship between sabotage and self-esteem when the victim is a normative target implies potential guilt that perceivers do not seem to feel when they punish vanguards.

3.2. The actor's role

To test the bottom row of the BSMM, Rudman and Fairchild (2004) gave male and female participants false feedback on masculine and feminine knowledge tests. The masculine test featured items related to sports, finances, and construction projects; feminine test items focused on fashion, beauty, and cooking. All participants were informed that if they performed well on either test, they would be eligible for a cash prize lottery. After taking the computerized tests, participants in the atypical condition were told by the computer program that they performed well on the opposite gender test, but poorly on their own gender test. Participants in the normative condition were told the reverse. All participants were subsequently asked if they would be willing to publicize their success (e.g., on a Web site advertising the gender knowledge tests). To measure fear of backlash, participants were asked to indicate how they would feel if their success was made public (e.g., would they be worried about being labeled as “odd” and rejected by their peers?). All participants subsequently responded to a survey (ostensibly as part of another project) in which they indicated their interest in various masculine and feminine

occupations and activities. Finally, they completed a measure of state self-esteem (Heatherton & Polivy, 1991).

The experimenter then entered the room to inquire whether participants were eligible for the cash prize (everyone said “yes”) and which test they had performed well on. Normatives always told the truth, but 20% of atypical participants lied to the experimenter, claiming normative success. The experimenter then asked participants for a digital photo, ostensibly to publicize their success on a Web site. Normatives generally agreed, whereas atypical participants often refused, choosing instead to hide their success. Atypical (compared with normative) participants also hyper-conformed to gender norms, showing more interest in gender-typed activities and occupations. Further, hiding, deception, and gender conformity were moderated by participants’ fear of backlash, such that atypical actors who feared social rejection if their success was publicized were especially likely to engage in backlash-avoidance strategies—behaviors that ultimately reinforce cultural stereotypes. These results, shown in Table 4.1, support the bottom half of the BSMM.

Did engaging in recovery strategies protect actors’ self-esteem? The BSMM predicts that recovery strategies should have protected self-esteem for atypical actors who feared backlash, but this was not the case. Instead, all actors reported low-state self-esteem to the extent they feared backlash, suggesting the power that (even imagined) social rejection possesses to threaten self-worth (Leary & Baumeister, 2000). In other words, people who feared ostracism acted to avoid it, but engaging in self-protective strategies did not help them feel better about themselves.

Table 4.1 Correlations and means as a function of participants’ success condition

	Gender atypical success				Gender typical success			
	Hiding	Decep- tion	Confor- mity	FOB	Hiding	Decep- tion	Confor- mity	FOB
Deception	0.31**				0.01			
Conformity	0.22*	0.28**			-0.11	0.03		
FOB	0.45**	0.38**	0.28**	-	0.09	0.09	-0.27**	-
Mean	1.82 _a	1.14 _a	1.40 _a	2.42 _a	1.47 _b	1.02 _b	1.14 _a	1.89 _b
<i>SD</i>	0.57	0.32	1.52	0.69	0.40	0.12	1.25	0.56

Note: Adapted from Rudman and Fairchild (2004, Experiment 3). High scores reflect greater hiding of success, falsely claiming success in the opposite-sexed domain, showing interest in own-sexed (more than cross-sexed) occupations and sports, or greater fear of backlash (FOB) if success was publicized. ^{a,b} Means not sharing a subscript differ between atypical ($N=130$) and typical ($N=120$) participants at the $p<0.05$ level or higher.

* $p<0.05$.

** $p<0.01$.

In summary, the BSMM argues that backlash plays a significant role in preserving cultural stereotypes. To the extent that perceivers punish vanguards and stifle their ability to challenge stereotypes, cultural beliefs are allowed to persist. Relatedly, actors who fear backlash will police themselves in ways that reinforce cultural beliefs. Thus, both perceivers and actors are involved in a vicious cycle that serves to maintain stereotypes, with the people most poised to undermine the engine that drives backlash rendered either unable or unwilling to do so. In the next section, we describe the specific case of backlash against female leaders, which undermines women's progress and their ability to realize equal opportunity. We also present the SIH as a means of explaining when and why vanguards encounter backlash.

4. BACKLASH AGAINST FEMALE LEADERS

When the crunch comes, the toughest issue for Clinton may be the one that so far has been talked about least. If she runs, she'll be handicapped by her gender. Anyone who thinks it won't be difficult for a woman to get elected president of the United States should go home, take a nap, wake up refreshed, and think again.

[Herbert \(2006\)](#)

The quotation above addresses the challenges Senator Hillary Clinton faced in 2008 as the first female primary candidate for President of the United States who had a real chance to secure her party's nomination. Her historic race against Senator Barack Obama, who ultimately won the Democratic primary and the presidential election, provided anecdotal evidence about whether it was easier for a White woman or a Black man to achieve the highest office in the land. In the larger picture, both Clinton and Obama are extremely successful vanguards. But they are also rarities: the highest number of female senators to concurrently serve is 17, and the comparable number for African Americans is 4. These numbers represent progress but remain small relative to 100 senate seats. Because vanguards are critical for eliminating demeaning cultural stereotypes, it is imperative to understand the obstacles to their success. In this section, we focus on how women are handicapped by gender stereotypes and hostile perceiver reactions when pursuing leadership roles.

Before they can be elected, hired, or promoted to a leadership role, women must overcome two hurdles ([Eagly & Karau, 2002](#)). The first concerns stereotype disconfirmation: women must work harder than men to demonstrate that they possess the agentic traits associated with leadership because stereotypes favor men on this dimension. The second hurdle, ironically, is exacerbated by the very behaviors women must engage in to

clear the first hurdle: by demonstrating agency, women risk being disliked and punished for deviating from gender stereotypes. Thus, these related challenges create a double bind for women. Below, we review each obstacle in more detail, with a greater focus on the second, which constitutes backlash.

4.1. The first hurdle: Stereotyped expectations

Gender stereotypes cast men as more agentic (e.g., competent, ambitious, assertive, and competitive) and women as more communal (e.g., supportive, caring, warm, and emotional) compared to members of the other sex. These associations represent well-established, cross-culturally consistent gender stereotypes (e.g., Williams & Best, 1990). Because gender stereotypes bias perceptions, it is more difficult for women to persuade others that they have the necessary agency to be strong leaders (Goldberg, 1968; Deaux & Emswiler, 1974; Foschi, 2000; Swim & Sanna, 1996).

Social role theory posits that gender stereotypes stem from men's traditional role as the primary breadwinner and women's as homemakers (Eagly, 1987; Eagly, Wood, & Diekmann, 2000). Thus, as roles have changed, stereotypes should also change. In Western nations, women's roles have shifted radically. For example, women comprise 47% of the U.S. labor market and 59% of American women work outside the home (U.S. Bureau of Labor Statistics, 2009). This has dramatically changed gender attitudes, making it more acceptable for women to have careers than in the past (Twenge, 1997). Moreover, contemporary women view themselves as much more agentic than women of the past (e.g., Spence & Buckner, 2000; Twenge, 2001). At the same time, gender stereotypes show considerable inertia (Lueptow, Garovich, & Lueptow, 1995; Spence & Buckner, 2000)—for example, people still view agency as relatively masculine and more desirable for men than for women, who are still held to communal ideals (Prentice & Carranza, 2002; Rudman et al., 2012).

Further, even people who endorse gender egalitarian beliefs nonetheless show evidence of sex stereotyping on implicit measures, such as the Implicit Association Test (Greenwald, McGhee, & Schwartz, 1998; Nosek, Banaji, & Greenwald, 2002a, 2002b; Rudman & Goodwin, 2004; Rudman & Kilianski, 2000). The persistence of male agency and female communality stereotypes on implicit measures suggests deeply ingrained cultural beliefs that reflect the idea that men are better suited for leadership roles than women (Cejka & Eagly, 1999; Eagly & Karau, 2002; Glick, Wilk, & Perreault, 1995; Heilman, 1983, 2001).

Because both implicit and explicit stereotypes bias perception, women must display agency to overcome their perceived "lack of fit" with leadership roles (Heilman, Wallen, Fuchs, & Tamkins, 2004). Women who fail to do so are rated as low in competence and therefore disqualified as leaders

(e.g., Glick, Zion, & Nelson, 1988; Rudman & Glick, 1999, 2001). The presumption that women lack competence has been demonstrated using the Goldberg (1968) paradigm, in which the same materials (e.g., resumes or work product) are presented to participants with only target gender manipulated (for reviews, see Deaux & LaFrance, 1998; Eagly & Karau, 2002; Fiske, 1998; Foschi, 2000). Within masculine domains, people often judge female targets and work products as less competent than identically described male targets and work products; women must therefore overcome perceivers' assumptions that they lack competence.

4.2. The second hurdle: Backlash

Female agency allows women to leap the first hurdle because women who assert their talent and skills, profess ambition, and tout their competence during a job interview are routinely regarded as highly competent and well qualified for leadership roles, achieving ratings equal to men who behave in the same manner (e.g., Rudman, 1998; Rudman & Glick, 1999, 2001). Unfortunately, by leaping the first hurdle, women may inadvertently stumble right into the second—backlash. When women show that they are “men’s equals” on agentic traits, perceivers dislike them more than similarly agentic men, which leads to economic penalties, including discrimination in hiring and promotion decisions for leadership roles (e.g., Rudman & Glick, 1999, 2001; for reviews, see Phelan & Rudman, 2010b; Rudman & Phelan, 2008). Prejudice against agentic women places women in a double bind—one that forces women to choose between being disrespected (if they fail to demonstrate agency) or disliked (for exhibiting agency). As a result, women encounter challenges on the road to leadership that men do not face (Eagly & Carli, 2007).

Figure 4.3 presents a meta-analysis of six experiments using a hiring paradigm in which men and women vied for a leadership role while presenting themselves as either agentic or communal during a job interview (Phelan, Moss-Racusin, & Rudman, 2008; Rudman & Glick, 1999, 2001; Rudman et al., 2012). Results are shown in effect sizes (Cohen’s *d*), such that high scores reflect men being rated higher than women. For communal applicants, male and female targets were viewed as equally likable, but men were rated as more competent and hireable, demonstrating how behaving in a communal manner reinforces stereotypical assumptions that women lack competence. Thus, women who fail to disconfirm the stereotype that women are warm but not competent fail to clear the first hurdle. For agentic applicants, women received competence ratings equal to similarly agentic men; these women defeated the first hurdle. Nonetheless, perceivers evaluated agentic women as less likable and hireable than agentic men, demonstrating that by clearing the first hurdle, agentic women are then undermined by backlash, the second hurdle.

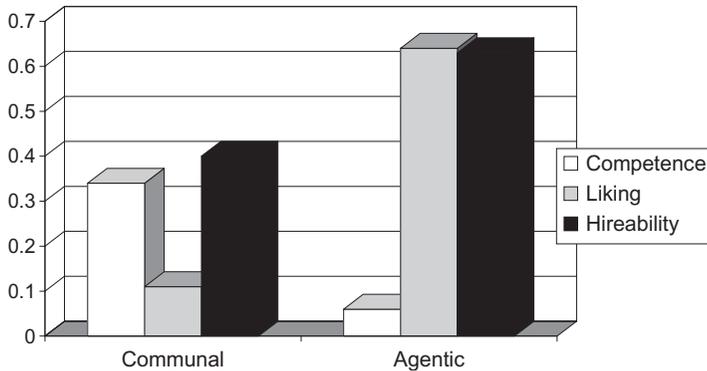


Figure 4.3 Meta-analysis of six experiments in which male and female agentic and communal applicants competed for a managerial role. The Y-axis shows mean effect sizes (Cohen’s *d*), computed so that high bars reflect rating male applicants higher than female applicants. Small, medium, and large effect sizes correspond to 0.20, 0.50, and 0.80, respectively (Cohen, 1988).

In sum, Fig. 4.3 illustrates women’s Catch-22: disqualification based on perceived incompetence (if they act femininely) or due to backlash (if they display agency). Consistent results across studies reveal that enacting agency represents a double-edged sword for women. Although it conquers negative feminine stereotypes regarding their competence and leadership ability, it places them at risk for backlash. This two-pronged dilemma helps to illuminate why men’s access to top leadership roles remains far greater than women’s, despite legislative and sociocultural changes designed to afford women equal opportunity (Eagly & Carli, 2007; Valian, 1999; Zweigenhaft & Domhoff, 2006).

4.3. A demonstration of the two hurdles for female leaders

Because much backlash research has relied on a hiring paradigm, Rudman et al. (2012, Experiment 5) sought to provide a demonstration of the two hurdles for female leaders in a different context—one that has implications for agentic women’s success in the workplace after they are hired as leaders. Participants ($N=237$, 123 women) were recruited for a “Work Task Study” in which they were told that a computer program had “randomly assigned” male and female confederates to a leadership role and participants to a subordinate role (in fact, all confederates were designated as leaders). To manipulate the leader’s agency, participants were given the confederate’s score on an alleged leadership aptitude test. Sample test items included, “When I am in charge of a group, things always go smoothly,” and “I believe I am a strong, confident leader.” High-agency confederates

ostensibly scored in the 97th percentile, whereas low-agency confederates scored in the 67th percentile. Not surprisingly, high-scoring confederates were rated as more competent than low-scoring confederates ($d=0.62$). Of more interest, high-agency men and women were viewed as similarly competent ($d=0.11$), but low-agency men received higher competence scores than comparable women ($d=0.46$). This replicates the pattern shown in Fig. 4.3 and again demonstrates the need for women to exhibit agency to overcome the first hurdle of women's perceived "lack of fit" with leadership (Eagly & Karau, 2002).

To measure backlash, we allowed participants to sabotage the confederate leader (Rudman & Fairchild, 2004). Because sabotage represents active harm, it is a compelling form of backlash. Participants were told that while the Experimenter was "giving the leader instructions," they would be allowed to program a computerized task that the leader would subsequently perform. Participants received an anagram and its solution and were told that the confederate had to type in the correct answer quickly in order to score points. For each of 10 anagrams, participants were instructed to choose only one clue from a list of three possibilities. The clues were pretested to vary in helpfulness from low to high. For example, for the anagram "CPESNRRAA" (the answer is "PANCREAS"), participants chose from the following clues: "It starts with the letter 'P'" (unhelpful), "It's an organ in your body" (medium), and "It's the organ in your body that starts with 'P'" (helpful). The clues (which were unlabeled and presented in random order) were subsequently scored on a scale from 1 (*helpful*) to 3 (*unhelpful*) and summed to form the sabotage index ($\alpha=0.94$).

As expected, agentic female leaders were sabotaged more so than agentic male leaders, $t(115)=2.74$, $p<0.01$ ($M_s=15.47$ vs. 13.00 , $d=0.51$). By contrast, no target gender differences emerged on the sabotage measure between low-agency leaders ($M_s=13.48$ vs. 12.99 for female and male targets, respectively, $d=0.10$). Further analyses showed that agentic female leaders were sabotaged significantly more than low-agency leaders, whether male ($d=0.51$) or female ($d=0.41$).

In summary, female leaders who lacked the agentic traits associated with successful leadership avoided sabotage, but they were viewed as less competent than male counterparts. The same low leadership aptitude score was interpreted differently because of stereotypical assumptions that women are weaker leaders than men. In contrast, agentic female leaders were viewed as just as competent and qualified to lead as agentic male leaders but were sabotaged more so than all other targets. This pattern suggests that agentic female leaders are at risk for hostile discrimination in the workplace.

Negative reactions to female agency have been observed in varied circumstances, in both laboratory and field research. For example, task-oriented, masculine, or authoritative male leaders are evaluated more favorably than female counterparts, whereas communal or participatory styles do

not advantage female over male leaders (Eagly, Makhijani, & Klonsky, 1992). Similarly, people view female speakers as less persuasive when they exhibit a task-oriented rather than a “people-oriented” style, whereas speaking style has no influence on men’s persuasiveness (Carli, 1990, 2001; Carli, LaFleur, & Loeber, 1995; see also Wiley & Eskilson, 1985). Women with agentic personalities (e.g., assertive and independent) are especially likely to suffer sexual harassment in male-dominated occupations (Berdahl, 2007a). People generally view female assertiveness negatively (Costrich et al., 1975; Powers & Zuroff, 1988), even when it involves self-defense (Branscombe, Crosby, & Weir, 1993).

In turn, these social constraints on women’s agency have serious economic effects, ranging from being disadvantaged during job interviews and hiring negotiations (Amanatullah & Morris, 2010; Babcock & Laschever, 2003; Bowles, Babcock, & Lai, 2007; Janoff-Bulman & Wade, 1996; Moss-Racusin & Rudman, 2010; Wade, 2001) to being bypassed for promotions (Fiske, Bersoff, Borgida, Deaux, & Heilman, 1991; Heilman, 2001; Lyness & Judiesch, 1999). Moreover, even when women achieve leadership positions, backlash restricts their ability to perform the job effectively. For example, subordinates respond more negatively to discipline, criticism, and demands from female leaders as opposed to male leaders (Atwater, Carey, & Waldman, 2001; Bolino & Turnley, 2003; Sinclair & Kunda, 2000). In general, women are viewed as less effective leaders than men whenever they directly assert their authority (Eagly, Karau, & Makhijani, 1995; see also Eagly et al., 1992).

4.4. Gender stereotypes as gender rules

The double standard for agency, whereby male agency is more acceptable than female agency, implies that gender stereotypes are not merely descriptive (i.e., describing how men and women are) but also prescriptive, meaning that they are viewed as rules for how people ought to behave (Burgess & Borgida, 1999; Eagly, 1987; Fiske & Stevens, 1993). That is, not only are men and women stereotyped as agentic and communal, respectively, but they are also pressured to behave as such. For example, stereotypes prescribe that women ought to be warm, kind, sensitive, and interested in children, whereas men ought to be ambitious, assertive, self-reliant, and show leadership ability (Prentice & Carranza, 2002). In addition, gender rules specify proscribed characteristics (Fiske & Stevens, 1993; Prentice & Carranza, 2002), generally undesirable qualities that are prohibited for one gender, but tolerated for the other. For example, stereotypically male traits linked to dominance (e.g., controlling and arrogant) are strongly proscribed for women but tolerated in men; conversely, stereotypically female traits linked to vulnerability (e.g., weak and naive) are strongly proscribed for men but tolerated in women (Prentice & Carranza, 2002).

From these examples, it is clear that gender rules do not exist independently of status. According to status characteristics and expectation states theory (Berger, Webster, Ridgeway, & Rosenholtz, 1986; Ridgeway, 2001), gender is an organizing principle that dictates “proper” social relations and behaviors across the full spectrum of human activity. Gender stereotypes serve as the “genetic code” of this system because they “contain the cultural rules for defining what is socially expected of men and women” (Ridgeway & Bourg, 2004, p. 217). At their core, gender stereotypes contain status beliefs that evaluate men as more competent and deserving of power than women, while assigning women specialized talents (e.g., empathy) linked to lower status (e.g., child raising). By defining men and women as differentially skilled and valued, gender rules demand behavior that reinforces inequality.

4.5. Gender rules and status

But which gender rules are especially likely to preserve the gender hierarchy? To uncover the status implications of gender prescriptions and proscriptions, Rudman et al. (2012) conducted an online survey ($N=832$, 415 women) that asked people to rate 64 gender-stereotypical traits. Depending on random assignment, respondents rated (a) how *desirable* each trait was for either men or women, (b) how *typical* each trait was of either men or women, or (c) how typical each trait was of high versus low-status people. Tables 4.2 and 4.3 show the results.

Because we used nine-point rating scales, we defined male prescriptions as traits that were rated above six on the one (*not at all desirable*) to nine (*very desirable*) scale for men, and that when compared to the desirability rating for women, also had a gender difference effect size greater or equal to $d=0.40$. The top half of Table 4.2 shows these 16 traits, ranked by prescriptive d scores. We defined female prescriptions as traits that were rated above six for women, and that also had a gender difference effect size less than or equal to $d=-0.40$. These 16 traits are shown in the bottom half of Table 4.2.

Analogously, we defined male proscriptions as traits that were rated below four on desirability for men, and that also had a gender difference effect size greater than or equal to $d=0.40$. The top half of Table 4.3 shows these 10 traits, ranked by proscriptive d scores. Similarly, we defined female proscriptions as traits that were rated below four for women, and that also had a gender difference effect size less than or equal to $d=-0.40$. The bottom half of Table 4.3 shows these 13 traits, ranked by proscriptive d scores.

Table 4.2 (top half) reveals that men’s prescriptions (i.e., traits viewed as more desirable for men than women; mean $d=0.75$) consist mainly of agentic traits perceived as more typical of men than women (mean $d=0.53$) and as more typical of high status than low-status people (mean $d=1.26$). We refer to these traits as *male agency prescriptions*. Table 4.3 (top half) reveals that men’s proscriptions (i.e., traits rated as less desirable for

Table 4.2 Prescriptive traits for men and women

Trait	Prescriptive	Male	Female	Typicality	Status
	<i>d</i>	<i>M</i>	<i>M</i>	<i>d</i>	<i>d</i>
<i>Male agency prescriptions</i>					
Career oriented	1.12	7.74	5.74	0.49	1.57
Leadership ability	1.09	7.86	5.89	0.79	1.45
Aggressive	1.03	6.16	3.91	1.36	0.43
Assertive	1.01	7.26	5.20	0.78	1.39
Independent	0.98	7.67	5.57	0.65	1.23
Business sense	0.97	7.39	5.76	0.86	1.60
Ambitious	0.95	7.95	6.28	0.35	1.37
Hard working	0.80	8.08	6.78	0.13	0.91
Works well under pressure	0.74	7.39	6.05	0.65	1.26
Self-starter	0.58	6.26	5.13	0.53	1.18
Intelligent	0.55	7.67	6.78	-0.04	1.08
Analytical	0.48	6.71	5.83	0.02	1.29
High self-esteem	0.48	7.29	6.56	0.74	1.59
Persuasive	0.41	6.44	5.74	-0.04	1.30
Competitive	0.40	7.67	5.28	1.08	1.43
Competent	0.40	7.17	6.48	0.14	1.12
<i>Female communality prescriptions</i>					
Emotional	-1.12	3.87	6.51	-1.49	-0.63
Warm	-1.03	6.07	7.99	-1.11	-0.47
Interested in children	-1.00	5.92	7.82	-1.29	-0.46
Sensitive to others	-1.00	5.48	7.52	-1.02	-0.23
Good listener	-0.89	6.14	7.82	-1.18	0.07
Cheerful	-0.87	6.06	7.58	-0.83	0.57
Enthusiastic	-0.83	5.71	7.06	-0.87	0.91
Excitable	-0.76	5.69	6.95	-0.91	0.42
Cooperative	-0.75	6.29	7.50	-0.45	0.11
Friendly	-0.71	6.77	7.76	-0.70	0.09
Supportive	-0.69	6.69	7.75	-0.73	0.06
Polite	-0.57	6.90	7.74	-0.62	0.04
Humble	-0.56	5.77	6.80	-0.43	-0.80
Attends to appearance	-0.46	6.68	7.51	-0.34	1.20
Helpful	-0.45	6.95	7.58	-0.67	0.25
Likeable	-0.42	7.00	7.74	-0.47	0.15

Note: Positive *d* scores reflect stronger prescriptions or typicality for men than women, or stronger typicality for high than low-status people. Negative *d* scores reflect the reverse. Conventional small, medium, and large effect sizes for *d* are 0.20, 0.50, and 0.80, respectively (Cohen, 1988). Adapted from Rudman et al. (2012).

Table 4.3 Proscriptive traits for men and women

Trait	Proscriptive	Male	Female	Typicality	Status
	<i>d</i>	<i>M</i>	<i>M</i>	<i>d</i>	<i>d</i>
<i>Male weakness proscriptions</i>					
Emotional	1.12	3.87	6.51	-1.49	-0.63
Naive	1.03	2.35	4.55	-0.88	-0.78
Weak	0.97	1.85	3.96	-1.02	-1.32
Insecure	0.91	2.29	4.08	-1.06	-0.96
Gullible	0.89	2.80	4.67	-1.02	-1.07
Melodramatic	0.88	2.87	4.80	-1.22	-0.01
Uncertain	0.80	2.78	4.13	-1.22	-1.22
Moody	0.78	2.67	4.44	-0.71	0.05
Indecisive	0.74	2.81	4.31	-1.18	-1.06
Superstitious	0.56	3.16	4.15	-0.74	-0.64
<i>Female dominance proscriptions</i>					
Aggressive	-1.03	6.16	3.91	0.43	1.36
Intimidating	-0.98	5.37	3.29	0.89	1.21
Dominating	-0.94	5.74	3.54	0.97	1.42
Arrogant	-0.76	4.61	2.93	1.11	1.08
Rebellious	-0.69	5.02	3.64	0.66	-0.40
Demanding	-0.65	5.16	2.96	-0.15	1.24
Ruthless	-0.65	4.41	2.96	0.64	0.59
Angry	-0.65	4.14	3.82	0.71	-0.47
Controlling	-0.61	5.20	3.88	0.42	1.33
Stubborn	-0.55	4.74	3.63	0.42	0.65
Cold toward others	-0.51	3.43	2.49	0.38	0.35
Self-centered	-0.41	4.20	3.21	0.14	1.05
Cynical	-0.41	3.94	3.27	0.28	0.12

Note: Positive *d* scores reflect stronger proscriptions or typicality for men than women, or stronger typicality for high than low status people. Negative *d* scores reflect the reverse. Conventional small, medium, and large effect sizes for *d* are 0.20, 0.50, and 0.80, respectively (Cohen, 1988). Adapted from Rudman et al. (2012).

men than women; mean $d=0.87$) were viewed as more typical of women than men (mean $d=-1.05$) and more typical of low versus high-status people (mean $d=-0.76$). Because many of these traits reflect vulnerability (e.g., weak, insecure, and naïve), we refer to them as *male weakness proscriptions*. In essence, what men should be (agentive) is high in status, and what they cannot be (weak) is low in status. Thus, male prescriptions and proscriptions both seem designed to preserve the gender hierarchy.

Table 4.2 (bottom half) reveals that communal attributes predominate among women's prescribed traits (i.e., traits rated as more desirable for

women than men; mean $d = -0.76$). These communal traits are also rated as more typical of women than men (mean $d = -0.81$) and on average, as status neutral (mean $d = 0.08$). The neutral average for status ratings occurs because some female prescriptions are low in status (e.g., interest in children), some are high in status (e.g., enthusiasm), while the majority are status neutral (e.g., friendly, polite, and supportive). This suggests that *female communality prescriptions* (what women should be) do not necessarily reinforce the gender hierarchy. At first blush, this result may seem surprising, but it is consistent with evidence that agency is linked to high status more so than communality is to low status (Conway, Pizzamiglio, & Mount, 1996; Hoffman & Hurst, 1990).

Table 4.2 suggests that, on the whole, women's communality prescriptions do not reinforce the traditional gender hierarchy. However, Table 4.3 (bottom half) shows a different picture, revealing that women are proscribed from enacting dominant traits. These traits are rated as less desirable for women than men (mean $d = -0.68$), more typical of men than women (mean $d = 0.53$), and more typical of high than low-status people (mean $d = 0.73$). Thus, what women cannot be reflects high-powered traits reserved for leaders and for men (e.g., dominant, controlling, and arrogant). We refer to these attributes as *female dominance proscriptions*.

In summary, Rudman et al.'s (2011) findings confirmed that agency is aligned with high status, but that communality is not necessarily low in status (Conway et al., 1996; Hoffman & Hurst, 1990). Instead, women are proscribed from exhibiting high-status signs of dominance, while men are prohibited from showing low status signs of weakness. Thus, gender rules appear to work in concert to preserve male power. These findings provide a basis for predicting which stereotypes are likely to be enforced through backlash, and why; specifically, they suggest that not just any stereotype incongruity, but rather perceived violations of status-relevant gender rules, will most strongly elicit backlash.

5. THE STATUS INCONGRUITY HYPOTHESIS

According to the BSMM, people engage in backlash only when they feel justified in doing so, just as expressing prejudice generally requires justification (Crandall & Eshleman, 2003; Yzerbyt et al., 1994). The SIH claims that perceivers do not penalize targets merely for contradicting cognitive schemas. Rather, perceivers impose penalties when targets violate stereotypic expectancies that legitimize social hierarchies. In other words, perceivers (whether intentionally or not) impose penalties to discourage "deviance" that threatens the status quo.

By identifying the preservation of social hierarchies as a primary motive for backlash, the SIH dovetails with system-justification theory (Jost &

Banaji, 1994; Jost, Banaji, & Nosek, 2004), which proposes a universal need to believe that society is just and fair, to prevent bitterness and despair (Lerner, 1981). System-justification theorists suggest that because people may not be aware of motives to defend existing hierarchies, even minority group members tend to legitimize the status quo by internalizing society's negative views of their group (Jost, Pelham, & Carvello, 2002; Rudman, Feinberg, & Fairchild, 2002). If backlash stems from system-justification needs, it too may reflect nonconscious motivations that affect female as well as male perceivers (even though the gender system disadvantages women).

Moreover, system-justifying beliefs often take the form of complementary group stereotypes that mollify low-status groups by assigning them subjectively favorable traits (e.g., warmth) that nonetheless reflect less aptitude for power and control (Jost & Kay, 2005; Kay et al., 2007). By contrast, high-status groups are viewed as possessing qualities aligned with intellectual prowess and leadership, including some negatively valenced but high-status traits (e.g., dominance). Thus, the system-justification perspective fits well with stereotypes that assign men high-status qualities, both favorable (agency) and unfavorable (dominance), but view women as communal (a favorable but status-neutral dimension) and prohibit them from dominance (Rudman et al., 2012; see Tables 4.2 and 4.3). Thus, complementary sex stereotypes reflect, legitimize, and reinforce the gender hierarchy.

This analysis may explain why perceivers' gender seldom moderates backlash effects (i.e., why female perceivers are just as likely to punish agentic women as male perceivers; Rudman & Phelan, 2008). System-justification theory posits that, even though it goes against their own group's interests, members of low-status groups (e.g., women) experience strong system-justification motives because the alternative—believing that society is fundamentally unfair—is psychologically threatening (Jost & Banaji, 1994). Additionally, women may be attracted to complementary stereotypes that value them as more caring, moral, and worthy of protection than men (Glick & Fiske, 1996). However, if subjectively pro-female beliefs are reserved for traditional women (Glick, Diebold, Bailey-Werner, & Zhu, 1997), or compensate for less access to power and resources, women may be co-opted into maintaining male hegemony (Jackman, 1994). We elaborate on the reasons why women and men alike administer backlash in the future directions section, but for now, we highlight the fact that in all of the research described in this chapter, no gender differences in perceivers' reactions occurred.

The SIH proposes that backlash is provoked by perceived violations of *status expectations*, defined as violations of gender rules (prescriptive or proscriptive) that uphold the status hierarchy. Because of their sex, women have lower status than men—so much so that women are automatically associated with low status (e.g., follower, subordinate) rather than

high status (e.g., boss, supervisor; Rudman & Kilianski, 2000). Using evaluative priming, both genders showed implicit prejudice against female authority figures (e.g., bosses, professors, doctors, and police officers) that positively covaried with automatic gender status associations, $r(66)=0.38$, $p<0.001$, but not with automatic gender stereotypes or gender role associations, both $r_s(66)<0.14$, ns (Rudman & Kilianski, 2000). This led us to hypothesize that perceived status violations may have more to do with backlash than other types of gender violations.

According to the SIH, women who possess or seek power are *de facto* status incongruent, but particularly when they display agency, which is aligned with high status (see Table 4.2). As the sabotaging female leaders experiment showed, occupying a leadership role was insufficient to provoke backlash—women also had to display agency in order to be sabotaged (Rudman et al., 2012, Experiment 5). Low-agency women thrust into leadership positions are not likely to pose a threat to the system—indeed, their anticipated failure would reinforce views that “women make poor leaders.” By contrast, agentic women represent a system threat precisely because they are likely to succeed. Indeed, backlash has consistently been observed against agentic women, whether or not they occupy leadership roles (e.g., Berdahl, 2007a; Costrich et al., 1975; Okimoto & Brescoll, 2010; Powers & Zuroff, 1988; Rudman, 1998). Women who display agency may discomfit perceivers because the status of their gender and their behavior is at odds, threatening the gender hierarchy.

Although a woman’s display of agency may initiate system threat and, therefore, backlash, perceivers cannot easily justify backlash by citing generally valued and socially desirable behavior. Recall that cultural stereotypes do not prohibit female agency; rather, they characterize agentic traits as more desirable for men (Prentice & Carranza, 2002; Rudman et al., 2012). Although the SIH claims that people use status-reinforcing gender rules (stereotypical prescriptions and proscriptions) to justify backlash, perceivers will be attracted primarily to justifications that seem legitimate, rather than “prejudiced.” Faulting actors for exhibiting socially undesirable behaviors can legitimize a hostile reaction. Thus, the SIH suggests that perceivers will latch onto justifications for backlash that have two properties: (a) they represent status-relevant prescriptions or proscriptions that reinforce the status quo and (b) legitimate hostility as “reasonable” rather than “biased.” Prohibitions against female dominance fulfill both criteria, whereas gender rules about agency, although status-relevant and system-justifying, do not legitimize hostility (e.g., perceivers can legitimately dislike a woman because “she’s power-hungry,” but not because “she has leadership skills”). Therefore, while female agency initiates a threat to the gender system, it is perceivers’ motivated transformation of female agency into female dominance that allows backlash to be justified and released.

5.1. The dominance penalty for women

The SIH contends that perceivers typically justify hostility toward agentic women by viewing them as “too dominant” (i.e., as more dominant, controlling, and arrogant than a comparable man). We term this the *dominance penalty*. Perceived dominance presents a convenient way to justify backlash against agentic women because (a) like agentic traits, dominant traits are associated with high status, (b) unlike agentic traits, dominance represents generally undesirable behaviors that are especially prohibited for women, and (c) dominance represents an exaggerated form of agency (or “unmitigated agency”; Spence, Helmreich, & Holahan, 1979, p. 1675), perceivers can readily characterize agentic behaviors as crossing the line into “dominance.”

By construing female agency as dominance, perceivers can justify hostile backlash. To put it colloquially, competent, ambitious (i.e., high status) behavior by women may be construed as “she’s a power-hungry bitch,” legitimating perceivers’ hostility. Consistent with this view, epithets for powerful women often cast them as “dragon ladies,” “ice queens,” “battle axes,” and “castrating bitches” (Heilman et al., 2004; Kanter, 1977). In a study of reactions to male and female politicians, perceivers were less likely to vote for a female politician they perceived to be power-seeking, whereas power-seeking had no effect on voting intentions for male politicians; in addition, blatant power-seeking elicited anger and disgust only when perceivers judged female (not male) politicians (Okimoto & Brescoll, 2010).

Backlash derived from the dominance penalty contrasts with prior explanations for backlash. Specifically, other researchers and we have assumed that perceivers justified backlash against agentic women by viewing them as deficient in communality (e.g., Heilman & Okimoto, 2007; Rudman, 1998; Rudman & Glick, 2001). Knowing that communality is prescribed for women (Prentice & Carranza, 2002; see also Table 4.2), it seemed intuitively plausible that agentic women would be perceived as low in communality. For example, competitiveness (an agentic behavior) might be construed as insensitivity to others’ feelings. However, we have repeatedly failed to support the *communality deficit* explanation using self-reports: agentic women simply are not rated as less communal than agentic men (Rudman et al., 2012). Instead, support for the communality deficit explanation was inferred from research showing that communal displays appear to inoculate female leaders against backlash. For example, agentic women can escape backlash when they promise to lead (Rudman & Glick, 2001) or actually lead (Eagly et al., 1992) in an inclusive manner. The SIH suggests an alternative explanation as to why inclusiveness may help: perceivers may view it as ceding authority and power to others, signaling less dominance and lowering the relative status of female leaders. In other words, the inclusiveness findings may indicate that female leaders are

evaluated favorably as long as they give up power's privileges and promise not to impose their will on others.

The alternative view offered by the SIH can also account for Heilman and Okimoto's (2007) findings that participants who read about a successful female executive rated her as hostile, abrasive, and manipulative, unless they were also told she was a doting wife and mother. Without the "wife and mother" information, a successful female leader was judged to be high on proscribed (for women) dominance traits (i.e., hostile, abrasive, and manipulative are akin to aggressive, demanding, and controlling; see also Heilman, Block, & Martell, 1995; Heilman et al., 2004). Heilman and Okimoto interpreted their findings as support for the communality deficit explanation of backlash. Certainly, describing a female leader as a loving wife and mother increased her perceived communality. But this manipulation may also have evoked low-status aspects of communality, such as emotionality, warmth, and interest in children (see Table 4.3). Therefore, as with Rudman and Glick (2001), it is possible that Heilman and Okimoto lowered their female target's status, in addition to manipulating her perceived communality.

5.2. Tests of the dominance penalty and communality deficit explanations

According to the SIH, communality ratings are not likely to drive backlash because on the whole, they do not reinforce the gender hierarchy (recall Table 4.2's finding that female communality prescriptions are, on average, status neutral). To support the SIH, only the dominance penalty (not a communality deficit) should account for prejudice against agentic female leaders because proscriptions against female dominance represent the only female gender rule that clearly reinforces the gender status quo. In essence, the SIH suggests that status-incongruent (i.e., agentic) women elicit backlash not because they are perceived as insufficiently communal, but because they are perceived as attempting to "take charge" and dominate, rather than allowing men to lead.

To directly pit the communality deficit explanation against the dominance penalty, Rudman et al. (2011, Experiment 2) assessed perceivers' explicit reactions to agentic women and men using the four sets of gender rules (prescriptions and proscriptions toward men and women). In this experiment, participants ($N=178$) first read recommendation letters for either a male or a female candidate for promotion to Full Professor in Yale's English Department. The candidates were described as extremely productive and successful (e.g., author of over 40 publications and 5 novels, recipient of a MacArthur Genius Grant). This information was designed to defeat women's first hurdle by unambiguously establishing the female candidate's competence.

The candidates were also described as well-regarded literary critics whose style, however, was controversial. In the communal condition, the candidate's style was described as exceedingly tactful and diplomatic (i.e., always complimentary no matter how poor the work). The recommender wrote that although some people thought this approach was "too easy," others viewed it as necessary "for protecting authors' fragile egos." In the agentic condition, the candidate's style was described as extremely frank (i.e., ruthlessly honest when the work was poor). In this case, the recommender avowed that although some people thought this approach was "too brutal," others viewed it as necessary "to maintain high standards." In all cases, the letter ended with a strong recommendation for the candidate's promotion.

As expected, participants rated all candidates as similarly high on competence. Further, no target gender differences in liking or hiring occurred for the communal candidates, suggesting that when female leaders lower their status (in this case, by never criticizing authors regardless of the quality of their work), they can escape backlash. However, the agentic woman was liked less, and judged to be less deserving of promotion, than the agentic man ($d_s = -0.88$ and -0.72 , respectively).

The results described thus far replicated past backlash studies. However, new to this experiment, participants rated candidates on traits related to all four sets of prescriptive and proscriptive gender rules, drawn from [Tables 4.2 and 4.3](#): (a) agency: career oriented, leadership ability, assertive, independent, business sense, ambitious, self-starter, intelligent, high self-esteem, and competitive ($\alpha = 0.77$; M status $d = 1.38$); (b) communality: warm, sensitive to the needs of others, interested in children, cheerful, enthusiastic, cooperative, friendly, polite, and humble ($\alpha = 0.90$; M status $d = 0.03$); (c) weakness: weak, emotional, naïve, gullible, uncertain, and indecisive ($\alpha = 0.76$; M status $d = -1.01$); and (d) dominance: dominating, intimidating, arrogant, ruthless, controlling, cold toward others, and cynical ($\alpha = 0.90$; M status $d = 0.87$).

Supporting the dominance penalty, the agentic female candidate was rated as higher on dominance than the agentic male candidate ($d = 0.37$). By contrast, and *disconfirming the communality deficit explanation*, communality ratings did not distinguish between agentic male and female targets ($d = 0.09$). Further, agency and weakness ratings were similar for male and female agentic candidates ($d_s = 0.18$ and -0.05 , respectively). In line with past research, prejudice against the agentic woman fully accounted for hiring discrimination ([Rudman & Glick, 1999, 2001](#)). More importantly for the SIH, the dominance penalty wholly mediated prejudice against the agentic woman. That is, accounting for dominance ratings completely eliminated differences in liking between male and female agentic candidates. These results are consistent with the hypothesis that perceivers justify penalizing agentic women by viewing them as violating the female

dominance proscription. In essence, perceivers seemed to be saying, “She is clearly capable and qualified, but I don’t like her because she is *too powerful*—for a woman.”

In another experiment, participants ($N=74$) conducted a phone interview with either a male or a female applicant (in fact, confederates) for a managerial position at a marketing firm (Rudman et al., 2012, Experiment 3). To enhance generalizability, we used two male and three female confederates (all trained to enact the same script). Participants were told their task was to help the applicant practice for their upcoming interview, so they were given a list of questions to ask. Confederates answered using an identical script. All applicants enacted agency, speaking proudly of past accomplishments and describing themselves as well qualified for a leadership role. For example, in response to the question, “Can you name your two most important qualities?” confederates answered:

One of my most important qualities is that I am good at analyzing complex situations. At DWG, I was often confronted with difficult situations in which I had to incorporate perspectives of different people within the company, and determine what was important and needed to be addressed immediately and what could wait. I also know what I want and I like to make quick decisions, not debate endlessly about all the options that are on the table. It is inefficient to keep repeating arguments people already heard a couple of times; if you have all the necessary information, at a certain point you just need to stop talking and decide what to do.

Despite being rated as equally competent, agentic women were viewed as more dominant ($d=0.46$), less likeable ($d=-0.43$), and less hireable ($d=-0.51$), compared with agentic men. In addition, we replicated the mediational findings from the English professor experiment: the dominance penalty accounted for target gender differences in liking, and likeability accounted for target gender differences in hireability. Consistent with the SIH, people used a female gender rule that reinforces the status quo (the dominance penalty) to justify backlash.

In concert with the English professor experiment, these results show that negative, high-powered traits viewed as more typical of men (indeed, that are reserved for them) are attributed *more to women than men* when women are status incongruent (i.e., when they are agentic leaders). In other words, the stereotype that men are more dominant than women was reversed when people judged agentic targets. Readers might suspect that high dominance ratings for agentic women represent a perceptual contrast effect: when targets behave unexpectedly, perceivers may view them as “extreme” exemplars, forming impressions that are contrasted away from the cultural stereotype (Manis, Nelson, & Shedler, 1988). However, if this cognitive explanation for backlash was correct, people should view agentic women not only as extreme on dominance but also as extreme on agency and

deficient in communality. This was not the case. Instead, agentic women were selectively penalized on negative, high-status traits that are prohibited for women, justifying prejudice against them. These findings support the SIH's claim that backlash is a motivated rather than a purely cognitive phenomenon. In the next section, we present evidence that system justification is a primary motive for backlash, as the SIH contends.

5.3. Direct tests of system-justification motives for backlash

According to the SIH, agentic female leaders elicit backlash because the prospect of successful female leaders threatens male hegemony; however, perceivers justify acting on this prejudice not by extreme ratings of agency (a favorable dimension), or low ratings of communality (traits that do not reinforce the status quo), but by exaggerating their dominance (a high-status dimension reserved for men). Consistent with this view, perceiving agentic women as dominant mediates prejudice (and prejudice mediates hiring discrimination; Rudman et al., 2012; see also Rudman & Glick, 1999, 2001).

However, these findings do not constitute direct evidence of system-justifying motives. The SIH predicts greater backlash among people who more strongly endorse the gender status quo (i.e., gender system-justifiers), or who are experimentally primed to defend the system. To date, two experiments have provided support for these hypotheses (Rudman et al., 2012).

In the marketing manager experiment described above (Rudman et al. 2011, Experiment 3), we measured participants' gender system-justification beliefs (GSJB) weeks in advance of the laboratory session (Jost & Kay, 2005). Sample items on the GSJB scale include, "In general, relations between men and women are just and fair," "Society is set up so that men and women usually get what they deserve," and "Gender roles need to be radically restructured" (reverse coded). No gender differences emerged on the GSJB scale. However, as predicted, people who scored high on gender system justification were especially likely to administer the dominance penalty to agentic women. That is, the expected Target Gender \times GSJB interaction was significant, $\beta = -0.33$, $p < 0.01$. Simple effects showed that for agentic female targets, GSJB was positively correlated with perceived dominance, $r(29) = 0.46$, $p = 0.01$. For agentic male targets, this relationship was unreliably negative, $r(27) = -0.15$, ns. Further, people who endorsed the gender system (i.e., who scored above the median on the GSJB) rated agentic women as significantly more dominant than agentic men ($d = 0.79$). For low gender system-justifiers (i.e., who scored at or below the median on the GSJB), this difference was statistically unreliable ($d = 0.52$).

Similar Target Gender \times GSJB interactions emerged for liking and hiring. For example, GSJB scores correlated negatively with hiring recommendations for agentic female targets, $r(31) = -0.38$, $p < 0.05$, but weakly

positively for agentic male targets, $r(29)=0.14$, ns. People who endorsed the gender status quo rated agentic men as more hireable and likable than agentic women ($ds=1.13$ and 1.04 , respectively). For low gender system-justifiers, these target gender differences were weak ($ds=0.01$ and 0.06 for hiring and liking).

When communality ratings were analyzed, results were negligible, all $\beta s < 0.13$, $ps > 0.34$, and no reliable correlations emerged between GSJB scores and communality ratings for either target. These findings further support the claim that female communality prescriptions do not reinforce the gender hierarchy; if they did, gender system-justifiers should have penalized agentic women with a communality deficit. Instead, they enforced a dominance penalty—perceiving agentic women as high on dominance and, consequently, penalizing them.

Although these correlational results support the SIH's tenet that people use backlash to maintain the gender hierarchy, they do not test causality. We therefore used a priming paradigm developed by system-justification theorists (Jost & Hunyady, 2003; Jost, Kivetz, Rubini, Guermendi, & Mosso, 2005; Kay et al., 2007) to conduct a causal test. In this paradigm, participants either receive a "system threat" by reading a news article reporting that their country is in decline, or they read an article describing their country as doing well (low threat control). In one particularly relevant study, female Canadians read that Canada was either in decline or doing well (Kay et al., 2009). When under system threat, women responded by defending gender stereotypes (e.g., that men are better at politics and business than women); they were also more likely to devalue a female business student, compared with women in the low threat group.

To apply a similar method to studying backlash, we exposed American male and female participants to news articles reporting that America was either in decline or on the rise; in a control condition, no system-relevant information was provided (Rudman et al., 2012, Experiment 4). In the system-threat condition, participants read the following article titled, "America in Decline":

These days, many people in the United States feel disappointed with the nation's condition. Whether it stems from the economic meltdown and persistent high rates of unemployment, fatigue from fighting protracted wars in the Middle East that have cost America dearly in blood and treasure, or general anxieties regarding global and technological changes that the government seems unable to leverage to their advantage, Americans are deeply dissatisfied. Many citizens feel that the country has reached a low point in terms of social, economic, and political factors. It seems that many countries in the world are enjoying better economic and political conditions than the United States. In recent nationwide polls, more Americans than ever before expressed a willingness to leave the United States and emigrate to other nations.

In the low threat condition, the “America on the Rise” article stated the following:

These days, despite the difficulties the nation is facing, many people in the United States feel safer and more secure than in the past. Whether it stems from the nation’s relatively fast recovery from a global economic crisis, or the foreseeable end to protracted wars in the Middle East, or a general faith that the government will be able to leverage global and technological changes to their advantage, Americans are, on the whole, satisfied. Many citizens feel that the country is relatively stable in terms of social, economic, and political factors. It seems that compared with many countries in the world the social, economic, and political conditions in the United States are relatively good. In recent nationwide polls, very few Americans expressed a willingness to leave the United States and emigrate to other nations.

Participants then read recommendation letters for either an agentic male or a female English Professor candidate, described as highly successful but ruthlessly honest in their literary critiquing style (adapted from Rudman et al., 2012, Experiment 2). Supporting the SIH, backlash against the agentic female candidate was exacerbated among participants who had first experienced system threat. Specifically, the agentic woman was rated as significantly more dominant, less likeable, and less hireable in the high threat condition compared to both the low threat condition ($d_s=0.79$, -0.70 , and -0.95 , respectively) and the control condition ($d_s=0.50$, -0.66 , and -0.41 , respectively). Results for the low threat and control groups did not reliably differ.

Another way to illustrate these findings appears in Fig. 4.4, which reveals how system threat exacerbated backlash. Results are shown as effect sizes (Cohen’s d), computed so that high bars reflect rating the agentic man higher than the agentic woman. As in prior research, ratings of competence, agency, communality, and weakness did not differ by target gender; thus, Fig. 4.4 shows only the results for liking, hireability, and the dominance index. As the figure shows, agentic women suffered backlash (i.e., were less liked and seen as less hireable than a comparable man) even when participants did not receive system threat. However, target gender differences were largest in the high threat condition, compared with low threat and control conditions (all $d_s > 1.00$).

The fact that backlash also occurred in the “no threat” conditions does not contradict the SIH, which proposes that agentic female leaders themselves constitute a system threat (i.e., a threat to the gender status quo). The key finding, representing a causal test of the SIH, is that backlash increased when perceivers were primed with a general system threat. Because, in different studies, both experimentally primed system threat and individual differences in system-justification beliefs moderated backlash, these results provide strong support for the SIH.

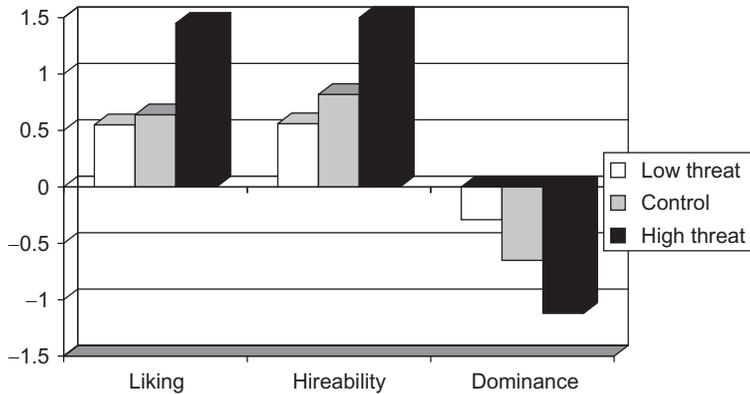


Figure 4.4 Backlash as a function of system threat. Results are shown in effect sizes (Cohen's d), computed so that high bars reflect rating agentic male candidates higher than agentic female candidates. Small, medium, and large effect sizes correspond to 0.20, 0.50, and 0.80, respectively (Cohen, 1988). Adapted from Rudman et al. (2012, Experiment 4).

In concert, the evidence presented thus far supports the SIH's claim that defending the gender hierarchy represents a primary motive for backlash. In essence, female agency violates status expectations, and because agency is aligned with high status, "uppity" women pose a system threat. However, because perceivers cannot fault women for behaving in socially valued ways (e.g., for demonstrating competence and ambition), they seek other justifications to legitimize their prejudice. The dominance penalty provides a convenient justification for backlash not only because dominance is proscribed for women but also because agentic behaviors can, when perceived through a biased lens, be construed as "dominant."

6. STATUS INCONGRUITY AND BACKLASH AGAINST ATYPICAL MEN

As a general theory of backlash, the SIH should account for backlash against atypical men. Like women, men are constrained by gender rules. For example, compared with agentic men and women, communal male applicants are consistently rated as less competent and hireable for managerial roles (Rudman, 1998; Rudman & Glick, 1999, 2001). A man described as successful in a feminine domain (Human Resource Manager) was viewed as a "wimp" and disrespected, compared with an identically described female target (Heilman & Wallen, 2010). Moreover, recall that men who scored high on a feminine knowledge test were sabotaged by their peers,

and thereby prevented from earning financial rewards (Rudman & Fairchild, 2004). These findings echo earlier research showing that men who violate masculine stereotypes risk backlash (Cherry & Deaux, 1978; Costrich et al., 1975; Derlega & Chaiken, 1976). For example, a man who disclosed his emotional problems to a stranger was rated as more psychologically disturbed than a self-disclosing woman (Derlega & Chaiken, 1976). Further, people thought that a successful male nurse was at risk for peer harassment (Cherry & Deaux, 1978). Indeed, male nurses are frequent targets of bullying (Erikson & Einarsen, 2004). When men behave in ways that challenge male dominance, they risk gender-based harassment (Berdahl, 2007b; Berdahl, Magley, & Waldo, 1996).

However, prior research had not assessed which gender rules are used to justify prejudice against atypical male targets. In accord with the SIH, we would expect men who violate status expectancies to be subject to backlash. However, as a high-status group, men should suffer backlash for behavior that is stereotyped as “feminine” and, therefore, undermines male status. Penalizing atypical men would therefore support the gender hierarchy, reflecting a system-justifying motive. How would backlash be justified? For men, *both* gender rules are highly linked to status (male agency prescriptions with high status and male weakness proscriptions with low status) and, therefore, support the gender status quo. Therefore, either or both could be used to legitimize hostile reactions. An agency deficit would justify hostility by suggesting a man has failed to live up to a socially desirable (as well as high status) masculine ideal (e.g., “He lacks ambition and drive”). Similarly, a weakness penalty charges a man with exhibiting socially undesirable (as well as low status) behaviors, which could also justify hostility (e.g., “He’s a weakling and a coward”). Therefore, atypical men should be viewed as either weaker or less agentic (or both) compared with comparable women or agentic men.

This differs from expectations for agentic women, for whom the only gender rule that clearly supports the status quo is proscriptions against dominance. If women’s communality prescriptions clearly defended male hegemony, we would expect a communality deficit as well as a dominance penalty to mediate backlash against agentic women. It is the asymmetry between the genders’ status-based rules (one rule for women but two rules for men) that creates this target gender difference in our predictions. Nonetheless, being penalized on agency and weakness dimensions should account for social and economic backlash against men who do not legitimize the gender hierarchy. As with agentic women, we would not expect communality ratings to mediate backlash because communal attributes (a) do not clearly support the gender hierarchy and (b) are neither prescribed nor proscribed for men (see Tables 4.2 and 4.3). Further, dominance traits, although status-related, are generally negatively evaluated; perceivers are therefore unlikely to fault men for failing to exhibit, for example, arrogance.

6.1. Reactions to modest men

In the first investigation that directly tested the SIH in the context of reactions to atypical men, participants viewed videotaped interviews in which either a male or a female applicant vied for a Computer Lab Manager position (Moss-Racusin et al., 2010). All applicants presented themselves as modest by expressing their qualifications more humbly than agentic applicants typically do. For example, in response to the questions, “Are you a good self-starter? Can you describe an example where you took the initiative on a project?” applicants answered:

Sure, I'd consider myself a self-starter, but first I like to know that I'm going in the right direction. Give an example? Well, one summer I designed a website for the bookstore I was working at. They were a small, independent store, and I thought a website could help their business. I suggested it to my boss and she was interested, so we brainstormed some ideas and I asked the other employees and some of the customers what they'd like to see in a website. In the end, I think it turned out pretty well.

As in past research, we used two male and two female confederates to ensure generality, and confederates were trained to behave similarly (i.e., as competent but modest). After watching the interview, participants rated how competent, likeable, and hireable the applicant appeared to be. They also rated the applicant on agency, communality, weakness, and dominance (the four gender rules), using indexes derived from Tables 4.2 and 4.3.

Modest men received slightly lower competence and hiring recommendations than modest women, but these differences were unreliable (d s=0.09 and 0.11, respectively). However, as expected, modest men were rated as significantly less likeable ($d=-0.59$), less agentic ($d=-0.39$) and weaker ($d=0.42$) than modest women. Moreover, mediation tests revealed that *either* low agency or high weakness accounted for prejudice against modest men. That is, after controlling for agency or weakness ratings, the effect of target gender on liking was significantly decreased.

These findings support the SIH's prediction that atypical men suffer backlash for perceived status violations. As with the experiments investigating backlash toward agentic women, modest male and female targets' perceived communality (a generally status neutral set of traits) did not differ ($d=0.00$). Unlike backlash toward agentic women, the perceived dominance of modest male and female targets did not differ. But recall that dominance traits, due to their evaluative negativity, are not prescribed for men and therefore perceivers were not expected to use lack of dominance to justify prejudice against modest men. In short, modest men were not penalized for being “too nice” or insufficiently dominant. Instead, participants used low agency and high weakness to justify prejudice against modest men—the two gender rules that legitimize men's status. Thus, participants

seemed to be saying, “He’s competent, but I don’t like him because he’s weak and not strong enough to be a leader.”

6.2. Reactions to men who request a family leave

When people rate atypical men as high on weakness or low on agency, they are, in essence, feminizing them because women are stereotypically perceived as weaker and less agentic than men (see [Tables 4.2 and 4.3](#)). Moreover, because women have less status than men, feminizing men signals a drop in their prestige, which ought to result in economic, as well as social penalties. Although our first study revealed only social (not economic) backlash ([Moss-Racusin et al., 2010](#)), our second investigation revealed both by exploring reactions to male workers who request a family leave ([Rudman & Mescher, in press](#)). We reasoned that a man’s request for family leave may be perceived as an act that undermines his status by putting a lower status domain (family) above a higher status domain (career), thereby eliciting backlash. Consistent with this notion, past research reveals that men who ask for family leave are viewed as poorer workers and less recommended for rewards, compared with female counterparts (e.g., [Allen & Russell, 1999](#); [Butler & Skattebo, 2004](#); [Wayne & Cordeiro, 2003](#)).

Such reactions probably discourage men to take the legally sanctioned paid family leave (to take care of a newborn, spouse, or parent) allowed in the USA and many other nations. Indeed, far more American women than men request family leaves ([Hill, Hawkins, Martinson, & Ferris, 2003](#)). For example, California provides paid leave for new parents, but only 26% of men take advantage of the policy, compared with 74% of women ([Belkin, 2010](#)). Therefore, men who act as vanguards by shouldering domestic responsibilities are likely to be perceived as behaving “like women”—putting them at risk for backlash in the form of a femininity stigma, in addition to a poor worker stigma.

The poor worker stigma signals that people view male leave takers as failing to live up to agentic, traditionally masculine “ideal worker” standards, which dictate that employees ought to almost exclusively focus on their jobs ([Acker, 1990](#); [Blair-Loy, 2003](#); [Williams, 2000, 2010](#)). The ideal worker schema is tailor made for men, who historically have delegated family responsibilities to their wives while they attend to full-time careers. However, women’s increased participation in the workforce has disrupted traditional family roles, to the point where men now report similar levels of work-family conflict ([Eagle, Miles, & Icenogle, 1997](#)). Therefore, it is important for employers to accommodate their employees’ personal lives no matter their gender. However, we suspect that men are less likely to request a family leave than women because they (rightly) fear backlash.

We compared reactions to male workers who requested a family leave to control male workers who did not ([Rudman & Mescher, in press](#)).

To ensure generality, experimental targets requested a leave either to care for a child with leukemia or an ailing mother, whereas control targets either requested more hours or inquired about their employee benefits. We collapsed across reason for requesting family leave and across the two control conditions because no differences occurred between them. After reading an interview between the male worker and a male Human Resource officer, participants rated the worker's commitment to his career and the organization (e.g., willingness to work overtime; Smith, Organ, & Near, 1983), scored to reflect the "poor worker" stigma. They also rated the male worker on the four sets of gender rules. Finally, participants made recommendations for six potential rewards (e.g., a promotion, a pay raise, and executive training) and six penalties (e.g., termination, a demotion, and a pay cut).

The SIH suggests that perceivers would view male leave takers as high on weakness and low on agency, and that these perceptions would contribute unique variance to recommended rewards and penalties, even after controlling for poor worker stigma. Figure 4.5 shows the results as effect sizes (Cohen's *d*) such that high bars reflect rating male leave takers higher than control men who did not request a family leave (i.e., backlash). As can be seen, male leave takers were viewed as poorer workers and were less likely to be recommended for rewards compared to controls (see also Allen & Russell, 1999; Wayne & Cordeiro, 2003). As expected, male leave takers were also more likely than control targets to be penalized economically. Consistent with the SIH, perceivers viewed male leave requesters as weaker and less agentic, compared with controls. Further, weakness fully accounted for the effect of poor worker stigma on male leave takers' economic penalties, whereas weakness, poor worker stigma, and agency together predicted reward recommendations. Thus, the "wimp" penalty had a powerful influence on male leave takers' most negative outcomes (e.g., termination and demotion). These findings suggest that perceivers punish male leave takers for gender status violations and further demonstrate that men face a weakness penalty when they behave like women—in this case, when they ask for family leaves (see also Heilman & Wallen, 2010; Moss-Racusin et al., 2010).

In summary, although the SIH represents a new explanation for backlash toward gender-atypical men and requires more extensive research, initial results support its status-based assumptions. Our findings suggest that atypical men suffer a weakness penalty that reduces their perceived likability and diminishes their economic rewards. Further, because agency is both prescribed for men and strongly linked to high status, atypical men also suffer from perceptions that they are insufficiently agentic. Because the SIH posits that status-based violations are likely to elicit backlash, perceptions of high weakness and low agency are both in accord with the SIH.

To integrate the SIH with the BSMM requires some minor adjustment to the top row of Fig. 4.1. Figure 4.6 shows the results. As can be seen, the

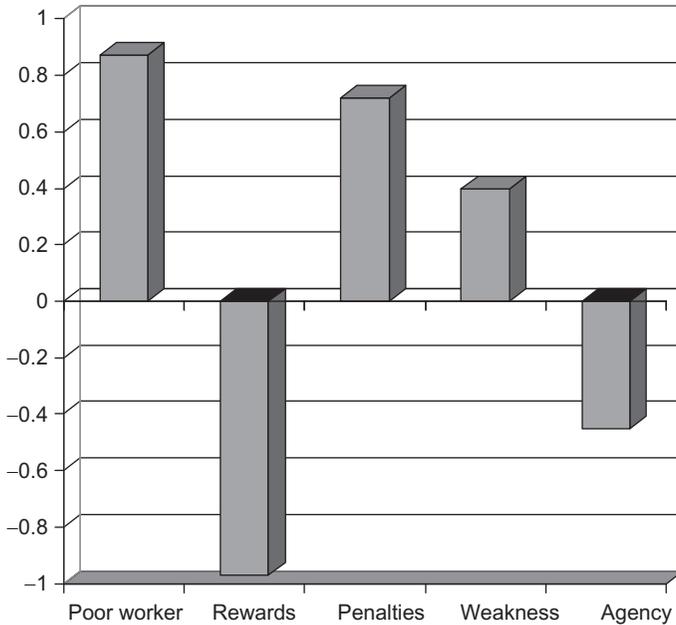


Figure 4.5 Results are shown in effect sizes (Cohen’s *d*), computed so that high bars reflect rating male workers who requested a family leave higher than male workers who did not request a family leave. Small, medium, and large effect sizes correspond to 0.20, 0.50, and 0.80, respectively (Cohen, 1988). Adapted from Rudman and Mescher (in press).

SIH specifies that, based on system-justification motives, status violations represent the type of expectancy violation most likely to provoke backlash, and that status-related stereotypes serve to justify backlash, eliciting status-based penalties (for women, the dominance penalty, and for men, the weakness penalty and the agency deficit). In turn, status-based penalties mediate backlash effects.

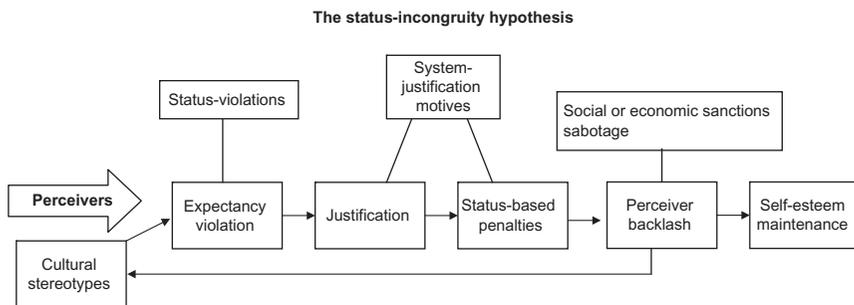


Figure 4.6 Integrating the SIH with the BSMM.

7. EXTENDING THE BSMM TO RACIAL VANGUARDS

Thus far, we have described penalties for stepping out of gender bounds but are ethnic lines similarly policed? If racial stereotypes are mainly descriptive rather than prescriptive, we should not expect backlash for racial vanguards. Indeed, when minorities disconfirm negative stereotypes, they can be preferred over typical counterparts (e.g., a Black conservative was preferred over a Black panhandler; Rosenfield, Greenberg, Folger, & Borys, 1982; see also Jussim, Coleman, & Lerch, 1987). Nonetheless, this pattern reverses when perceivers feel that they can justify backlash, suggesting that racial stereotypes can be prescriptive. For example, participants who experienced mortality threat preferred a stereotypical Black (who enjoyed clubbing, cruising, drinking forties, and “getting stupid”) over a Black computer engineer (Schimmel et al., 1999). The SIH interpretation would be that a Black computer engineer was viewed as status incongruent and a threat to the racial hierarchy.

In general, stereotypes serve to justify social hierarchies, with White men being viewed as more competent and deserving of power, relative to Black men and women (Jost & Banaji, 1994; Jost et al., 2004; Pratto & Pitpitan, 2008). In a study of helping behavior, researchers manipulated both the competence (high, low) and the role (leader, subordinate) of Black and White male confederates. Blacks were helped most when they were subordinates, regardless of their competence, whereas Whites were helped most when they were competent, regardless of their role (Dovidio & Gaertner, 1981). Consistent with the SIH, this suggests that people favored targets who legitimized the racial hierarchy (i.e., agentic White men and submissive Black men). Similarly, Black men may be required to exhibit traits or features that signal humility or docility (i.e., “babyfacedness”) in order to climb the corporate ladder, whereas these same features were associated with lower success for White men (Livingston & Pearce, 2009).

Racial vanguards may have reason to fear backlash just as much as gender vanguards. Derogatory labels such as “Uncle Tom” and “Oreo” for successful Blacks, and “Wigga” for Whites who “act like Blacks,” stigmatize people who challenge the racial hierarchy. Research in educational settings confirms social costs for disconfirming status-related racial stereotypes. Fryer and Torelli (2010) found that for Black and Hispanic high school students, academic achievement (viewed as “acting White”) was associated with decreased popularity, whereas for White students, it was associated with increased popularity. In addition, researchers have identified own-group conformity pressure (i.e., “jeer pressure”) as a significant stressor for college students who are members of racial minority groups (Contrada et al., 2001). Thus, deviating from racial stereotypes may result in backlash from perceivers, and as a consequence, actors may behave defensively to avoid it. If so, the BSMM would extend to racial vanguards.

7.1. Backlash against racial vanguards

To investigate whether people risk backlash when they succeed at tasks deemed atypical for their racial group (see top row of Fig. 4.1), Phelan and Rudman (2010a) trained Asian and White confederates to win computerized contests with either stereotypical or atypical content. For Asians, the stereotypical contest involved distinctions between Japanese and Chinese culture. For Whites, the stereotypical contest tested distinctions between domestic and imported beers. For both groups, a second atypical contest required distinguishing between Black rappers and jazz musicians. A separate pretest ensured that people expected Asians to outperform Whites on the Asian culture contest and Whites to outperform Asians on the beer contest (with no differences for the Black music contest).

Following Rudman and Fairchild (2004), naïve participants who lost the elimination round were subsequently given a chance to sabotage their competitor's future success. As in prior research, participants believed that sabotage would block confederate's chances of winning a cash prize, as well as prevent them from publicizing their success. In addition, we again measured participants' state self-esteem after the sabotage task.

If stereotypes are prescriptive for both Asians and Whites, they should suffer backlash when they show talent in atypical domains. Figure 4.7 shows the sabotage results. As expected, Asians suffered more sabotage in the beer and music contests, compared with the Asian culture contest (both $d_s > 0.64$). In addition, sabotaging Asians was negatively linked to

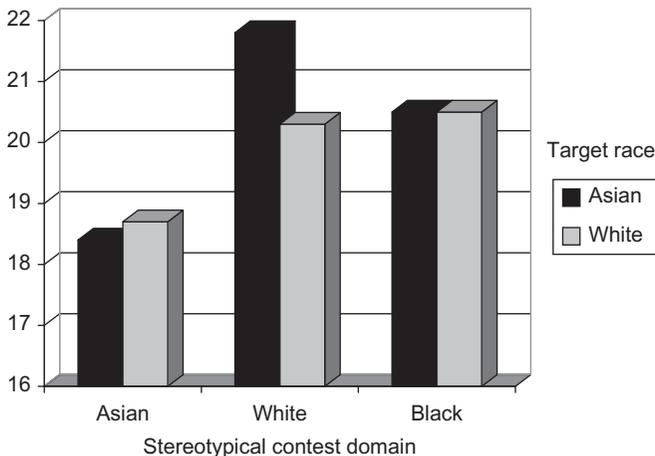


Figure 4.7 Sabotage as a function of target race and contest domain (White=knowledge of beer; Black=knowledge of Black jazz and hip hop musicians; Asian=knowledge of Japanese and Chinese culture). Possible range: 10–30. Adapted from Phelan and Rudman (2010a, Experiment 1).

perceivers' self-esteem, but only in the Asian culture contest, $r(24) = -0.41$, $p < 0.05$. This suggests that Asians escaped backlash when they behaved stereotypically, and that perceivers felt compunction only when they sabotaged typical Asians. However, Whites were sabotaged more so in the beer and music contests, compared with the Asian culture contest (both $d_s > 0.42$; see Fig. 4.7). Further, participants who sabotaged Whites in the Asian culture contest showed low self-esteem, $r(23) = -0.40$, $p < 0.05$, suggesting that undermining *atypical* Whites evoked compunction. Note, however, that the contest domains differed with respect to their status implications, as well as their stereotypicality. A separate sample confirmed that Whites who succeeded in the Asian culture contest would "elevate the status of their group" more so than those who knew about beer or Black musicians. In other words, Whites escaped backlash when they showed cross-racial talent that conferred high status, compared to when they succeeded in domains that conferred low status, even when their success was expected (knowledge of beer).

Experiment 1 suggested that Whites are penalized for behaviors that reduce the status of their group, rather than for stereotype violations—a finding that is consistent with the SIH. That is, the strongest "rule" for Whites may be that they conform to (high) status expectancies. To bolster confidence in this result, we conducted a second experiment (Phelan & Rudman, 2010a). Under the guise of "consumer research," participants reported their reactions to the same rap song but paired with a photo of either a White or a Black male artist. Because a pretest showed that knowledge of rap music was rated as low status, we expected the White artist to incur backlash. Indeed, participants liked the Black artist more, rated him as more talented, and were willing to pay more for his products (e.g., a CD and concert tickets), relative to the White artist (all $d_s > 0.33$). Moreover, regression analyses showed that target differences in economic rewards were fully mediated by prejudice against the White artist (as evidenced by greater liking for the Black target). These results suggest that Whites who diminished their status by engaging in a low-status art form suffered economic discrimination because they were not liked as much as typical Black artists. The SIH suggests that this occurred because the White rapper's low-status talent threatened the racial hierarchy.

7.2. Fear of backlash for cross-racial talent

To investigate the bottom row of the BSSM (how fearing backlash affects actors), we recruited Black participants ostensibly for a nationwide pilot test of "the Leadership and Reasoning Aptitude Task," created "to identify potential leaders in politics and law" (Phelan & Rudman, 2010a, Experiment 3). To induce fear of backlash for academic achievement (a high status, atypical domain), we informed all participants that they had performed

extremely well on the test (Conrada et al., 2001; Fryer & Torelli, 2010). We then offered them the choice to hide or publicize their success on a national Web site. In addition, we measured participants' (a) stereotypes about Blacks' achievement in politics and law and (b) fear of backlash should their success be made public.

In support of the BSSM, participants feared backlash to the extent that they thought leadership in politics and law was atypical for Blacks, $r(62)=0.31, p<0.05$. Moreover, those who feared backlash were also likely to hide their success $r(62)=0.27, p<0.05$. Finally, participants' actual scores on the test (which consisted of items taken from the LSAT) positively correlated with fear of backlash, $r(62)=0.27, p<0.05$, suggesting that for Blacks, academic achievement heightens awareness of its social costs (Conrada et al., 2001; Fryer & Torelli, 2010).

These findings support generalizing the BSMM to racial vanguards in two main ways. First, the link between fear of backlash and Black achievement stereotypes suggests that cultural stereotypes lead actors to expect that people who violate them will be penalized. Second, the link between Black's fear of backlash and hiding their academic success conceptually replicates the pattern for gender vanguards (Rudman & Fairchild, 2004). When people fear backlash, they respond defensively, and in seeking to avoid backlash, they act in ways that reinforce cultural stereotypes. Specifically, when Black vanguards hide their academic success, negative stereotypes about their competence are allowed to persist unchallenged. Nonetheless, the specter of "jeer pressure" may lead Blacks to avoid or hide academic success. An anecdotal example comes from Mike Tomlin, head coach of the Pittsburgh Steelers and the youngest coach to win a Super Bowl. As only the 10th Black coach in NFL history, and the first for the Steelers franchise, he represents a vanguard. In a televised interview, Tomlin confessed that he actively hid his honors student status during high school. When his proud mother displayed a bumper sticker declaring, "My child is an honors student," Tomlin surreptitiously peeled it off the car.

According to the BSMM, Whites should be just as eager to avoid backlash for atypical talents as Blacks are. To investigate this idea, we recruited White men to participate in a "Natural Rhythm Project" (Phelan & Rudman, 2010a, Experiment 4). In an initial "eligibility" session, the men were asked to perform a rap verse, karaoke style, while being videotaped. Afterward, participants waited for feedback along with a White confederate (who ostensibly had also auditioned). The Experimenter stated that both had performed well enough to qualify for the project, noting that the participant had performed particularly well. The Experimenter then left to "get the release forms." At this point, the confederate administered either backlash by expressing disdain for the project and accusing the participant of "acting Black" or social support by expressing enthusiasm for the project and praising the participant for having done so well. In a control condition,

nothing was said. When the Experimenter returned, participants were asked to release their videotape for a Web site publicizing the project and to fill out a card if they wished to further participate in the rhythm project.

Among Whites who encountered backlash, 34% refused to release their videotape and 39% declined further participation in the project. This was significantly more than Whites who received social support (4% and 6%, respectively), and significantly more than Whites in the control group (3% and 19%, respectively). In other words, encountering backlash had the expected dampening effect on White men's willingness to challenge cultural beliefs that Blacks have more natural rhythm. Thus, our findings suggest that vanguards who receive social support are much less reluctant to hide their atypical talents and pursue them in the future, compared with either vanguards who suffer backlash or controls who experienced no feedback.

To examine how experiencing backlash for atypical talents affects Blacks, we recruited Black male participants for a study that obliged them to audition by performing a verse from a country western song (a stereotypically White domain; Phelan & Rudman, 2010a, Experiment 5). The procedure was nearly identical to the prior experiment, with the following exceptions. First, participants encountered social support or backlash from confederates who were either White or Black. Second, we measured racial identity, to see whether Blacks' degree of racial identification would affect reactions to backlash. Based on evidence that racial identity can buffer minority group members from the psychological consequences of discrimination (e.g., Sellers, Caldwell, Schmeelk-Cone, & Zimmerman, 2003; Wong, Eccles, & Sameroff, 2003), highly identified Blacks may be less sensitive to backlash for "acting White," regardless of the source. By contrast, low identifiers are less committed to their group and more likely to desire social mobility (Ellemers, Spears, & Doosje, 1997). In other words, they strive for acceptance among higher status groups. Thus, for low identifiers, backlash from a White confederate should be more threatening and social support more reassuring as compared to backlash or support from a Black confederate. Third, after indicating whether they would release their tape and participate further in the project, we used a subtle self-esteem measure (preference for own birthday month and date; DeHart, Pelham, & Tennen, 2006) to test whether hiding atypical success would increase self-esteem among Blacks who encountered backlash, as the BSMM predicts.

We found that both the confederate's race and strength of participants' racial identity moderated how Black participants responded to backlash versus social support for performing well in a White domain. As expected, highly racially identified Blacks were relatively impervious to backlash, whereas less identified Blacks were more sensitive to feedback from White versus Black confederates. Specifically, less racially identified Blacks publicized and pursued their atypical talent more when a White (versus

Black) confederate gave them social support, whereas they distanced themselves more when a White (as compared to Black) confederate administered backlash.

Results for the implicit self-esteem measure supported the BSSM. Regardless of the confederate's race or strength of participants' racial identity, participants who suffered backlash showed higher implicit self-esteem when they hid their success, compared with when they publicized it ($d=0.88$). Participants in the social support condition did not show this difference ($d=0.11$). These results support Fig. 4.1's prediction that recovery strategies protect atypical actors' self-esteem when they experience (or expect to experience) backlash.

In sum, Phelan and Rudman (2010a) extended the BSMM to include backlash against racial vanguards, as well as actors' defensive strategies designed to avoid it. With respect to the top row of Fig. 4.1, Whites and Asians (the "model minority") were penalized for status violations—a result that is consistent with the SIH's tenet that perceivers use backlash to preserve social hierarchies. With respect to the bottom row of Fig. 4.1, both Blacks and Whites closeted their success and eschewed pursuing atypical talents when they feared or encountered backlash, and fear of backlash was a function of cultural stereotypes and academic achievement for Blacks in the leadership study. However, in two studies, we also found that social support was an effective antidote, suggesting that when vanguards are nurtured, they can resist conformity pressures (Asch, 1955). Finally, when we used an indirect measure of self-esteem, the BSMM's prediction that backlash-induced recovery strategies would protect actors' self-worth was upheld. Because Rudman and Fairchild (2004) found reduced state self-esteem among gender vanguards who feared backlash regardless of whether they engaged in recovery strategies, it may be that direct measures are less sensitive to the proposed self-esteem benefit for closeting success. Alternatively, perhaps recovery strategies do not yield the same benefit for gender vanguards. These possibilities represent questions for further research.

8. HOW FEAR OF BACKLASH UNDERMINES PERFORMANCE

Thus far, we have explained how actors' fear of encountering backlash reinforces cultural stereotypes by leading them to conceal success and avoid further investment in counterstereotypical domains (Fig. 4.1, bottom row). These effects occur for both gender and racial vanguards (Phelan & Rudman, 2010a; Rudman & Fairchild, 2004). However, fear of backlash can also go one step further by actually undermining actors' ability to perform in counterstereotypical domains, thereby limiting their human

potential and perpetuating both the stereotypes and the existing status quo. In the study described above (Phelan & Rudman, 2010a, Experiment 5), Black men reported how much they feared backlash for performing country western songs before they auditioned. Subsequently, independent raters blind to actors' fear of backlash (and the hypotheses) judged the audition videos on (a) performance quality and (b) perceived discomfort during the audition. Results showed that fear of backlash predicted poorer quality performance, $r(75) = -0.45$, and actors' visible discomfort, $r(75) = 0.49$, both $ps < 0.001$. Indeed, the negative link between Black actors' fear of backlash and their performance was fully mediated by discomfort. This suggests that Blacks who feared backlash for "acting White" were likely to perform poorly as a result of their apprehension.

Of course, most people do not need to excel at country western singing to succeed in life. By contrast, some skills are extremely important for career success, yet if displaying them risks social rejection, people are likely to fall short. In this section, we present the Backlash Avoidance Model, designed to address how fear of backlash inhibits people's ability to perform, even when their success depends on it. The model was originally developed to illuminate how fearing backlash inhibits women's ability to promote themselves (e.g., during job interviews) and has therefore been tested in this domain. However, the model relies on basic psychological mechanisms with potentially broad applications.

8.1. Gender differences in self-promotion

Self-promotion is defined as "pointing with pride to one's accomplishments, speaking directly about one's strengths and talents, and making internal rather than external attributions for achievements" (Rudman, 1998, p. 629). Because it increases perceptions of competence (Jones & Pittman, 1982), self-promotion favorably influences hiring and promotion decisions (e.g., Janoff-Bulman & Wade, 1996; Kacmar, Delery, & Ferris, 1992; Rudman & Glick, 2001). Indeed, people who refrain from "selling" themselves may languish behind their self-promoting peers (Janoff-Bulman & Wade, 1996; Kacmar et al., 1992; Stevens & Kristof, 1995; Wade, 2001; Wiley & Eskilson, 1985). However, as with other forms of female agency, self-promoting women risk backlash; they are viewed as highly competent, but less likeable and hireable, compared with self-promoting men (Rudman, 1998; Rudman & Glick, 1999, 2001; Rudman et al., 2012). Because people are aware of the threat of backlash and take pains to avoid it (Phelan & Rudman, 2010a; Rudman & Fairchild, 2004), women may avoid self-promoting, even in situations (e.g., a job interview) that require self-promotion for success. We sought to examine whether gender differences in self-promotion occur and, if so, whether fear of backlash inhibits women from "putting their best foot forward."

Findings from negotiation research provide suggestive evidence of a “self-promotion deficit” among professional women. First, female MBA students were much less likely to negotiate a high entry-level salary compared with male counterparts (Babcock & Laschever, 2003). Second, when women attempted to negotiate, male managers complained that they were “pushy” and “demanding”—consequences that negotiating men did not suffer (Bowles et al., 2007). Third, women’s fear of backlash (being judged as “pushy” and “demanding”) significantly mediated gender differences in salary negotiations (Amanatullah & Morris, 2010). Because negotiating involves self-promotion, we expected similar results when women were obliged to promote themselves. Because these expectations were upheld in our initial test (Moss-Racusin & Rudman, 2010), we developed the Backlash Avoidance Model.

8.2. The Backlash Avoidance Model

As shown in Fig. 4.8, the Backlash Avoidance Model illuminates *how* fear of backlash undermines performance in counterstereotypical domains (Moss-Racusin, 2011; Moss-Racusin & Rudman, 2010). The model specifies that fearing backlash leads atypical actors (i.e., potential vanguards) to perform poorly in atypical domains due to three mediating processes, two of which are drawn from regulatory focus theory (Crowe & Higgins, 1997). *Promotion* focus occurs when people actively attend to goal attainment and accomplishment (e.g., striving to get a promotion or land a better job), whereas *prevention* focus represents a more conservative approach centered on risk aversion (e.g., attempting to avoid making a mistake). Promotion-focused individuals are more successful and creative and persist longer at

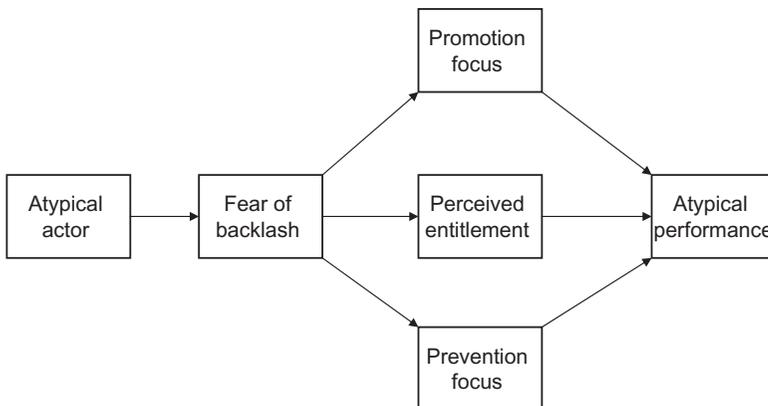


Figure 4.8 The Backlash Avoidance Model specifying how fear of backlash disrupts performance in counterstereotypical domains.

difficult tasks than prevention-focused individuals; in short, being promotion-focused (as compared to prevention-focused) enhances motivation and performance (Crowe & Higgins, 1997; Higgins, Shah & Friedman, 1997). Thus, for example, a prevention focus should inhibit people's ability to "sell themselves" when they need to self-promote. The Backlash Avoidance Model proposes that fear of backlash represents a social threat that suppresses promotion focus and heightens prevention focus, thereby inhibiting atypical actors' ability to do their best in counter-normative domains.

The third mediating variable is *perceived entitlement*. Considerable research suggests that people who feel entitled to rewards (i.e., deserving of success) are more likely to reap those rewards (for reviews, see Desmarais & Curtis, 1997; Major, 1994). In the case of gender differences, research suggests that women do not feel as entitled to financial rewards as men do (Babcock & Laschever, 2003; Major, 1994), even when women judge themselves to have performed as well as men (Callahan-Levy & Messe, 1979; Barron, 2003; Major, McFarlin, & Gagnon, 1984). For example, when allowed to determine their own compensation, men paid themselves 63% more than women did for completing a laboratory task, even though no gender differences occurred in task performance (Major et al., 1984).

Perceptions of entitlement are influenced not only by social comparisons but also by internalized normative standards acquired through socialization (Major, 1994). Because women are socialized from childhood to focus on others (rather than enhance themselves), it seemed likely that, compared to men, women would report feeling less entitled to self-promote. More generally, the Backlash Avoidance Model posits that people who fear backlash should feel less entitled to succeed in atypical domains, compared with those who do not fear penalties for atypical behavior. In turn, depressed entitlement should negatively impact their success.

To test these hypotheses, Moss-Racusin and Rudman (2010, Study 1) filmed male and female participants during a simulated job interview, which would ostensibly be critiqued by the University's Career Services Office and used as a model in undergraduate "interview skills" workshops. Participants were instructed to "sell themselves" while responding to questions designed to elicit self-promotion (e.g., "What would you say are your best qualities and strengths?" and "Overall, why should we hire *you* as opposed to another candidate?"). Following the interview, women rated themselves as having performed significantly worse than men ($d = -0.34$). This effect occurred with both qualitative (e.g., "Overall, how well do you think you promoted yourself during your interview today?") and quantitative (e.g., "Based on your interview today, what dollar amount do you think you should receive as a starting salary?") measures. Finally, as expected, women's fear of backlash for self-promotion negatively predicted their perceived success, $r(108) = -0.21$, $p < 0.05$.

Perhaps women self-promote successfully but modestly underestimate how well they do so (Heatherington et al., 1993). To rule out this possibility, Moss-Racusin and Rudman (2010, Study 2) asked female participants to write an essay either promoting themselves for graduate work or (to remove fear of backlash) promoting a peer. Subsequently, independent judges evaluated their self-promotion skills. As in Study 1, when women advocated for themselves, fear of backlash negatively predicted self-perceived success, $r(100) = -0.25$, $p < 0.05$. Additionally, women rated their performance significantly lower when they advocated for themselves as compared to a peer ($d = -0.81$). Naïve judges subsequently rated women's self-promoting as compared to peer-promoting essays as much less effective, conveying less competence and confidence ($d = -1.32$). These results suggest that (a) women's self-assessments accurately reflect their self-promotion deficit and (b) underperformance occurs due to fear of backlash, rather than an inability to advocate successfully (as shown by success at promoting a peer).

In these initial tests of the Backlash Avoidance Model, we assessed women's chronic promotion and prevention focus styles as well as perceived entitlement to promote themselves. In partial support of the model, the negative relationship between women's fear of backlash and their self-promotion success was mediated by their feelings of entitlement to self-promote and chronic promotion focus. However, chronic prevention focus did not act as a mediator (Moss-Racusin & Rudman, 2010). Failure to find mediation via prevention focus likely occurred because fear of backlash represents a situational threat, which ought to impact acute (rather than chronic) prevention focus. In other words, regardless of individual differences in regulatory style, fearing backlash may create temporary risk aversion, reducing people's ability to perform. In a subsequent study, we measured acute self-regulatory focus with 10 acute prevention focus items (e.g., "Right this minute I am feeling more cautious than normal, uncertain about the best way to act, and that I have to avoid a negative outcome") and 10 acute promotion focus items (e.g., "Right this minute I am feeling eager to get what I want, focused on what I will achieve, and confident that I can go after my goals").

In this investigation, male and female participants wrote a self-promoting essay, this time as if they were applying for a prestigious graduate fellowship (Moss-Racusin, 2011). To make the task public, participants were told that they would be videotaped reading their essay aloud, and that the Office of Career Services would critique the video. After writing their essay, participants completed the fear of backlash index, measures of acute self-regulatory focus, and a perceived entitlement index (in counterbalanced order). They then rated their self-promotion success. Replicating gender differences, women reported less self-promotion success than men. Further, this same gender difference was also observed for all other variables, including fear of backlash (see Table 4.4).

Table 4.4 Participant gender differences for variables included in the BAM

	Male		Female		Gender difference	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>d</i>
Fear of backlash	2.73	0.83	3.19	0.99	3.23**	-0.48
Acute promotion	4.14	0.70	3.83	0.68	3.72***	0.40
Acute prevention	2.93	0.77	3.12	0.80	2.00*	-0.23
Entitlement	3.56	0.77	3.33	0.73	2.51*	0.30
Self-promotion success	0.17	0.86	-0.09	0.78	2.65**	0.32

Note: High scores indicate greater levels of each variable (range: 1–5). Self-promotion success was standardized because it averaged subjective and objective items. Effect sizes (Cohen's *d*) represent participant gender differences. Positive effect sizes indicate men scored higher than women; negative effect sizes indicate the reverse. Conventional small, medium, and large effect sizes for *d* are 0.20, 0.50, and 0.80, respectively (Cohen, 1988). Data are from Moss-Racusin (2011).

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

Figure 4.9 shows a structural equation model that tests the Backlash Avoidance Model. First, both the measurement and structural models provided excellent fits to the data, $\chi^2(30) = 36.69$, $p = 0.19$, CFI = 1.00, IFI = 0.99, NNFI = 0.99, RMSEA = 0.03, and $\chi^2(34) = 43.74$, $p = 0.12$, CFI = 1.00, IFI = 0.99, NNFI = 0.99, RMSEA = 0.03, respectively. Second, all hypothesized paths were significant and in the direction predicted by the model. Specifically, participant gender (coded 0 = male, 1 = female) positively related to fear of backlash (i.e., women reported more fear of backlash than men). Fear of backlash negatively predicted acute promotion focus and perceived entitlement and positively predicted acute prevention focus. In turn, these variables predicted success at self-promoting. Finally, the direct path from fear of backlash to self-promotion success was small (albeit significant), suggesting that self-regulatory focus and perceived entitlement partially mediated the relationship between fear of backlash and self-promotion success.

In summary, the Backlash Avoidance Model reveals the processes by which atypical actors experience difficulty when obliged to perform counter-normative tasks. Although more tests are needed, it should be noted that the model generalized to men. For both genders, fear of penalties for self-promotion curbed their perceived entitlement to “sell themselves” and ability to focus on the task, while increasing aversion to risk-taking. These factors, in turn, reduced people's ability to promote themselves—an important skill for professional success. Although the processes outlined in the Backlash Avoidance Model influenced men as well as women, gender differences on each of the variables suggest that people obliged to behave atypically are more likely to be affected by fear of backlash than people behaving normatively.

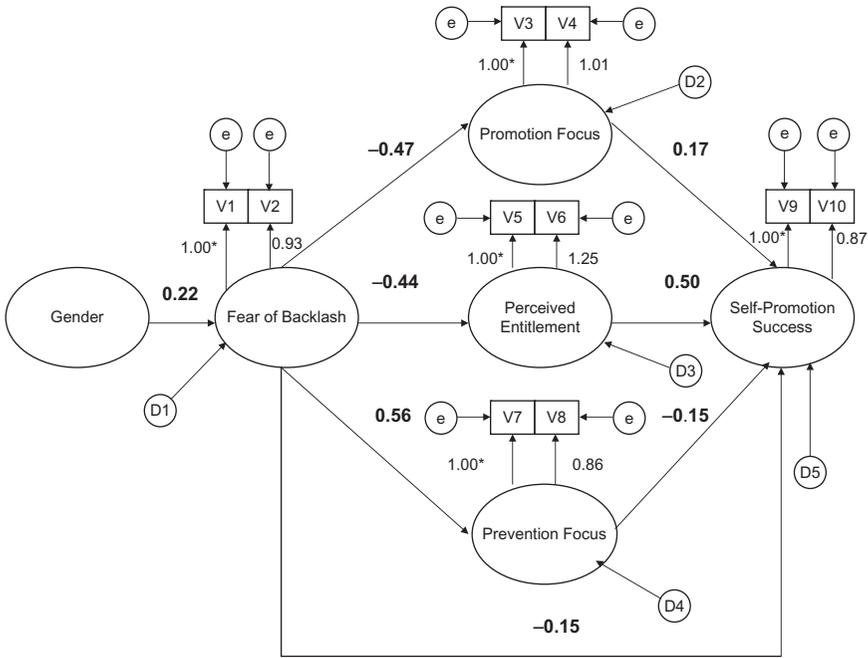


Figure 4.9 A structural equation modeling test of the Backlash Avoidance Model.

Figure 4.10 depicts the integration of the Backlash Avoidance Model into the bottom row of the BSMM. As can be seen, when atypical actors fear backlash, either they may strategically hide their deviance to avoid social rejection as the original BSMM suggests or they may be unable to perform well as a result of the intrapsychic processes outlined in the Backlash Avoidance Model. In both cases, cultural stereotypes are reinforced either because vanguards willingly closet their success or fail to succeed (and thus, to challenge stereotypes) because they were psychologically handicapped. Note that self-esteem maintenance is likely to follow from the voluntary process (i.e., using recovery strategies), but not from being unable to perform well when the circumstances demand it. Indeed, self-esteem might be diminished in the latter case, but future research is needed to have confidence in this hypothesis.

9. CONCLUDING PERSPECTIVES

Backlash negatively affects not only vanguards, by impinging on their goals and aspirations, but also society, by perpetuating cultural beliefs that hinder society’s ability to fully draw on its human capital. Perceivers who

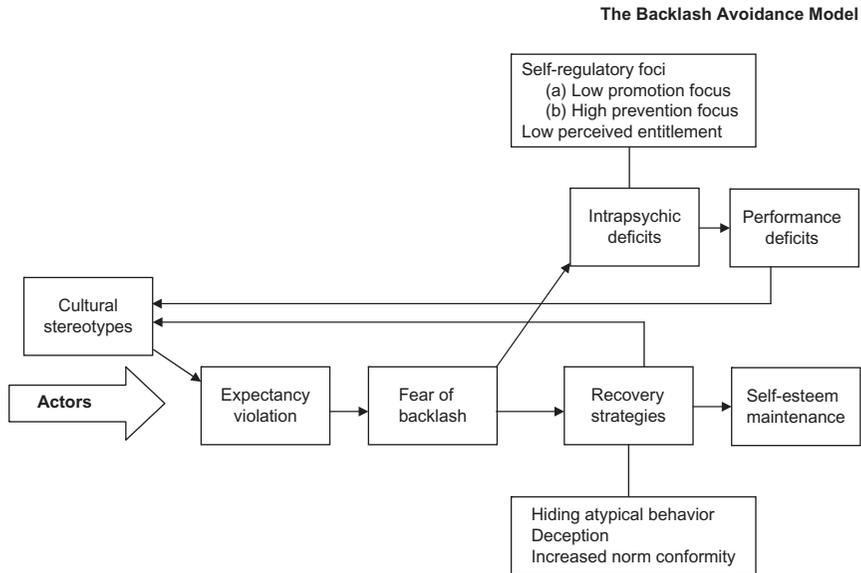


Figure 4.10 Integrating the Backlash Avoidance Model with the BSMM.

engage in backlash defuse the power of atypical role models to challenge cultural stereotypes, rendering them invisible. Backlash, in turn, leads atypical actors to (rightly) fear being penalized. This justified fear creates further problems: (a) diminished performance (due to depressed entitlement, reduced focus on positive goals, and increased risk aversion) and (b) coping strategies that may allow actors to avoid harassment but ultimately reinforce stereotypic norms (e.g., hiding or disavowing atypical talents). In this chapter, we reviewed three main advances in backlash theory: the BSMM, the SIH, and the Backlash Avoidance Model. In this section, we discuss the implications of these conceptual frameworks for extant theories and suggest future directions for research.

9.1. Theoretical integration and implications

Although they differ in many respects, impression formation theories agree that counterstereotypical targets move perceivers away from stereotypic and toward individuating judgments of others (Brewer, 1988; Fiske & Neuberg, 1990; Kunda & Thagard, 1996). In theory, actors need only behave atypically to be spared category-based judgments. For example, if people stereotype an individual's group as incompetent, he or she can overcome biased competence impressions by diligently exhibiting competent behaviors. However, disconfirming stereotypes on one dimension does not erase

other category-based evaluations. Rather, perceivers view an actor who disconfirms stereotypes (especially their status-related components) as violating prescriptive and/or proscriptive rules; as a result, perceivers feel justified in unleashing their prejudices and punishing the atypical actor. In concert with the SIH, the BSMM posits that this is why vanguards often encounter backlash. Further, atypical actors' necessary efforts to overcome the initial expectancy bias hurdle (e.g., by defeating negative expectations through successful performance) initiate the processes that impose the second hurdle: backlash for succeeding in atypical and status-incongruent domains. In essence, although vanguards may be "individuated" in one sense, they are still evaluated based on category membership and punished for stereotype violations. Thus, "true" individuation—by which an individual completely escapes any category-based judgments from others—may be rare. It is difficult for people to perceive others *de novo*, without the use of stereotypic lenses.

Researchers continue to debate whether stereotypes are accurate (e.g., Judd & Park, 1993; Jussim, 1991; see Fiske, 1998, for a review). The assumption has often been that if stereotypes are accurate, they cannot be "unfair." But stereotypes, as the processes reviewed above establish, can unfairly create their own "accuracy" by inhibiting counterstereotypical behavior through social pressure. When atypical actors, fearing backlash, closet their counterstereotypical talents and instead conform to group-based norms, stereotypes become "accurate" (i.e., the stereotype matches actual behavior), but not because abilities are differently distributed across social groups. As a consequence, backlash perpetuates stereotypes, group-based social hierarchies, and plays a key role in a fundamental human conflict that pits acting on personal values and talents against conforming to arbitrary and unfair social norms (Allport, 1955; Fishbein & Ajzen, 1975; Rohan, 2000).

The SIH integrates backlash with status characteristics theory and system-justification theory (Jost & Banaji, 1994; Ridgeway, 2001). As a result, it emphasizes perceivers' *motivations* to maintain social hierarchies (i.e., our framework is motivational, rather than merely cognitive). As noted, a cognitive approach would posit that the dominance penalty toward women derives from perceptually contrasting agentic women with low-agency feminine stereotypes, resulting in "extreme" ratings on behaviors that are prototypical for leaders (Eagly et al., 1992; Manis et al., 1988). If that were true, agentic women would also be rated as more agentic and less communal compared with agentic men, and that is not the case. Instead, people zero in on extreme dominance to justify penalizing agentic women, and extreme weakness or low agency to justify penalizing atypical men, because these are gender rules that legitimize and reinforce the gender status quo.

Eagly and Karau's (2002) role congruity theory of prejudice toward female leaders (RCT) posits that the two hurdles professional women face represent a perceived conflict between leadership roles and women's gender roles (broadly defined as "people's consensual beliefs about the attributes of women and men," p. 574). The SIH differs from RCT in several respects. First, the SIH proposes specifically that status violations, rather than any kind of role or stereotype violation, elicit backlash. Second, RCT is limited in scope because it does not account for evidence that agentic women suffer backlash even when they are not in leadership positions (e.g., Rudman, 1998; Rudman & Fairchild, 2004), or for the fact that atypical men and racial vanguards are also at risk (e.g., Heilman & Wallen, 2010; Phelan & Rudman, 2010a; Rudman & Fairchild, 2004; Moss-Racusin et al., 2010). Third, the SIH is clearly motivational, whereas RCT does not address perceivers' motivations. Thus, we view the SIH as having more generality and explanatory power than RCT.

The Backlash Avoidance Model applies self-regulatory theory (Crowe & Higgins, 1997) to actors' ability to perform effectively in atypical domains. Specifically, fear of backlash inhibits ability to succeed by heightening prevention focus (leading people to be overly cautious) and reducing promotion focus ("going for the goal"). The Backlash Avoidance Model differs from stereotype threat theory (STT; Steele & Aronson, 1995; Steele, Spencer, & Aronson, 2002), the most researched framework for understanding why people under-perform in atypical domains. STT argues that people who are stereotyped as not particularly skilled in a domain (e.g., women and math, Blacks and academic achievement) become anxious about confirming negative stereotypes, and this anxiety undermines their performance on standardized tests. By contrast, the Backlash Avoidance Model argues that people are unable to do their best because a justified fear of social rejection disrupts perceived entitlement and optimal self-regulatory foci (high promotion, low prevention). In this respect, the Backlash Avoidance Model adds to the BSMM's tenet that actors will strategically "pull back" and hide their success to avoid backlash. According to the Backlash Avoidance Model, people who fear backlash may not be able to perform well even when they wish to do so.

Thus, while both theories argue that anxiety over other's reactions inhibits performance, the Backlash Avoidance Model and STT suggest almost opposite reasons for actors' anxiety. Whereas STT posits that vanguards fear doing poorly and thereby confirming a negative stereotype, the Backlash Avoidance Model proposes that actors fear being penalized by others for successful performance that *disconfirms* stereotypes of their group. Nonetheless, these theories overlap in that both focus on how stereotype-linked anxiety undermines people's ability to put their best foot forward, even when it is critical that they do so.

9.2. Future directions

To date, research using both gender and racial vanguards has supported the BSMM, but more tests are necessary to refine its tenets and bolster confidence in its generality. This is especially true for race and its intersection with gender. To date, we know of only one study in which prescriptive stereotypes for Black men and women were compared and then used to inform a backlash investigation (Richardson, Phillips, Rudman, & Glick, 2011). The authors found that (a) proscriptions against dominance were stronger for Black men than for Black women, and (b) a highly competent but dominant Black man suffered more backlash than an identically described Black woman. These findings suggest that gender rules may differ (even be reversed) for Blacks but may similarly inform backlash. Because Black women are doubly low in status by virtue of their gender and race, it was surprising to find relatively weak dominance proscriptions for them, and future research should investigate why—as well as why dominant traits (e.g., controlling and arrogant) are more proscribed for Black men than White men (Richardson et al., 2011). For example, Black NFL athletes who celebrated after a touchdown were penalized more so than White athletes, and perceived arrogance predicted punishment only for Blacks, not Whites (Livingston & Richardson, 2011). However, this arena remains wide open for further research. As a first step, researchers should undergo systematic investigations of prescriptive and proscriptive stereotypes and their status implications for the groups they examine.

Evidence for the SIH suggests that backlash not only functions to preserve cultural stereotypes and thus the status quo (as the BSMM claims) but also that perceivers justify administering backlash for this very reason. Because the SIH identifies defending social hierarchies as a key motive for penalizing atypical actors, it helps to explain why women and men alike tend to engage in backlash against agentic women. Given that men and women are intimately interdependent, both genders have a stake in the status quo (Glick & Fiske, 1996, 2001) and therefore may react negatively to status-incongruent women. Like all social hierarchies, the gender hierarchy serves specific functions, such as inhibiting open conflict and facilitating coordination. And although it provides men with more access to power and resources, it also affords women security and resources via close heterosexual relationships (e.g., marriage).

In fact, peoples' investment in close heterosexual relationships may provide a clue as to what aspects of the gender system people deem worthy of defense. Many people believe that when women compete with men for the same jobs, or strive for financial independence, domestic conflict results (Noer, 2006; Rudman & Fairchild, 2007). Given how important happy unions are to people's well-being (Berscheid & Reis, 1998), it seems likely that both genders might reject agentic women if they believe that female

agency disrupts gender relations. However, this remains a question for future research.

We presented the Backlash Avoidance Model as a framework for understanding how fear of backlash undermines atypical actors' ability to perform well in counter-normative domains. To date, the model has been applied solely to people's ability to self-promote, where we found support among both men and women. However, whether the model generalizes to other domains remains unknown. Because the model relies on well-established psychological processes, we suspect it will generalize, but we do not currently know how broadly. Thus, we offer the Backlash Avoidance Model and the other frameworks presented here, in the hope that they will be generative.

We also hope that this chapter spurs investigations of how best to disrupt backlash effects. If system-justification motivates backlash, then raising the status of women and other minority members would be the ultimate remedy. In the meantime, other approaches to reducing backlash are needed. There is some evidence that women who are high in self-monitoring avoid penalties for female agency, presumably because they are better at assessing social situations and adjusting their responses accordingly (O'Neill & O'Reilly, 2011; see also Flynn & Ames, 2006). In addition, enhancing perceivers' self-esteem could reduce backlash. For example, women who were told they scored high on a leadership aptitude test were less likely to derogate a successful female executive, compared with control women who were not given feedback on their test (Parks-Stamm et al., 2008). Because self-affirmation has been shown to ameliorate other types of prejudices (Fein & Spencer, 1997; Schmeichel & Martens, 2005), including implicit prejudices (Rudman, Dohn, & Fairchild, 2007), it should be tried as an antidote to backlash.

Indeed, several strategies that have been shown to combat implicit biases might also disrupt backlash. These include cultivating egalitarian motives (Dasgupta & Rivera, 2006; Moskowitz, Gollwitzer, Wasel, & Schaal, 1999), exposing people to well-liked vanguards (Dasgupta & Asgari, 2004; Dasgupta & Greenwald, 2001), providing opportunities for emotional bonding (Rudman, Ashmore, & Gary, 2001; Turner, Hewstone, & Voci, 2007), and educating people about their explicit and implicit biases (Green et al., 2007; Pronin, 2007; Pronin & Kugler, 2007; Rudman et al., 2001). In general, increasing public awareness about how backlash diminishes equal opportunity and reinforces cultural stereotypes should promote social support for vanguards, thereby increasing their persistence, success, and willingness to become visible role models (Phelan & Rudman, 2010a). Therefore, we encourage educating students, laypeople, and the media about when, how, and why backlash occurs. If knowledge liberates, to the point where the public's awareness and understanding of a psychological effect eventually renders it obsolete (Gergen, 1973), we can look forward to the day when backlash effects become an historical curiosity.

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REFERENCES

- Acker, J. (1990). Hierarchies, jobs, bodies: A theory of gendered organizations. *Gender & Society, 4*(2), 139–158.
- Allen, T. D., & Russell, J. E. A. (1999). Parental leave of absence: Some not so family-friendly implications. *Journal of Applied Social Psychology, 29*(1), 166–191.
- Allport, G. W. (1955). *Becoming: Basic considerations for a psychology of personality*. New Haven, CT: Yale University Press.
- Amanatullah, E. T., & Morris, M. W. (2010). Negotiating gender roles: Gender differences in assertive negotiating are mediated by women's fear of backlash and attenuated when negotiating on behalf of others. *Journal of Personality and Social Psychology, 98*, 256–267.
- Amodio, D. M., & Devine, P. G. (2006). Stereotyping and evaluation in implicit race bias: Evidence for independent constructs and unique effects on behavior. *Journal of Personality and Social Psychology, 91*, 652–661.
- Asch, S. E. (1955). Opinions and social pressure. *Scientific American, 193*, 31–35.
- Ashmore, R. D., & Del Boca, F. K. (1981). Conceptual approaches to stereotypes and stereotyping. In D. L. Hamilton (Ed.), *Cognitive processes in stereotyping and intergroup behavior* (pp. 1–36). Hillsdale, NJ: Erlbaum.
- Atwater, L. E., Carey, J. A., & Waldman, D. A. (2001). Gender and discipline in the workplace: Wait until your father gets home. *Journal of Management, 27*, 537–561.
- Babcock, L., & Laschever, S. (2003). *Women don't ask: Negotiation and the gender divide*. Princeton, NJ: Princeton University Press.
- Barron, L. A. (2003). Ask and you shall receive? Gender differences in negotiators' beliefs about requests for a higher salary. *Human Relations, 56*, 635–662.
- Belkin, L. (2010). Calling Mr. Mom? Why women won't have it all until men do, too. *The New York Times Magazine*, 13–14.
- Berdahl, J. L. (2007a). The sexual harassment of uppity women. *Journal of Applied Psychology, 92*, 425–437.
- Berdahl, J. L. (2007b). Harassment based on sex: Protecting social status in the context of gender hierarchy. *Academy of Management Review, 32*, 641–658.
- Berdahl, J. L., Magley, V. J., & Waldo, C. R. (1996). The sexual harassment of men? Exploring the concept with theory and data. *Psychology of Women Quarterly, 20*, 527–547.
- Berger, J., Webster, M. Jr., Ridgeway, C. L., & Rosenholtz, S. J. (1986). Status cues, expectations, and behaviors. In E. Lawler (Ed.), *Advances in group processes* (Vol. 3, pp. 1–22). Greenwich, CT: JAI Press.
- Berscheid, E., & Reis, H. T. (1998). Attraction and close relationships. In D. T. Gilbert & S. T. Fiske (Eds.), *The handbook of social psychology* (Vol. 2, pp. 193–281). New York, NY: McGraw-Hill.
- Blair-Loy, M. (2003). *Competing devotions: Career and family among women executives*. Cambridge, MA: Harvard University Press.

- Bolino, M. C., & Turnley, W. H. (2003). Counternormative impression management, likeability, and performance ratings: The use of intimidation in an organization setting. *Journal of Organizational Behavior, 23*, 237–250.
- Bowles, H. R., Babcock, L., & Lai, L. (2007). Social incentives for gender differences in the propensity to initiate negotiations: Sometimes it does hurt to ask. *Organizational Behavior and Human Decision Processes, 103*, 84–103.
- Branscombe, N. R., Crosby, P., & Weir, J. A. (1993). Social inferences concerning male and female homeowners who use a gun to shoot an intruder. *Aggressive Behavior, 19*, 113–124.
- Branscombe, N. R., & Wann, D. L. (1994). Collective self-esteem consequences of out-group derogation when a valued social identity is on trial. *European Journal of Social Psychology, 24*, 641–657.
- Brescoll, V. L., & Uhlmann, E. L. (2005). Attitudes toward traditional and nontraditional parents. *Psychology of Women Quarterly, 29*, 436–445.
- Brewer, M. B. (1988). A dual process model of impression formation. In T. K. Srull & R. S. Wyer Jr. (Eds.), *Advances in social cognition* (Vol. 1, pp. 1–36). Hillsdale, NJ: Erlbaum.
- Burgess, D., & Borgida, E. (1999). Who women are, who women should be: Descriptive and prescriptive stereotyping in sex discrimination. *Psychology, Public Policy, and Law, 5*, 665–692.
- Butler, A. B., & Skattebo, A. (2004). What is acceptable for women may not be for men: The effect of family conflicts with work on job performance ratings. *Journal of Occupational and Organizational Psychology, 77*, 553–564.
- Callahan-Levy, C. M., & Messe, L. A. (1979). Sex differences in the allocation of pay. *Journal of Personality and Social Psychology, 37*, 433–446.
- Carli, L. L. (1990). Gender, language, and influence. *Journal of Personality and Social Psychology, 59*, 941–951.
- Carli, L. L. (2001). Gender and social influence. *Journal of Social Issues, 57*, 725–741.
- Carli, L. L., LaFleur, S. J., & Loeber, C. C. (1995). Nonverbal behavior, gender, and influence. *Journal of Personality and Social Psychology, 68*, 1030–1041.
- Cejka, M. A., & Eagly, A. H. (1999). Gender-stereotypic images of occupations correspond to the sex segregation of employment. *Personality and Social Psychology Bulletin, 25*, 413–423.
- Cherry, F., & Deaux, K. (1978). Fear of success versus fear of gender-inappropriate behavior. *Sex Roles, 4*, 97–101.
- Cialdini, R. B., & Trost, M. R. (1998). Social influence: Social norms, conformity and compliance. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (Vol. 2, pp. 151–192). New York, NY: McGraw-Hill.
- Cohen, J. (1988). *Statistical power for the behavioral sciences*. Hillsdale, NJ: Erlbaum.
- Conrada, R. J., Ashmore, R. D., Gary, M. L., Coups, E., Egeth, J. D., Sewell, A., et al. (2001). Measures of ethnicity-related stress: Psychometric properties, ethnic group differences, and associations with well-being. *Journal of Applied Social Psychology, 31*, 1775–1820.
- Conway, M., Pizzamiglio, M. T., & Mount, L. (1996). Status, communality, and agency: Implications for stereotypes of gender and other groups. *Journal of Personality and Social Psychology, 71*, 25–38.
- Costrich, N., Feinstein, J., Kidder, L., Marecek, J., & Pascale, L. (1975). When stereotypes hurt: Three studies of penalties for sex-role reversals. *Journal of Experimental Social Psychology, 11*, 520–530.
- Crandall, C. S., & Eshleman, A. (2003). A justification-suppression model of the expression and experience of prejudice. *Psychological Bulletin, 129*, 414–446.
- Crowe, E., & Higgins, E. T. (1997). Regulatory focus and strategic inclinations: Promotion and prevention in decision-making. *Organizational Behavior and Human Decision Processes, 69*, 117–132.

- Dasgupta, N., & Asgari, S. (2004). Seeing is believing: Exposure to counterstereotypic women leaders and its effect on automatic gender stereotyping. *Journal of Experimental Social Psychology, 40*, 642–658.
- Dasgupta, N., & Greenwald, A. G. (2001). On the malleability of automatic attitudes: Combating automatic prejudice with images of admired and disliked individuals. *Journal of Personality and Social Psychology, 81*, 800–814.
- Dasgupta, N., & Rivera, L. M. (2006). From automatic anti-gay prejudice to behavior: The moderating role of conscious beliefs about gender and behavioral control. *Journal of Personality and Social Psychology, 91*, 268–280.
- Deaux, K., & Emswiller, T. (1974). Explanations of successful performance on sex-linked tasks: What is skill for the male is luck for the female. *Journal of Personality and Social Psychology, 29*, 80–85.
- Deaux, K., & LaFrance, M. (1998). Gender. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., Vol. 1, pp. 788–827). New York: McGraw-Hill.
- DeHart, T., Pelham, B. W., & Tennen, H. (2006). What lies beneath: Parenting styles and implicit self-esteem. *Journal of Experimental Social Psychology, 42*, 1–17.
- Derlega, V. J., & Chaiken, A. L. (1976). Norms affecting self-disclosure in men and women. *Journal of Consulting and Clinical Psychology, 44*, 376–380.
- Desmarais, S., & Curtis, J. (1997). Gender and perceived pay entitlement: Testing for effects of experience with income. *Journal of Personality and Social Psychology, 72*, 141–150.
- Deutsch, M., & Gerard, H. (1955). A study of normative and informational social influences upon individual judgment. *Journal of Abnormal and Social Psychology, 51*, 629–636.
- Devine, P. G. (1989). Stereotypes and prejudice: Their automatic and controlled components. *Journal of Personality and Social Psychology, 56*, 5–18.
- Devine, P. G., & Baker, S. M. (1991). Measurement of racial stereotype subtyping. *Personality and Social Psychology Bulletin, 17*, 44–50.
- Dipboye, R. L., & Wiley, J. W. (1977). Reactions of college recruiters to interviewee sex and self-presentation style. *Journal of Vocational Behavior, 10*, 1–12.
- Dovidio, J. F., & Gaertner, S. L. (1981). The effects of race, status, and ability on helping behavior. *Social Psychology Quarterly, 44*, 192–203.
- Eagle, B. W., Miles, E. W., & Icenogle, M. L. (1997). Interrole conflicts and the permeability of work and family domains: Are there gender differences? *Journal of Vocational Behavior, 50*, 168–184.
- Eagly, A. H. (1987). *Sex differences in social behavior: A social role interpretation*. Hillsdale, NJ: Erlbaum.
- Eagly, A. H., & Carli, L. L. (2007). *Through the labyrinth: The truth about how women become leaders*. Boston, MA: Harvard Business School Press.
- Eagly, A. H., & Karau, S. J. (2002). Role congruity theory of prejudice toward female leaders. *Psychological Review, 109*, 573–598.
- Eagly, A. H., Karau, S. J., & Makhijani, M. G. (1995). Gender and the effectiveness of leaders: A meta-analysis. *Psychological Bulletin, 117*, 125–145.
- Eagly, A. H., Makhijani, M. G., & Klonsky, B. G. (1992). Gender and the evaluation of leaders: A meta-analysis. *Psychological Bulletin, 111*, 3–22.
- Eagly, A. H., Wood, W., & Diekmann, A. (2000). Social role theory of sex differences and similarities: A current appraisal. In T. Eckes & H. M. Trautner (Eds.), *The developmental social psychology of gender* (pp. 123–174). Mahwah, NJ: Erlbaum.
- Eisenberger, N. I., Lieberman, M. D., & Williams, K. D. (2003). Does rejection hurt? An fMRI study of social exclusion. *Science, 302*, 290–292.
- Ellemers, N., Spears, R., & Doosje, B. (1997). Sticking together or falling apart: In-group identification as a psychological determinant of group commitment versus individual mobility. *Journal of Personality and Social Psychology, 72*, 617–626.

- Erikson, W., & Einarsen, S. (2004). Gender minority as a risk factor of exposure to bullying at work: The case of male assistant nurses. *European Journal of Work and Organizational Psychology, 13*, 473–492.
- Fein, S., & Spencer, S. J. (1997). Prejudice as self-image maintenance: Affirming the self through derogating others. *Journal of Personality and Social Psychology, 73*, 31–44.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Fiske, S. T. (1998). Stereotyping, prejudice, and discrimination. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *Handbook of social psychology* (4th ed., Vol. 2, pp. 357–411). New York: McGraw-Hill.
- Fiske, S. T., Bersoff, D. N., Borgida, E., Deaux, K., & Heilman, M. E. (1991). Social science research on trial: Use of sex stereotyping research in *Price Waterhouse v. Hopkins*. *American Psychology, 46*, 1049–1060.
- Fiske, S. T., & Neuberg, S. L. (1990). A continuum of impression formation, from category-based to individuating processes: Influence of information and motivation on attention and interpretation. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 23, pp. 1–74). New York: Academic Press.
- Fiske, S. T., & Stevens, L. E. (1993). What's so special about sex? Gender stereotyping and discrimination. In S. Oskamp & M. Costanzo (Eds.), *Gender issues in contemporary society* (pp. 173–196). Thousand Oaks, CA: Sage Publications, Inc.
- Flynn, F. J., & Ames, D. (2006). What's good for the goose may not be good for the gander: The benefits of self-monitoring for men and women. *Journal of Applied Psychology, 91*, 272–283.
- Foschi, M. (2000). Double standards for competence: Theory and research. *Annual Review of Sociology, 26*, 21–42.
- Fryer, R. G., & Torelli, P. (2010). An empirical analysis of “Acting White”. *Journal of Public Economics, 94*, 380–396.
- Gergen, K. J. (1973). Social psychology as history. *Journal of Personality and Social Psychology, 26*, 309–320.
- Glick, P., Diebold, J., Bailey-Werner, B., & Zhu, L. (1997). The two faces of Adam: Ambivalent sexism and polarized attitudes toward women. *Personality and Social Psychology Bulletin, 23*, 1323–1334.
- Glick, P., & Fiske, S. T. (1996). The Ambivalent Sexism Inventory: Differentiating hostile and benevolent sexism. *Journal of Personality and Social Psychology, 70*, 491–512.
- Glick, P., & Fiske, S. T. (2001). Ambivalent sexism. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 33, pp. 115–188). Thousand Oaks, CA: Academic Press.
- Glick, P., Wilk, K., & Perreault, M. (1995). Images of occupations: Components of gender and status in occupational stereotypes. *Sex Roles, 32*, 564–582.
- Glick, P., Zion, C., & Nelson, C. (1988). What mediates sex discrimination in hiring decisions? *Journal of Personality and Social Psychology, 55*, 178–186.
- Goffman, E. (1963). *Stigma: Notes on the management of spoiled identity*. Upper Saddle River, NJ: Prentice Hall.
- Goldberg, P. (1968). Are women prejudiced against women? *Transaction, 5*, 316–322.
- Green, A. R., Carney, D. R., Pallin, D. J., Ngo, L. H., Raymond, K. L., Iezzoni, L., et al. (2007). Implicit bias among physicians and its prediction of thrombolysis decisions for black and white patients. *Journal of General Internal Medicine, 22*, 1231–1238.
- Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The Implicit Association Test. *Journal of Personality and Social Psychology, 74*, 1464–1480.
- Hagen, R. L., & Kahn, A. (1975). Discrimination against competent women. *Journal of Applied Social Psychology, 5*, 362–376.

- Heatherington, L., Daubman, K. A., Bates, C., Ahn, A., Brown, H., & Preston, C. (1993). Two investigations of "female modesty" in achievement situations. *Sex Roles, 29*, 739–754.
- Heatherington, T. F., & Polivy, J. (1991). Development and validation of a scale for measuring state self-esteem. *Journal of Personality and Social Psychology, 60*, 895–910.
- Heilman, M. E. (1983). Sex bias in work settings: The lack of fit model. *Research in Organizational Behavior, 5*, 269–298.
- Heilman, M. E. (2001). Description and prescription: How gender stereotypes prevent women's ascent up the organizational ladder. *Journal of Social Issues, 57*, 657–674.
- Heilman, M. E., Block, C. J., & Martell, R. F. (1995). Sex stereotypes: Do they influence perceptions of managers? *Journal of Social Behavior and Personality, 10*, 237–252.
- Heilman, M. E., & Okimoto, T. G. (2007). Averting penalties for women's success: Rectifying the perceived communality deficiency. *Journal of Applied Psychology, 92*, 81–92.
- Heilman, M. E., & Wallen, A. S. (2010). Wimpy and underserving of respect: Penalties for men's gender-inconsistent success. *Journal of Experimental Social Psychology, 46*, 664–667.
- Heilman, M. E., Wallen, A. S., Fuchs, D., & Tamkins, M. M. (2004). Penalties for success: Reactions to women who succeed at male gender-typed tasks. *Journal of Applied Psychology, 89*, 416–427.
- Herbert, B. (2006). Hillary can run, but can she win? *New York Times*, A29.
- Higgins, E. T., Shah, J., & Friedman, R. (1997). Emotional responses to goal attainment: Strength of regulatory focus as moderator. *Journal of Personality and Social Psychology, 72*, 515–525.
- Hill, E. J., Hawkins, A. J., Martinson, V., & Ferris, M. (2003). Studying "working fathers": Comparing fathers' and mothers' work-family conflict, fit, and adaptive strategies in a global high-tech company. *Fathering, 1*, 239–261.
- Hoffman, C., & Hurst, N. (1990). Gender stereotypes: Perception or rationalization? *Journal of Personality and Social Psychology, 58*, 197–208.
- Jackman, M. R. (1994). *The velvet glove: Paternalism and conflict in gender, class, and race relations*. Berkeley, CA: University of California Press.
- Janis, I. L. (1982). *Groupthink: Psychological studies of policy decisions and fiascoes*. Boston: Houghton Mifflin.
- Janoff-Bulman, R., & Wade, M. B. (1996). The dilemma of self-advocacy for women: Another case of blaming the victim? *Journal of Social and Clinical Psychology, 15*(2), 143–152.
- Jones, E., & Pittman, T. (1982). Towards a general theory of strategic self-presentation. In J. Suls (Ed.), *Psychological perspectives on the self* (Vol. 1, pp. 231–262). Hillsdale, NY: Erlbaum.
- Jost, J. T., & Banaji, M. R. (1994). The role of stereotyping in system-justification and the production of false-consciousness. *British Journal of Social Psychology, 33*, 1–27.
- Jost, J. T., Banaji, M. R., & Nosek, B. A. (2004). A decade of system justification theory: Accumulated evidence of conscious and unconscious bolstering of the status quo. *Political Psychology, 25*, 881–919.
- Jost, J. T., & Hunyady, O. (2003). The psychology of system justification and the palliative function of ideology. *European Review of Social Psychology, 13*, 111–153.
- Jost, J. T., & Kay, A. C. (2005). Exposure to benevolent sexism and complementary gender stereotypes: Consequences for specific and diffuse forms of system justification. *Journal of Personality and Social Psychology, 88*, 498–509.
- Jost, J. T., Kivetz, Y., Rubini, M., Guermendi, G., & Mosso, C. (2005). System-justifying functions of complimentary regional and ethnic stereotypes: Cross-national evidence. *Social Justice Research, 18*(3), 305–333.
- Jost, J. T., Pelham, P. W., & Carvallo, M. R. (2002). Non-conscious forms of system justification: Implicit and behavioral preferences for high status groups. *Journal of Experimental Social Psychology, 38*, 586–602.

- Judd, C. M., & Park, B. (1993). Definition and assessment of accuracy in social stereotypes. *Psychological Review*, *100*, 109–128.
- Jussim, L. (1991). Social perception and social reality: A reflection-construction model. *Psychological Review*, *98*, 54–73.
- Jussim, L., Coleman, L. M., & Lerch, L. (1987). The nature of stereotypes: A comparison and integration of three theories. *Journal of Personality and Social Psychology*, *52*, 536–546.
- Kacmar, K., Delery, J., & Ferris, G. (1992). Differential effectiveness of applicant impression management tactics on employment interview decisions. *Journal of Applied Social Psychology*, *16*, 1250–1272.
- Kanter, R. M. (1977). *Men and women of the corporation*. New York: Basic Books.
- Kay, A. C., Jost, J. T., Midisodza, A. N., Sherman, S. J., Petrocelli, J. V., & Johnson, A. L. (2007). Panglossian ideology in the service of system justification: How complementary stereotypes help us to rationalize inequality. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 39, pp. 305–358). San Diego, CA: Academic Press/Elsevier.
- Kay, A. C., Gaucher, D., Peach, J. M., Laurin, K., Friesen, J., Zanna, M., & Spencer, S. J. (2009). Inequality, discrimination, and the power of the status quo: Direct evidence for a motivation to see the way things are as the way they should be. *Journal of Personality and Social Psychology*, *97*, 421–434.
- Kobryniewicz, D., & Biernat, M. (1998). Considering correctness, contrast, and categorization in stereotyping phenomena. In R. S. Wyer Jr. (Ed.), *Advances in social cognition* (Vol. 11, pp. 109–126). Mahwah, NJ: Erlbaum.
- Kunda, Z., & Thagard, P. (1996). Forming impressions from stereotypes, traits and behaviors: A parallel-constraint satisfaction theory. *Psychological Review*, *103*, 284–308.
- Lawrence, R. G., & Rose, M. (2009). *Hillary Clinton's race for the White House: Gender politics and the media on the campaign trail*. Boulder, CO: Lynne Rienner.
- Leary, M. R., & Baumeister, R. F. (2000). The nature and function of self-esteem: Socio-meter theory. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 32, pp. 1–62). New York: Academic Press.
- Lerner, M. J. (1981). *The belief in a just world*. New York: Plenum Press.
- Livingston, R. W., & Pearce, N. A. (2009). The teddy bear effect: Does having a baby face benefit black chief executive officers? *Psychological Science*, *20*, 1229–1236.
- Livingston, R. W., & Richardson, E. V. (2011). *The hubris penalty: Biased responses to "celebration" displays of Black NFL players*. (submitted for review).
- Lueptow, L. B., Garovich, L., & Lueptow, M. B. (1995). The persistence of gender stereotypes in the face of changing sex roles: Evidence contrary to the sociocultural model. *Ethology and Sociobiology*, *16*, 509–530.
- Lyness, K. S., & Judiesch, M. K. (1999). Are women more likely to be hired or promoted into management positions? *Journal of Vocational Behavior*, *54*, 158–173.
- Major, B. (1994). From disadvantage to deserving: Comparisons, justifications, and the psychology of entitlement. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 26, pp. 293–355). New York: Academic Press.
- Major, B., McFarlin, D. B., & Gagnon, D. (1984). Overworked and underpaid: On the nature of gender differences in personal entitlement. *Journal of Personality and Social Psychology*, *47*, 1399–1412.
- Manis, M., Nelson, T. E., & Shedler, J. (1988). Stereotypes and social judgment: Extremity, assimilation, and contrast. *Journal of Personality and Social Psychology*, *55*, 28–36.
- Martin, C. L. (1990). Attitudes and expectations about children with nontraditional and traditional gender roles. *Sex Roles*, *22*, 151–165.
- Moskowitz, G. B., Gollwitzer, P., Wasel, W., & Schaal, B. (1999). Preconscious control of stereotype activation through chronic egalitarian goals. *Journal of Personality and Social Psychology*, *77*, 167–184.

- Moss-Racusin, C. A. (2011). *Understanding women's self-promotion deficits: The backlash avoidance model*. Unpublished doctoral thesis, Rutgers University.
- Moss-Racusin, C. A., Phelan, J. E., & Rudman, L. A. (2010). When men break the gender rules: Status incongruity and backlash toward modest men. *Psychology of Men and Masculinity, 11*, 140–151.
- Moss-Racusin, C. A., & Rudman, L. A. (2010). Understanding disruptions in women's ability to self-promote: The backlash avoidance model. *Psychology of Women Quarterly, 34*, 186–202.
- Noelle-Neumann, E. (1993). *Spiral of silence: Public opinion—Our social skin* (2nd ed). Chicago: University of Chicago Press.
- Noer, M. (2006). *Don't marry career women*. [Online editorial]. Forbes.com.
- Nosek, B. A., Banaji, M. R., & Greenwald, A. G. (2002a). Harvesting implicit group attitudes and beliefs from a demonstration web site. *Group Dynamics: Theory, Research, and Practice, 6*, 101–115.
- Nosek, B. A., Banaji, M. R., & Greenwald, A. G. (2002b). Math = male, me = female, therefore math \neq me. *Journal of Personality and Social Psychology, 83*, 44–59.
- Okimoto, T. G., & Brescoll, V. L. (2010). The price of power: Power seeking and backlash against female politicians. *Personality and Social Psychology Bulletin, 36*, 923–936.
- O'Neill, O. A., & O'Reilly, C. A. III (2011). Reducing the backlash effect: Self-monitoring and women's promotions. *Journal of Occupational and Organizational Psychology, 84*, 825–832.
- Parks-Stamm, E. J., Heilman, M. E., & Hearn, K. A. (2008). Motivated to penalize: Women's strategic rejection of successful women. *Personality and Social Psychology Bulletin, 34*, 237–247.
- Peter, K., & Horn, L. (2005). *Gender differences in participation and completion of undergraduate education and how they have changed over time (NCES 2005-169)*. U.S. Department of Education, National Center for Education Statistics Washington, DC: U.S. Government Printing Office.
- Phelan, J. E., Moss-Racusin, C. A., & Rudman, L. A. (2008). Competent yet out in the cold: Shifting hiring criteria reflects backlash toward agentic women. *Psychology of Women Quarterly, 32*, 406–413.
- Phelan, J. E., & Rudman, L. A. (2010a). Reactions to ethnic deviance: The role of backlash in racial stereotype maintenance. *Journal of Personality and Social Psychology, 99*, 265–281.
- Phelan, J. E., & Rudman, L. A. (2010b). Prejudice toward female leaders: Backlash effects and women's impression management dilemma. *Social and Personality Psychology Compass, 4*(10), 807–820.
- Powers, T. A., & Zuroff, D. C. (1988). Interpersonal consequences of overt self-criticism: A comparison with neutral and self-enhancing presentations of self. *Journal of Personality and Social Psychology, 54*, 1054–1062.
- Pratto, F., & Pitpitan, E. V. (2008). Ethnocentrism and sexism: How stereotypes legitimize six types of power. *Social and Personality Psychology Compass, 2*, 2159–2176.
- Prentice, D. A., & Carranza, E. (2002). What women and men should be, shouldn't be, are allowed to be, and don't have to be: The contents of prescriptive gender stereotypes. *Psychology of Women Quarterly, 26*, 269–281.
- Pronin, E. (2007). Perception and misperception of bias in human judgment. *Trends in Cognitive Sciences, 11*, 37–43.
- Pronin, E., & Kugler, M. B. (2007). Valuing thoughts, ignoring behavior: The introspection illusion as a source of the bias blind spot. *Journal of Experimental Social Psychology, 43*, 565–573.
- Richardson, E., Phillips, K. W., Rudman, L. A., & Glick, P. (2011). *Double jeopardy or greater latitude: Do Black women escape backlash for dominance displays?* (submitted for publication).
- Ridgeway, C. L. (2001). Gender, status, and leadership. *Journal of Social Issues, 57*, 627–655.

- Ridgeway, C., & Bourg, C. (2004). Gender as status: An expectation states theory approach. In A. H. Eagly, A. E. Beall, & R. J. Sternberg (Eds.), *The psychology of gender* (2nd ed. pp. 217–241). New York, NY: Guilford Press.
- Rohan, M. J. (2000). A rose by any name? The values construct. *Personality and Social Psychology Review*, 4, 255–277.
- Rosenfield, D., Greenberg, J., Folger, R., & Borys, R. (1982). Effect of an encounter with a Black panhandler on subsequent helping for Blacks: Tokenism or confirming a negative stereotype? *Personality and Social Psychology Bulletin*, 8, 664–678.
- Rudman, L. A. (1998). Self-promotion as a risk factor for women: The costs and benefits of counterstereotypical impression management. *Journal of Personality and Social Psychology*, 74, 629–645.
- Rudman, L. A., Ashmore, R. D., & Gary, M. L. (2001). “Unlearning” automatic biases: The malleability of implicit stereotypes and prejudice. *Journal of Personality and Social Psychology*, 81, 856–868.
- Rudman, L. A., Dohn, M. C., & Fairchild, K. (2007). Implicit self-esteem compensation: Automatic threat defense. *Journal of Personality and Social Psychology*, 93, 798–813.
- Rudman, L. A., & Fairchild, K. (2004). Reactions to counterstereotypic behavior: The role of backlash in cultural stereotype maintenance. *Journal of Personality and Social Psychology*, 87, 157–176.
- Rudman, L. A., & Fairchild, K. (2007). The F word: Is feminism incompatible with beauty and romance? *Psychology of Women Quarterly*, 31, 125–136.
- Rudman, L. A., Feinberg, J. M., & Fairchild, K. (2002). Minority members’ implicit attitudes: In group bias as a function of group status. *Social Cognition*, 20, 294–320.
- Rudman, L. A., & Glick, P. (1999). Feminized management and backlash toward agentic women: The hidden costs to women of a kinder, gentler image of middle-managers. *Journal of Personality and Social Psychology*, 77, 1004–1010.
- Rudman, L. A., & Glick, P. (2001). Prescriptive gender stereotypes and backlash toward agentic women. *Journal of Social Issues*, 57, 732–762.
- Rudman, L. A., & Glick, P. (2008). *The social psychology of gender: How power and intimacy shape gender relations*. New York: Guilford.
- Rudman, L. A., & Goodwin, S. A. (2004). Gender differences in automatic in-group bias: Why do women like women more than men like men? *Journal of Personality and Social Psychology*, 87, 494–509.
- Rudman, L. A., & Kilianski, S. E. (2000). Implicit and explicit attitudes toward female authority. *Personality and Social Psychology Bulletin*, 26, 1315–1328.
- Rudman, L. A., & Mescher, K. (in press). Penalizing men who request a family leave: Is flexibility stigma a femininity stigma? *Journal of Social Issues*.
- Rudman, L. A., Moss-Racusin, C. A., Phelan, J. E., & Nauts, S. (2012). Status incongruity and backlash effects: Defending the gender hierarchy motivates prejudice toward female leaders. *Journal of Experimental Social Psychology*, 48, 165–179.
- Rudman, L. A., & Phelan, J. E. (2008). Backlash effects for disconfirming gender stereotypes in organizations. In A. P. Brief & B. M. Staw (Eds.), *Research in organizational behavior* (Vol. 28, pp. 61–79). Elsevier: New York.
- Schachter, S. (1951). Deviation, rejection, and communication. *Journal of Abnormal Social Psychology*, 46, 190–207.
- Schimmel, J., Simon, L., Greenberg, J., Pyszczynski, T., Solomon, S., Waxmonsky, J., et al. (1999). Stereotypes and terror management: Evidence that mortality salience enhances stereotypic thinking and preferences. *Journal of Personality and Social Psychology*, 77, 905–926.
- Schmeichel, B. J., & Martens, A. (2005). Self-affirmation and mortality salience: Affirming values reduces worldview defense and death-thought accessibility. *Personality and Social Psychology Bulletin*, 31, 658–667.

- Schneider, D. J. (2004). *The psychology of stereotyping*. New York: Guilford Press.
- Sellers, R. M., Caldwell, C. H., Shmeelk-Cone, K. H., & Zimmerman, M. A. (2003). Racial identity, racial discrimination, perceived stress, and psychological distress among African American young adults. *Journal of Health and Social Behavior, 44*, 302–317.
- Sinclair, L., & Kunda, Z. (2000). Motivated stereotyping of women: She's fine if she praised me but incompetent if she criticized me. *Personality and Social Psychology Bulletin, 26*, 1329–1342.
- Smith, C. A., Organ, D., & Near, J. (1983). Organizational citizenship behavior: Its nature and antecedents. *Journal of Applied Psychology, 68*, 653–663.
- Snyder, M., & Miene, P. (1994). On the functions of stereotypes and prejudice. In M. P. Zanna & J. M. Olson (Eds.), *The psychology of prejudice: The Ontario symposium* (Vol. 7, pp. 33–54). Hillsdale, NJ: Erlbaum.
- Spence, J. T., & Buckner, C. E. (2000). Instrumental and expressive traits, trait stereotypes, and sexist attitudes: What do they signify? *Psychology of Women Quarterly, 24*, 44–62.
- Spence, J. T., Helmreich, R. L., & Holahan, C. K. (1979). Negative and positive components of psychological masculinity and femininity and their relationships to self-reports of neurotic and acting out behaviors. *Journal of Personality and Social Psychology, 37*, 1673–1682.
- Spencer, S. J., Fein, S., Wolfe, C. T., Fong, C., & Dunn, M. A. (1998). Automatic activation of stereotypes: The role of self-image threat. *Personality and Social Psychology Bulletin, 24*, 1139–1152.
- Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology, 69*(5), 797–811.
- Steele, C. M., Spencer, S. J., & Aronson, J. (2002). Contending with group image: The psychology of stereotype and social identity threat. *Advances in Experimental Social Psychology, 34*, 379–440.
- Stevens, C. K., & Kristof, A. L. (1995). Making the right impressions: A field study of applicant impression management during job interviews. *Journal of Applied Psychology, 80*, 587–606.
- Stone, J., Lynch, C. I., Sjomeling, M., & Darley, J. M. (1999). Stereotype threat effects of Black and White athletic performance. *Journal of Personality and Social Psychology, 77*, 1213–1227.
- Swim, J. K., & Sanna, L. J. (1996). He's skilled, she's lucky: A meta-analysis of observers' attributions for women's and men's successes and failures. *Personality and Social Psychology Bulletin, 22*, 507–519.
- Tesser, A. (2000). On the confluence of self-esteem maintenance mechanisms. *Personality and Social Psychology Review, 4*(4), 290–299.
- Tesser, A., & Smith, J. (1980). Some effects of task relevance and helping: You don't always help the one you like. *Journal of Experimental Social Psychology, 16*, 582–590.
- Turner, R. N., Hewstone, M., & Voci, A. (2007). Reducing explicit and implicit prejudice via direct and extended contact: The mediating role of self-disclosure and intergroup anxiety. *Journal of Personality and Social Psychology, 93*, 369–388.
- Twenge, J. M. (1997). Attitudes toward women, 1970–1995: A meta-analysis. *Sex Roles, 31*, 35–52.
- Twenge, J. M. (2001). Changes in women's assertiveness in response to status and roles: A cross-temporal meta-analysis, 1931–1993. *Journal of Personality and Social Psychology, 81*, 133–145.
- U.S. Bureau of Labor Statistics (2009). *Quick stats on women workers*. <http://www.dol.gov/wb/stats/main.htm> Retrieved June 20, 2011.
- Valian, V. (1999). *Why so slow? The advancement of women*. Cambridge, MA: The MIT Press.

- von Baeyer, C. L., Sherk, D. L., & Zanna, M. P. (1981). Impression management in the job interview: When the female applicant meets the male (chauvinist) interviewer. *Personality and Social Psychology Bulletin*, *7*, 45–51.
- Wade, M. (2001). Women and salary negotiation: The costs of self-advocacy. *Psychology of Women Quarterly*, *25*, 65–76.
- Wayne, J. H., & Cordeiro, B. L. (2003). Who is a good organizational citizen? Social perception of male and female employees who use family leave. *Sex Roles*, *49*(5/6), 233–246.
- Wiley, M. G., & Eskilson, A. (1985). Speech style, gender stereotypes, and corporate success: What if women talk more like men? *Sex Roles*, *27*, 993–1007.
- Williams, J. C. (2000). *Unbending gender: Why family and work conflict and what to do about it*. New York: Oxford University Press.
- Williams, K. D. (2007). Ostracism. *Annual Review of Psychology* (Vol. 58, pp. 425–452). New York: Annual Reviews.
- Williams, J. C. (2010). *Reshaping the work-family debate: Why men and class matter*. Cambridge, MA: Harvard University Press.
- Williams, K. D., Bernieri, F., Faulkner, S., Grahe, J., & Gada-Jain, N. (2000). The Scarlet Letter Study: Five days of social ostracism. *Journal of Personality and Interpersonal Loss*, *5*, 19–63.
- Williams, J. E., & Best, D. L. (1990). *Measuring sex stereotypes: A multination study*. revised edition Newbury Park, CA: Sage.
- Wong, C. A., Eccles, J. S., & Sameroff, A. (2003). The influence of ethnic discrimination and ethnic identification on African American adolescents' school and socioemotional adjustment. *Journal of Personality*, *71*, 1197–1232.
- Yzerbyt, V. Y., Schadron, G., Leyens, J., & Rocher, S. (1994). Social judgeability: The impact of meta-informational cues on the use of stereotypes. *Journal of Personality and Social Psychology*, *66*, 48–55.
- Zanna, M. P., & Pack, S. J. (1975). On the self-fulfilling nature of apparent sex differences in behavior. *Journal of Experimental Social Psychology*, *11*, 583–591.
- Zucker, K. J., Bradley, S. J., & Sanikhani, M. (1997). Sex differences in referral rates of children with gender identity disorder. *Journal of Abnormal Child Psychology*, *25*, 217–227.
- Zweigenhaft, R. L., & Domhoff, W. (2006). Women in the power elite. In R. L. Zweigenhaft & W. Domhoff (Eds.), *Diversity in the power elite: How it happened, why it matters* (pp. 49–90). Lanham, MD: Rowman & Littlefield.

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CONSEQUENCES OF SELF-IMAGE AND COMPASSIONATE GOALS

Jennifer Crocker* and Amy Canevello†

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* Department of Psychology, The Ohio State University, Columbus, Ohio, USA

† Department of Psychology, University of North Carolina, Charlotte, North Carolina, USA

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Abstract

Interpersonal goals are a key mechanism through which people and their social environments influence each other. Two goals—self-image and compassionate goals—the motivational systems that energize these goals, their measurement, and how they relate to other constructs in the literature are described. Results of three longitudinal studies of first-year college students suggest that when people have self-image goals—that is, when they try to manage the impressions others have of them—they create a cascade of unintended negative consequences for both themselves and others. In contrast, when people try to contribute to the well-being of other people, they create a cascade of positive consequences for both themselves and others. Over time, for better or worse, by changing what they experience, people actually change themselves—the beliefs they hold and their goals, self-esteem, and even dispositional tendencies. We describe a variety of processes through which people's interpersonal goals shape their own and others' experience and raise several remaining issues for this program of research.

What kind of life do you want? Everyone has ideas about what they want and do not want in their lives—what they want more of, what they want less of, and what they want that currently is totally absent. For example, most people, if not all, want to have high rather than low self-esteem and to be esteemed by others rather than disliked or disrespected. They want to feel secure rather than insecure. They want to feel that their life has meaning and purpose rather than lacks meaning. They want to feel a sense of choice and freedom when they act rather than obligation and pressure. They want to feel peaceful and clear rather afraid and confused.

They want to make progress toward their goals rather than feel stuck. They want to be free of anxiety and depression rather than plagued by them. They want to feel close to others rather than lonely. They want to feel that others are available and supportive rather than unavailable or unsupportive. They want to feel understood, cared for, and validated, rather than misunderstood, neglected, and invalidated.

Yet, most people have no idea how to change their lives so that they have more of what they want and less of what they do not want. Unfortunately, the standard views of social and personality psychology do not help much; social psychology emphasizes that behavior and experience are shaped by the situations in which people find themselves, whereas personality psychology emphasizes the stable dispositions people bring to those situations that shape their experience. Neither of these approaches indicates whether or how people can change their situations or their personality characteristics, and so change what they experience.

We suggest that people have the ability to create more of what they want and less of what they do not want in their lives. We propose that people create what they experience through their interpersonal goals and their experience, in turn, shapes who they are—their beliefs and their dispositions. We posit that interpersonal goals are a key mechanism through which people and their social environments influence each other. Depending on the quality of their interpersonal goals, the experiences people create may be wanted or unwanted. More specifically, we suggest that when people have self-image goals—that is, when they try to manage the impressions others have of them—they create a cascade of unintended negative consequences for both themselves and others. In contrast, when people try to contribute to the well-being of others, they create a cascade of positive consequences for both themselves and others. Over time, for better or worse, by changing what they experience, people actually change themselves—the beliefs they hold and their goals, self-esteem, and even dispositional tendencies.

In this chapter, we describe the research that leads us to these conclusions. We begin by defining and describing the two goals of the greatest interest in our research—self-image and compassionate goals—the motivational systems that energize these goals, how we assess them, and how they relate to other constructs in the literature. We then describe three longitudinal studies of college freshmen that explore the predictors and consequences of these goals. The first study, which we call the “Goals and Adjustment to College Study,” explores how participants’ interpersonal goals shape their own experience. The second study, which we call the “Roommate Goals Study,” explores how participants’ interpersonal goals shape the dynamics of their relationships with their college roommates, from both the participants’ and the roommates’ perspectives. The third study, which we call the “Roommate Goals and Mental Health Study,” explores the implications of these relationship processes for mental health

and related beliefs and experiences. After describing some of the key findings from these studies, we discuss their implications, extensions to other types of relationships, and suggest several issues that require further research.

1. INTERPERSONAL GOALS

Interpersonal goals form the centerpiece of our analysis of how people and situations mutually create each other. Goals are cognitive representations of desired end states that guide and organize behavior (Fishbach & Ferguson, 2007; Fujita & MacGregor, *in press*; Kruglanski, 1996). Goals shape both specific intentions in the present moment and the overall direction in which people want their lives to head over the long term (Fujita & MacGregor, *in press*). Motivation energizes goal-directed behavior through dispositions or states of the person and characteristics of the goal that determine the incentive value of a goal. In contrast to both personality dispositions and situations, goals are flexible and at least partly under personal control. When people notice that their current behavior leads them away from their goals, they can change behavior to better align it with their goals (Scheier & Carver, 1988).

Interpersonal goals seek to “attain, maintain, or avoid a specific end state for the partner or the relationship” (Fitzsimons & Bargh, 2003, p. 150). Thus, interpersonal goals reflect specific intentions in the present and where people want to be headed in their interactions and relationships with other people. Our research examines consequences of two interpersonal goals—self-image goals and compassionate goals—which we hypothesize relate to two distinct motivational systems.

1.1. Self-image goals and ecosystem motivation

How people view themselves and how they think others view them are inextricably linked (Cooley, 1956; Hardin & Higgins, 1996; Leary & Downs, 1995; Shrauger & Schoeneman, 1979; Tetlock & Manstead, 1985). Typically, people want others to see them as having desirable qualities, and they want to see themselves this way (Dunning, Heath, & Suls, 2005; Leary & Baumeister, 2000; Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004; Steele, 1988; Taylor & Brown, 1988; Tesser, 1988). Important outcomes often partly or completely depend on the impressions people make on others. Both obtaining positive outcomes (e.g., a job one hopes to be offered, a romantic relationship one hopes to enter or maintain, admission to one’s first choice of colleges, receiving an honor or award, or something as mundane as being treated with respect or kindness) and avoiding negative outcomes (e.g., being rejected by a friend,

passed over for a promotion at work, cheated on by a spouse, or criticized for a *faux pas*) depend at least partly on the desired and dreaded images people construct for others.

Because other people do form impressions, and those impressions inform judgments and decisions other people make, people often try to influence important outcomes and obtain what they want for themselves by managing the impressions others hold of them (see [Schlenker, 2003](#) for a review). By constructing desired images and avoiding dreaded images of themselves in others' eyes, people may convince others that they deserve scarce and desired outcomes, including social goods such as acceptance, respect, admiration, power, or status, or more objective outcomes such as a job or promotion, or admission to college. Constructing desired images goes beyond having the desired quality; it involves making sure that other people "get" that one has the desired quality. For example, constructing a desired image of intelligence requires more than simply being intelligent; people must ensure that others are aware of their intelligence, perhaps by asking the most incisive question during a meeting or avoiding speaking up when they are confused.

Self-image goals often implicitly or explicitly involve comparing with others ([Gibson & Poposki, 2010](#)). For example, when people want to convince others to offer them a job, they want to be seen not only as competent but also as more competent than their competitors. Likewise, when people want reassurance that they are liked, they often want to be liked better than others. Consequently, when people have self-image goals, they tend to feel competitive with others and view desired outcomes as having a zero-sum or win-lose quality. That is, they assume that success for one person detracts from the success of others ([Crocker & Canevello, 2008](#); [Crocker, Canevello, & Liu, 2011](#)). They tend to feel at the mercy of others, believing that they must convince or even force others to meet their needs and desires, rather than trusting that others will help them out of genuine concern for their well-being.

Self-image goals are typically energized by a motivational system we call the *egosystem* ([Crocker, 2008](#); [Crocker, Olivier, & Nuer, 2009](#)). In the *egosystem*, people prioritize their own needs and desires over those of other people; their goal is to get their own needs met and their desires satisfied, often regardless of the impact on others. In this system, other people matter if they can potentially satisfy or thwart one's own needs and desires; others are viewed as an obstacle to be overcome or as a means toward an end. Accordingly, when people are driven by *egosystem* motivation, they search for ways to get their needs met by influencing or controlling others.

Egosystem motivation is part of the human condition; it drives everyone at times, although some people more than others. *Egosystem* motivation is activated at those moments when people lack trust that their needs will be

met in collaboration with their environment (Crocker et al., 2009). Personality characteristics (e.g., narcissism), interpersonal styles (e.g., insecure attachment), situations of scarcity or danger, or other people's self-image goals may lead people to conclude that their needs will not be met in collaboration with others and so may trigger egosystem motivation. Negative emotional states, such as anxiety, depression, or low self-esteem, could also foster an egosystem perspective, if they signal that one's needs are not being met.

1.2. Compassionate goals and ecosystem motivation

Although people often care about satisfying their own needs and desires without regard for others, people also have the capacity for empathy, compassion, and generosity motivated by concern for the well-being of other people (Mikulincer & Shaver, 2010). Compassionate goals focus on supporting others, not to obtain something for the self, but to promote the well-being of others or prevent harm to them. Although people sometimes behave altruistically toward others for selfish reasons—to relieve their own distress or obtain social goods such as admiration or love, for example—people sometimes want to support others to promote others' well-being (Batson, 1998; Brown, Brown, & Penner, 2011; Mikulincer & Shaver, 2010).

Compassionate goals implicitly or explicitly involve caring. People with compassionate goals search for ways to get their needs met in collaboration with other people, or in ways that do not harm others. Consequently, when people have compassionate goals, they tend to feel cooperative with others and view desired outcomes as having a nonzero-sum or win-win quality. That is, they assume that success for one person need not detract from others. They feel a sense of responsibility for others and view themselves as a starting point or source of others' well-being.

Compassionate goals are typically energized by a motivational system we call the *ecosystem* (Crocker et al., 2009). We draw on the biological notion of an ecosystem as a metaphor for a perspective in which the self is part of a larger whole, a system of separate individuals whose actions nonetheless have consequences for others, with repercussions for the entire system, that ultimately affect the ability of everyone to satisfy their needs (Crocker et al., 2009). In the interpersonal ecosystem, people see themselves and their own needs and desires as part of a larger system of interconnected people (and perhaps other creatures) in which the well-being of one depends on the well-being of others, and the entire system. In this system, people take others' needs and desires into account because others' needs are as important as their own. In this system, people recognize that satisfying their own needs and desires at the expense of others inevitably has costs to the system and ultimately themselves. Ecosystem motivation is not selfless, self-sacrificing, or self-disparaging. Rather, because the self is part of the ecosystem, the

needs of the self are as important as the needs of others. The others included in the ecosystem may be outgroup as well as ingroup members and acquaintances and strangers as well as friends and family members, depending on the interconnections among people. Thus, ecosystem motivation can extend beyond communal relationships and ingroup members and may include those who are different from or even those in conflict with oneself.

Like the egosystem, ecosystem motivation is part of the human condition; everyone has this motivation at times, although some people more than others (Brown & Brown, 2006; Brown et al., 2011). The ecosystem is activated when people trust that their needs will be met in collaboration with their environment, or people are reminded what they care about beyond themselves and their egos (Crocker et al., 2009). Personality characteristics such as empathic concern; interpersonal styles such as secure attachment, situations of abundance, or psychological safety; or other people's compassionate goals may lead people to conclude that their needs can be met in collaboration with others, and so may trigger ecosystem motivation. Calm, positive emotional states, such as contentment, love, and high self-esteem, could also foster ecosystem motivation, if they signal that one's own needs are being met.

In theory, people can have self-image goals energized by egosystem motivation or compassionate goals energized by ecosystem motivation for virtually any activity and with any political orientation or occupation, depending on whether they prioritize satisfaction of their own needs and desires over others' or genuinely care about and want to support others' well-being. Although people often pursue important outcomes such as getting a job or gaining admission to college with self-image goals, they could pursue these same outcomes with compassionate goals focused on making a contribution and supporting others. That is, people with self-image goals and those with compassionate goals could be doing the same things or pursuing the same outcomes, while approaching their behavior or outcomes with different intentions toward other people.

People may have mixed or confused goals when they not only care about the well-being of others but also want to create desired images and avoid dreaded images. For example, people may have compassionate goals to support others and simultaneously want to ensure that others see them as helpful or nice. The distinction between having a compassionate goal and being a nice person is subtle but important. A compassionate goal focuses on improving the well-being of another, whereas the goal to be nice focuses on building or reinforcing the image of being a nice person in one's own and others' eyes. Whereas compassionate goals are about others' well-being, self-image goals, even goals to be virtuous or nice, are about oneself. Similarly, compassionate goals are not the same as the goal to make other people feel good or avoid upsetting them. Sometimes people who care about the well-being of others feel compelled to say or do things that will

upset others, because to do otherwise could be harmful. Consider a parent whose child has a drug or alcohol problem, an advisor whose graduate student exhibits counterproductive behavior, a spouse who has concerns about a partner's behavior, or an employee who believes a coworker's behavior creates safety issues. In each of these cases, compassionate goals may prompt the person to raise difficult or uncomfortable issues, risking the displeasure or unhappiness of others, for the sake of the well-being of another person, or a group of people.

2. MEASUREMENT OF SELF-IMAGE AND COMPASSIONATE GOALS

Our research on self-image and compassionate goals began with developing measures of the goals (Canevello & Crocker, 2010, Study 1; Crocker & Canevello, 2008, Study 1; Crocker, Canevello, Breines, & Flynn, 2010, Study 1). Self-image and compassionate goals should be reflected in what people attempt or intend to do, not in the success of their attempts. Accordingly, we assess self-image goals by asking people how much they want to or try to do such things as get others to recognize their positive qualities and avoid showing their weaknesses, and we assess compassionate goals by asking people how much they want to or try to do such things as be supportive and constructive and avoid harming others. To avoid confounds with approach and avoidance goals, we included approach and avoidance items in both measures. The goals items can be tailored to specific relationships or domains (e.g., “in your relationship with your roommate,” “in academics,” or “at work”) and to varying time frames (e.g., “right now,” “today,” “in the past week,” or “in general”).

In our first study, 204 first-semester college freshmen participated in a 10-week study of goals and adjustment to college. Participants entered the study within the first 3 weeks of the fall semester and completed a total of 12 surveys—one at pretest, one each week for 10 weeks, and one at posttest. We measured compassionate and self-image goals for friendships in each of the weekly surveys. The measures were internally consistent in each of the weekly surveys (compassionate goals: $0.83 < \alpha < 0.93$, $M_\alpha = 0.90$; self-image goals: $0.77 < \alpha < 0.89$, $M_\alpha = 0.83$) and showed moderate test-retest reliability from weeks 1 to 10 (compassionate goals: $r = 0.55$, $p < 0.001$; self-image goals: $r = 0.51$, $p < 0.001$).

Consistent with the idea that people can have both goals simultaneously, compassionate and self-image goals correlated positively ($r = 0.53$, $p < 0.001$), so we include them as simultaneous predictors in regression analyses to identify their unique effects.

2.1. Correlates of individual differences in compassionate and self-image goals

We next explored whether people differ in their chronic tendency to have self-image and compassionate goals, and if so, what types of people tend to have each of the goals. In the pretest survey, we included measures of several individual differences that might correlate with the goals. We computed chronic individual difference measures of the goals by averaging scores across the 10 weekly surveys. Entering both goals together as predictors of the individual difference measures and controlling for gender and social desirability, we found that compassionate and self-image goals for friendships showed unique associations with personality characteristics, views of the self, and relationship beliefs and styles (Crocker & Canevello, 2008, Study 1).

The results supported our view that compassionate goals reflect ecosystem motivation. Participants with more compassionate goals had more self-compassion and nonzero-sum beliefs that success for one person need not detract from others. They were higher in spiritual transcendence, reflecting the belief that all life is interconnected, a sense of shared responsibility for others, and a sense of personality responsibility to others across generations and within a community. In contrast, self-image goals seemed to reflect egosystem motivation. Participants with more self-image goals felt more entitled, had less self-compassion, and believed that success for one person detracts from others in a zero-sum way. They had more anxious and avoidant attachment styles in romantic relationships and higher public self-consciousness, indicating a focus on how the self is viewed by others.

Taken together, these results suggest that individual differences in compassionate goals relate to a constellation of personality traits and beliefs consistent with a chronic tendency toward ecosystem motivation, whereas individual differences in self-image goals relate to traits and beliefs consistent with a chronic tendency toward egosystem motivation.

2.2. Compassionate goals and other prosocial orientations

Compassionate goals bear a surface resemblance to many other constructs, particularly in the relationships literature. For example, compassionate goals seem similar to compassionate love (Sprecher & Fehr, 2005), empathic concern (Davis, 1983), communal orientation (Clark, Oullette, Powell, & Milberg, 1987), communion (Spence, Helmreich, & Holahan, 1979), unmitigated communion (Fritz & Helgeson, 1998), and community and affiliation aspirations (Grouzet et al., 2005). Despite their similarities, a careful inspection of the content of the items in measures of these various constructs suggested to us that they were each distinct from, although likely correlated with, compassionate goals. To test our impressions, we

administered all of these measures in a cross-sectional study of 571 undergraduates (Canevello & Crocker, 2011d). As expected, compassionate goals correlated positively with each of these constructs ($0.36 \leq r_s \leq 0.53$). However, item-level factor analyses suggested that compassionate goals were not identical to any of them; the compassionate goal items loaded together on one factor and separate from items on these other measures.

We also included a number of outcome or criterion measures, including zero-sum beliefs (Crocker & Canevello, 2008), at the source beliefs (i.e., perceiving oneself to be the source or starting point of positive relationships), altruism (Rushton, Chrisjohn, & Fekken, 1981), personal growth goals (Mischkowski, Crocker, Niiya, & Canevello, 2011), relational-interdependent self-construals (Cross & Vick, 2001), and autonomous causality orientation (Deci & Ryan, 1985), to test whether compassionate goals explain unique variance in any of these outcomes. When we entered compassionate goals simultaneously with compassionate love, empathic concern, communal orientation, communion, unmitigated communion, and community and affiliation aspirations as predictors in multiple regression analyses, only compassionate goals significantly predicted unique variance in all of the outcome measures. Specifically, people higher in compassionate goals had less zero-sum beliefs, and greater at the source beliefs, altruism, personal growth goals, relational-interdependent self-construals, and autonomous causality orientation. Thus, although compassionate goals correlate with other measures of prosocial orientations, they load on a separate factor than similar-sounding constructs and predict variance in several outcomes above and beyond what these other constructs predict. These findings indicate that our measure of compassionate goals captures something unique about people's orientation toward interpersonal relationships.

3. SELF-IMAGE AND COMPASSIONATE GOALS AND SUBJECTIVE EXPERIENCE: THE GOALS AND ADJUSTMENT TO COLLEGE STUDY

If people create their experience through their interpersonal goals, then fluctuations in people's self-image and compassionate goals from week to week should predict their relationship experiences and their emotional states on those weeks. Further, people who are chronically high in self-image and compassionate goals may create long-term change in their relationship experiences and emotional states from the beginning to the end of the first semester of college. Because we followed participants across 10 weeks in the Goals and Adjustment to College Study, we could test both of these possibilities. Because self-image and compassionate goals were correlated, we always enter them together as predictors, to examine their

unique effects. We also test whether the effects of one goal depend on whether the other goal is high or low; unless mentioned, these interaction effects were not significant.

3.1. Within-person fluctuations in goals and weekly relationship experiences

We expected that when people's compassionate goals increased, they would create a constellation of relationship experiences including feelings of responsibility for other's well-being, feeling connected to others and less lonely, and having less conflict with others. On the other hand, when people's self-image goals increased, we thought they would create a different and more negative constellation of relationship experiences, including feeling that people should take care of themselves, feeling disconnected and lonelier, and having more conflict with others.

The weekly surveys include several items assessing these relationship experiences. In each weekly survey, participants rated how often in the past week they felt it was important that people look out for one another, and how often they felt it was important to look out for themselves, even at the expense of others. They rated how often they felt close to others and how often they felt lonely. Finally, they rated how often they had conflicts with others.

Consistent with the idea that increases in compassionate goals are linked to shifts toward ecosystem motivation, on weeks participants' compassionate goals were higher than usual, they felt more strongly that people should take care of each other and less strongly that people should take care of themselves, even at the expense of others. They also felt closer to others, less lonely, and had less frequent conflicts on those weeks.

Consistent with the idea that increases in self-image goals are linked to egosystem motivation, on weeks participants' self-image goals were higher than usual, they felt more strongly that people should take care of themselves, even at the expense of others. They also felt lonelier, and had more conflicts with people on those weeks.

Taken together, these findings suggest that compassionate and self-image goals are not merely personality traits that cannot change; they are also psychological states that can fluctuate from week to week. Further, these findings fit our idea that through their goals, people create their relationship experiences, including feelings of closeness and loneliness, feeling responsibility for others' well-being, and the frequency of perceived conflicts. They provide preliminary support for the view that people might be able to create more of what they want—more connection and less loneliness, and feel more aligned and less at odds with other people—merely by shifting from self-image to compassionate goals.

3.2. Emotional clarity versus confusion

We hypothesized that goals shape not only relationship experiences but also emotional experience within relationships. Specifically, we hypothesized that when people have compassionate goals, they feel more cooperative with others, which leads to greater emotional clarity, and when people have self-image goals, they feel more competitive with others, which leads to greater emotional confusion.

In the Goals and Adjustment to College Study, we asked participants to write down their most important goal for friendships each week and rate how having that goal made them feel. We included items that reflect emotional clarity (i.e., peaceful, connected to others, cooperative, loving, clear, present, empathic, and engaged, $\alpha=0.91$) and emotional confusion (i.e., fearful, ambivalent/conflicted, pressured, distracted, confused, critical, isolated, and competitive, $\alpha=0.90$). We tested whether within-person fluctuations in compassionate and self-image goals were associated with feelings of cooperation and competition and emotional clarity and confusion, respectively, that same week.

On weeks when participants were high in compassionate goals compared to their own baseline, they reported that their most important friendship goal made them feel more cooperative, more emotional clarity, and less emotional confusion. On weeks participants were high in self-image goals relative to their own average, they reported that their most important friendship goal made them feel more competitive and emotionally confused.

These findings provide further evidence that, as people's goals change, their experience also changes. In this case, increased self-image goals appear to create feelings of competition with others, along with emotional confusion, whereas compassionate goals appear to create feelings of cooperation with others, along with emotional clarity. Perhaps people could feel more how they want to feel—greater emotional clarity and less emotional confusion—merely by shifting from self-image to compassionate goals.

3.3. Perceived available social support and trust

The finding that self-image and compassionate goals relate to feeling responsible for others' well-being suggests that over time interpersonal goals might shape the support people perceive is available to them and their trust in other people. We hypothesized that, over time, participants who chronically have compassionate goals for friendships perceive that more support is available to them and develop more interpersonal trust. We were less sure of the effect of self-image goals; they might predict decreases in perceived available support and trust, or they might interact with compassionate goals, attenuating their beneficial effects.

In the Goals and Adjustment to College Study, we included measures of perceived available social support (Zimet, Dahlem, & Zimet, 1988) and interpersonal trust (Garner, Olmstead, & Polivy, 1983) in the pretest and posttest surveys. We tested whether chronic compassionate and self-image goals predict residual change in perceptions of available social support and interpersonal trust from pretest to posttest (Crocker & Canevello, 2008, Study 1). As expected, chronic compassionate goals predicted increases in perceived available support from friends and significant others and trust from pretest to posttest. This effect was attenuated when participants were high in chronic self-image goals (see Fig. 5.1).

We cannot tell from these findings whether participants who had high chronic compassionate goals and low chronic self-image goals actually received more support from others, or if more support was really available to them at the end of the first semester of college. Interpersonal goals might shape participants' experiences of available support, without changing the reality of their supportive relationships. We addressed this issue in a subsequent study, described later.

These findings *do* add to the evidence that interpersonal goals predict change in how people experience their social worlds—in this case, how much support they think is available to them. In contrast to the findings that within-person fluctuations in goals from week to week predict relationship experiences that week, these findings indicate that chronic goals can predict relatively long-term change in relationship experiences such as perceived available support and trust. Because perceived available support is an important predictor of physical and mental health (Cohen & Wills, 1985), these findings suggest that people might be able to create the perception that support is available to them and perhaps improve their physical and mental health, merely by shifting from self-image to compassionate goals.

3.4. Symptoms of anxiety and depression

If chronic goals predict change in perceived available support over 10 weeks, they might also predict change in symptoms of emotional disorders, specifically anxiety and depression. Previous research has demonstrated that aspects of goals such as whether they focus on promotion versus prevention (Strauman, 1989), growth-seeking versus validation (Dykman, 1998), or intrinsic versus extrinsic self-regulation (Sheldon, Ryan, Deci, & Kasser, 2004) predict change in symptoms of depression and anxiety.

In light of our findings that interpersonal goals correlate with emotional and relationship experiences and predict change in perceived available support, we hypothesized that self-image and compassionate goals also predict change in symptoms of depression and anxiety. Specifically, we expected that participants with chronic self-image goals would show increased symptoms of depression and anxiety, whereas participants with

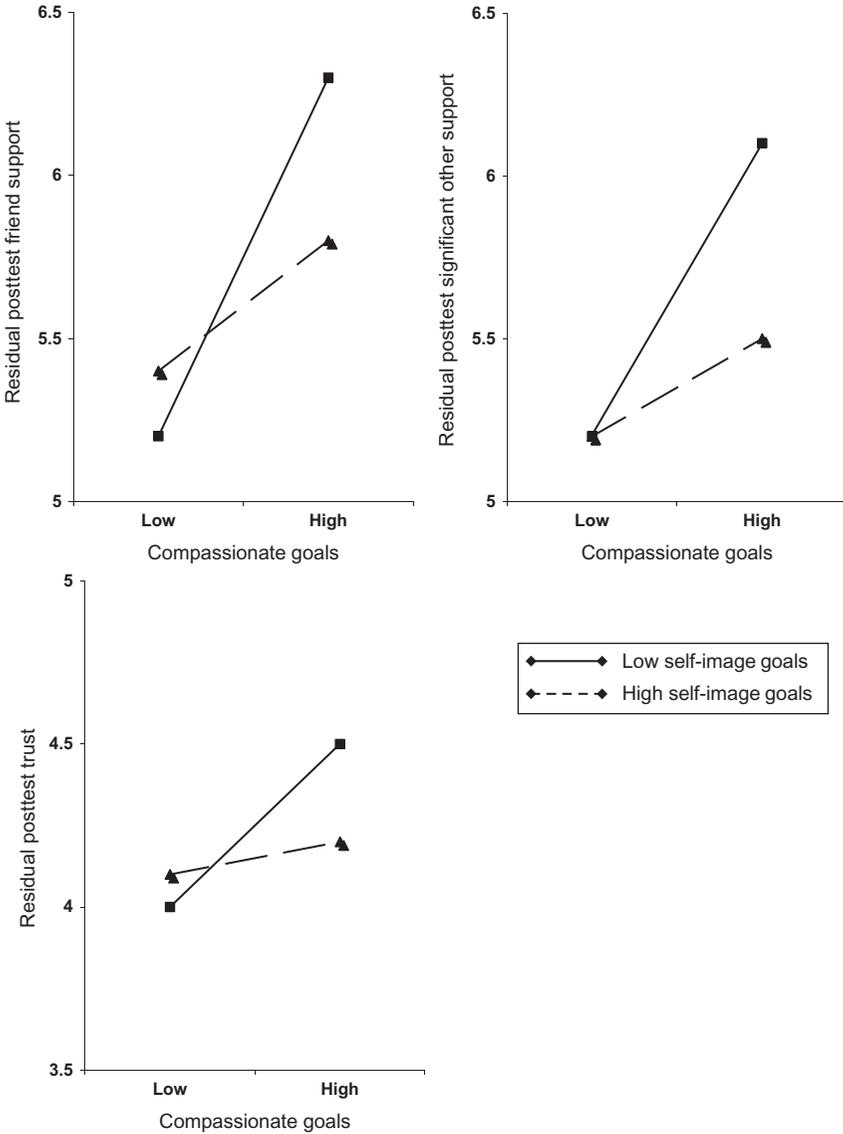


Figure 5.1 Compassionate goals predicting residual posttest social support from friends and significant others and trust at lower and higher levels of self-image goals in the Goals and Adjustment to College Study. Means are plotted at 1SD above and 1 SD below the mean for self-image goals and compassionate goals.

chronic compassionate goals would show decreased symptoms of depression and anxiety.

We included a measure of trait anxiety (Spielberger, Vagg, Barker, Donham, & Westberry, 1980) and the CES-D depression inventory

(Radloff, 1977) in the pretest and posttest questionnaires of the Goals and Adjustment to College Study. We examined whether participants' chronic compassionate and self-image goals predict residual change in their symptoms of depression and anxiety from pretest to posttest (Crocker et al., 2010, Study 1). As expected, participants chronically high in self-image goals for friendships showed increased symptoms of depression and anxiety, whereas participants chronically high in compassionate goals showed decreased symptoms of depression and anxiety.

Thus, compassionate and self-image goals predict not only participants' concurrent emotional state but also long-term changes in symptoms of depression and anxiety. Once again, these findings fit our view that through their goals, people create what they experience. In this case, goals appear to contribute to long-term changes in mental health. Perhaps people could improve their mental health merely by shifting from self-image to compassionate goals.

3.5. Summary

Taken together, these findings support the idea that self-image goals reflect an egosystem perspective, whereas compassionate goals reflect an ecosystem perspective on the self in relation to others. Further, they suggest that goals shape many aspects of experience, from short-term fluctuations in emotional confusion versus clarity, to change over 10 weeks in interpersonal trust, perceived available social support, and symptoms of anxiety and depression.

However, we cannot determine whether these findings result from intrapsychic or interpersonal processes. All of the analyses described thus far show that people's goals predict their affective and subjective relationship experiences, but they do not test whether other people actually contribute to this experience. Thus, our findings could reflect a strictly intrapsychic process, in which goals directly shape what people experience. Alternatively, interpersonal processes not measured in the Goals and Adjustment to College Study might account for at least some of these effects, and other effects of goals might completely depend on interpersonal processes. Do peoples' goals shape their experiences independent of how other people respond, or do they shape experiences through their effects on other people? Our next longitudinal study addressed this question.



4. CONSEQUENCES OF SELF-IMAGE AND COMPASSIONATE GOALS IN ROOMMATE RELATIONSHIPS: THE ROOMMATE GOALS STUDY

The Roommate Goals Study examined the consequences of interpersonal goals for both the self and a relationship partner (Canevello & Crocker, 2010, Study 2; Crocker & Canevello, 2008, Study 2). By studying

participants and a relationship partner, we could determine how much of the effects of self-image and compassionate goals on participants' own experience happens intrapsychically and how much happens interpersonally.

First-semester college roommates are ideal for studying the role of interpersonal goals in relationship dynamics. The first semester of college is a time of change and disruption to social networks. Roommates can play a significant role in students' adjustment to college. They may be the first people that students meet when they arrive on campus and roommates may spend significant amounts of time together. The roommates in our studies did not know each other before living together, so their relationships were relatively unbiased by past interactions. Students also did not self-select into their roommate relationships; the university housing staff matched them only on gender, smoking habits, and dormitory preference.

Sixty-five roommate pairs (130 participants) were recruited within the first 6 weeks of the fall semester of their first year of college. Each participant completed a pretest, a posttest, and 21 daily surveys, providing a detailed snapshot of their daily lives and experiences in the roommate relationship. The design allowed us to examine within-day associations, testing whether fluctuations in participants' goals around their own average predicted their own and their roommates' experiences that same day, while removing the effects of individual differences between participants. The daily measures also afforded the opportunity to test whether participants' goals one day predicted change in their own and their roommates' experiences the following day, and how relationship processes unfolded across several days using lagged-day analyses. We could also test the consequences of participants' chronic goals averaged across the 21 days for their relationships from pretest to posttest. Both lagged-day analyses and tests of whether chronic goals predict change from pretest to posttest address the plausibility of causal associations over the time period under investigation.

The dyadic nature of this study added a dimension of richness to these data. First, we could address issues of the accuracy of self-reports by using roommates' reports to corroborate participants' self-reported behavior. Further, the dyadic, longitudinal design allowed us to examine the intricacies of relationship dynamics across different time frames. That is, we could test how participants affected their roommates, who could, in turn, affect participants, and we could examine roommates' mutual influence on each other within days, from day to day and across 3 weeks. Note that there is nothing special about which person is called the participant and which is called the roommate; the dyads are indistinguishable, in the language of dyadic data analysis. In fact, in the statistical analyses we conducted, everyone is both a "participant" and a "roommate." When we find that participants' goals affect their roommates' experience, it means that roommates' goals also affect participants' experience.

We measured participants' compassionate and self-image goals for their roommate relationships at pretest, posttest, and daily using items derived from those used in our first study. Pretest and posttest items began with the phrase, "In my relationship with my roommate, I want/try to"; daily items began with the phrase, "Today in my relationship with my roommate, I wanted/tried to." As in first study, we included approach- and avoidance-oriented items in each scale. The goal measures showed good reliability at pretest (self-image: $\alpha=0.80$; compassionate: $\alpha=0.84$), posttest (self-image, $\alpha=0.87$; compassionate, $\alpha=0.93$), and on each of the days (self-image: $0.75 < \alpha < 0.87$, $M_\alpha=0.83$; compassionate: $0.88 < \alpha < 0.96$, $M_\alpha=0.94$). As in Study 1, chronic compassionate and self-image goals were positively correlated ($r=0.28$, $p < 0.001$).

In these data, we tested whether and how participants' interpersonal goals predict change in their affect toward their roommates and their relationship security. We also tested how participants' goals contribute to interpersonal support and responsiveness dynamics within the relationship. Finally, we examined the consequences of these processes for both participants' and their roommates' beliefs about relationships, relationship quality, and future goals.

4.1. Emotional clarity versus confusion

As reported previously, in the Goals and Adjustment to College study we found that on weeks participants had compassionate goals, they felt more cooperative and emotionally clear, whereas on weeks they had self-image goals, they felt more competitive and emotionally confused. In the Roommate Goals Study, participants rated their feelings of cooperation and competition and their feelings of emotional clarity (i.e., clear and peaceful) and confusion (i.e., conflicted, confused, and fearful) *when interacting with their roommate*, in each of the 21 daily surveys. We used these data to extend our previous findings in several ways (Crocker, Canevello, & Liu, 2011, Study 1). First, we tested whether goals predict change in emotional experience when interacting with roommates through changing feelings of competition and cooperation. Second, we examined these associations over time, testing whether goals one day predict residual change in cooperative and competitive feelings the following day, which, in turn, predict residual change in emotional clarity and confusion on the third day. Third, we tested whether roommates' goals predict change in participants' feelings of competition and cooperation and emotional clarity and confusion, which would indicate an interpersonal process.

We predicted that Day 1 compassionate goals predict increased feelings of cooperation on Day 2, which, in turn, predict increased emotional clarity on Day 3. Similarly, we predicted Day 1 self-image goals predict increased feelings of competition on Day 2, which, in turn, predict increased

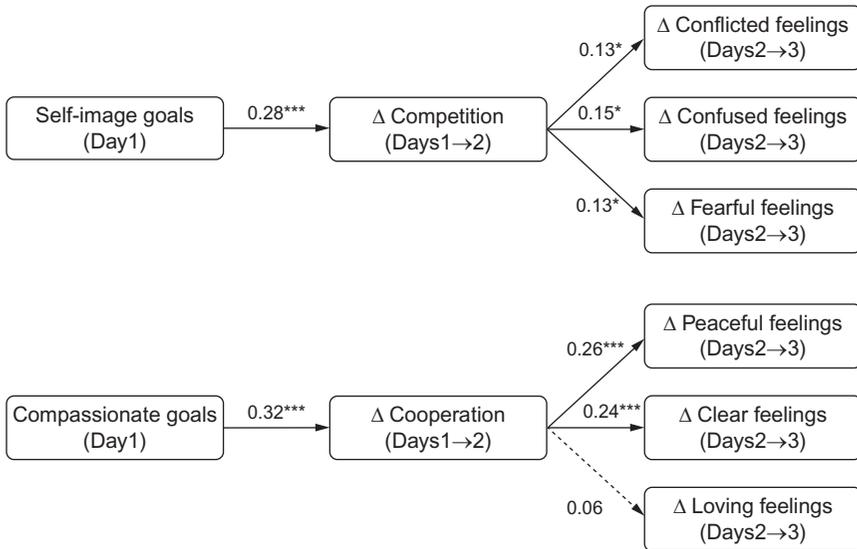


Figure 5.2 Path coefficients for associations between Day 1 self-image and compassionate goals, change in competition and cooperation from Day 1 to Day 2, and change in conflicted, confused, fearful, peaceful, clear, and loving feelings from Day 2 to Day 3 in the Roommate Goals Study. *Note:* All estimates are partial correlations. *** $p < 0.001$ * $p < 0.05$.

emotional confusion on Day 3. We tested these lagged associations using every 3-day sequence in the data. As the top half of Fig. 5.2 shows, self-image goals Day 1 predicted increased competitive feelings toward roommates from Day 1 to Day 2, which in turn predicted increased emotional confusion when interacting with the roommate from Day 2 to Day 3. As the bottom half of Fig. 5.2 shows, compassionate goals 1 day predicted cooperative feelings toward roommates from Day 1 to Day 2, which, in turn, predicted increased emotional clarity when interacting with the roommate from Day 2 to Day 3.

We next examined whether roommates' goals predict change in participants' feelings of competition and cooperation and emotional clarity and confusion, beyond the effects of participants' own goals on participants' feelings. The Actor–Partner Interdependence Model provides a method of testing the independent effects of participants' and roommates' predictors on participants' outcomes. In other words, it allowed us to test associations between roommates' goals and participants' feelings, controlling for the effect of participants' goals on their own feelings (Campbell & Kashy, 2002; Kashy & Kenny, 2000; Kenny, Kashy, & Cook, 2006). We entered participants' and their roommates' goals simultaneously as predictors. Roommates' goals did not predict change in participants' cooperative or

competitive feelings or in emotional clarity or confusion, above and beyond the effects of participants' own goals.

In sum, participants' goals predict change in their affective experience 2 days later, consistent with the hypothesis that in roommate relationships, compassionate goals foster cooperative feelings, which, in turn, engender emotional clarity, whereas self-image goals foster competitive feelings, which, in turn, engender emotional confusion. Further, these experiences are predicted by participants' own goals, not the goals of their roommates. Thus, participants seem to be creating their own subjective experience of cooperation and competition and emotional clarity and confusion when interacting with their roommates; these states do not seem to be reactions to roommates' goals.

4.2. Relationship security

We next examined whether, over time, self-image and compassionate goals predict change in feelings of security in roommate relationships. According to attachment theory, relationship insecurity takes two forms, anxiety and avoidance (e.g., Bowlby, 1969; Mikulincer & Shaver, 2003). When people feel relationship anxiety, they want close relationships but worry that others do not care for them or want to be close. When people feel relationship avoidance, they are reluctant to get close to others and create emotional distance from others. Both of these responses have negative consequences for relationship beliefs, perceptions, and behaviors (see Mikulincer & Shaver, 2003 for a review). Although attachment anxiety and avoidance are typically studied in romantic or parent–child relationships, we suspected that anxiety and avoidance also occur in roommate relationships.

We hypothesized that, over time, participants with chronic compassionate goals for their roommate relationship develop greater security in the relationship, whereas participants with chronic self-image goals become more anxious and avoidant in the relationship. We reasoned that the feelings of closeness, perceived available support, and cooperation associated with high compassionate goals result in decreased worry about whether their roommate cares about them and wants to be close to them (i.e., anxiety) and decreased discomfort with closeness (i.e., avoidance). In contrast, when participants have chronically high self-image goals, their efforts to control how others view them make them simultaneously more anxious about whether others care for them and want to be close (i.e., relationship anxiety increases) and more uncomfortable with closeness, which could enable others to see their weaknesses and shortcomings (i.e., relationship avoidance increases).

To assess anxiety and avoidance in roommate relationships, the pretest and posttest surveys of the Roommate Goals Study included a measure of attachment anxiety and avoidance in romantic relationships (Brennan,

Clark, & Shaver, 1998) adapted to be appropriate for roommate relationships. The measures were reliable at both pretest and posttest ($0.85 \leq \alpha \leq 0.90$). Sample items included “I need a lot of reassurance that my roommate likes me,” “I worry that my roommate doesn’t like me as a person” (relationship anxiety), “I feel comfortable sharing my private thoughts and feelings with my roommate” (reversed), and “I don’t feel comfortable opening up to my roommate” (relationship avoidance). We tested whether chronic goals predict residual change in anxiety and avoidance in roommate relationships from pretest to posttest (Canevello, Granillo, & Crocker, 2011, Study 1).

We hypothesized that compassionate goals predict increased relationship security (i.e., decreased anxiety and avoidance), whereas self-image goals predict decreased relationship security (i.e., increased anxiety and avoidance). As expected, chronic compassionate goals predicted decreased relationship anxiety and avoidance (i.e., increased security) from pretest to posttest; chronic self-image goals predicted increased relationship anxiety and avoidance (i.e., decreased security). These findings suggest that chronic goals create or undermine relationship security across several weeks.

When we added roommates’ compassionate and self-image goals as predictors, roommates’ goals did not predict change in security beyond participants’ own goals. This finding suggests that relationship security is a function of people’s own goals, not the goals of their relationship partner, consistent with the idea that through their interpersonal goals, people create what they experience.

So far, the findings we have described suggest that interpersonal goals shape what people feel in their relationships through intrapsychic processes. That is, entering both people’s goals simultaneously as predictors, one roommate’s goals do not predict change in the other roommate’s affective experience. We next examined what people *do* in their roommate relationships—the support they give and receive, and their responsiveness to roommates and their roommates’ responsiveness to them—and examined the dynamics of these transactions.

4.3. Support given and received

As noted previously, in the Goals and Adjustment to College Study we found that chronic compassionate and self-image goals interact to predict change in perceived available social support across 10 weeks. However, in that study, we could not determine whether the change in perceived available support was simply in participants’ minds, or whether they actually received more support from others.

The Roommate Goals Study provided an opportunity to examine this issue (Crocker & Canevello, 2008, Study 2). The pretest and posttest surveys included brief measures of social support received from and given

to the roommate based on the Inventory of Socially Supportive Behaviors (Barrera, Sandler, & Ramsay, 1981). Participants indicated how often in the past week their roommates did things such as “pitched into help you do something that needed to get done” and “loaned or gave you something that you needed (e.g., money or other physical object or provided you with transportation).” A parallel set of items assessed how often participants provided these same types of support to their roommate during the previous week. Both the measure of support received and the measure of support given had high internal reliability at both pretest and posttest (all α s=0.94).

We examined whether participants’ chronic goals predict change in their own reports of social support given and received from pretest to posttest and whether participants’ goals predict change in their roommates’ reports of social support received and given, controlling for roommates’ goals (Crocker & Canevello, 2008). If compassionate and self-image goals operate entirely intrapsychically, we would expect participants’ goals to interact to predict change in the social support they report receiving from their roommates, but participants’ goals should not predict change in roommates’ reports of social support received from or given to participants. Alternatively, if the effects are interpersonal, participants’ goals should interact to predict changes in roommates’ reports of social support received from and given to participants.

The results indicated that the effect of compassionate goals on change in social support is not just in participants’ minds. Participants’ compassionate goals predicted increases in the support participants said they gave to roommates; this effect was not moderated by participants’ self-image goals. However, participants’ chronic goals interacted to predict change in roommates’ reports of support received from and given to participants from pretest to posttest (see Fig. 5.3). The pattern of the interaction was consistent with the results of the Goals and Adjustment to College Study; controlling for roommates’ goals, participants’ compassionate goals predicted increases in roommates’ reports of social support received from and given to participants when participants had low chronic self-image goals, but not when participants reported high chronic self-image goals.

We also examined how, though their goals, participants create the support they receive from roommates. We tested a path model in which participants’ goals interact to predict change in the support roommates receive from participants, which, in turn, predicts change in the support roommates give to participants, which, in turn, predicts change in the support participants receive. The results, depicted in Fig. 5.4, are consistent with the idea that participants with high compassionate and low self-image goals perceive that they receive increased support from roommates because their roommates feel more supported and give increased support in return.

These findings are important for a number of reasons. First, they are the first to show that one person’s interpersonal goals predict change in another

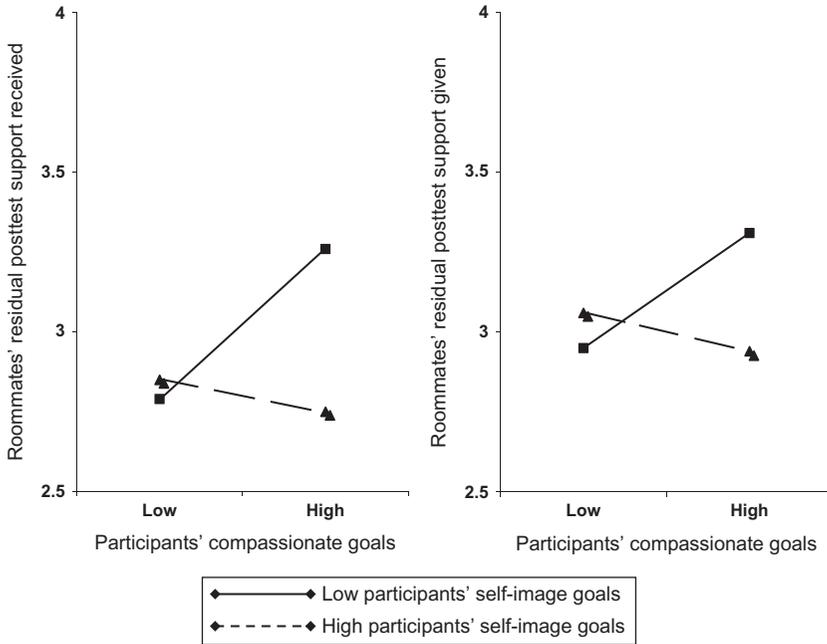


Figure 5.3 Participants’ compassionate goals predicting roommates’ residual posttest social support received and given at lower and higher levels of participants’ self-image goals in the Roommate Goals Study. Means are plotted at 1 SD above and 1 SD below the mean for participants’ self-image goals and compassionate goals.

person’s experience—in this case, social support received and given. Second, they suggest that self-image and compassionate goals actually shape how people behave in relationships. Third, they suggest a pernicious undermining effect of self-image goals; participants’ compassionate goals predict increases in relationship partners’ reports of support received only when participants had low self-image goals. This moderating effect suggests that when participants have high self-image goals, either they do not actually give more support or they give support in a way that is not experienced as

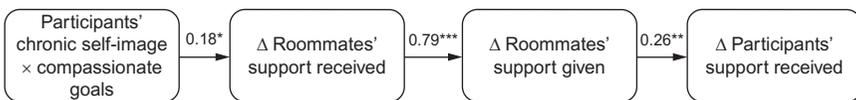


Figure 5.4 Path analyses of the effects of participants’ Compassionate \times Self-image Goals on change in roommates’ social support received and given and change in participants’ support received in the Roommate Goals Study. *Note:* All estimates are partial correlations. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

supportive by their partners. Finally, the path model we tested suggests how, through their goals, people can create not just the perception that support is available to them but also relationship partners who are actually more supportive.

4.4. Responsiveness and relationship quality

Because our analyses of interpersonal goals and social support transactions focused on chronic goals and change from pretest to posttest, they do not provide a closeup view of interpersonal goals and the day-to-day dynamics of roommate relationships. Our next analyses examined interpersonal goals and the dynamics of responsiveness in roommate relationships and their implications for the quality of roommate relationships (Canevello & Crocker, 2010).

Relationship quality depends on beliefs about a relationship partner's responsiveness—that is, on the perception that a partner understands, values, and supports important aspects of the self. People who perceive their relationship partners as responsive feel close, satisfied, and committed to those relationships (Reis, Clark, & Holmes, 2004). Responsive relationship partners convey understanding, validation, and caring (Gable, Reis, Noller, & Feeney, 2006). They are warm, are sensitive to their partners' feelings, and want to make their partners feel comfortable, valued, listened to, and understood. Responsiveness is distinct from social support; social support can be either responsive or unresponsive to recipients' needs (Collins & Feeney, 2006).

We predicted that participants with compassionate goals are more responsive to their roommates, whereas participants with self-image goals are less responsive to their roommates. Further, we predicted that roommates notice change in participants' responsiveness, which predicts change in roommates' relationship quality. In contrast to our findings with social support, we did not expect self-image goals to interact to predict change in roommates' perceptions of participants' responsiveness; rather, we hypothesized that self-image goals directly undermine responsiveness because participants with self-image goals are not attuned to the needs of their roommates.

Each day, participants reported their responsiveness to roommates and perceptions of roommates' responsiveness (Cutrona, Hessling, & Suhr, 1997; Gore, Cross, & Morris, 2006). They reported their responsiveness to roommates by rating items such as "I did things to show my roommate that I care about him/her" and "I was sincere when I interacted with my roommate." A parallel set of items assessed participants' perceptions of their roommates' responsiveness. Each scale showed good reliability across days (responsiveness: $0.89 < \alpha < 0.95$, $M_{\alpha} = 0.93$; perceptions of roommates' responsiveness: $0.84 < \alpha < 0.92$, $M_{\alpha} = 0.89$).

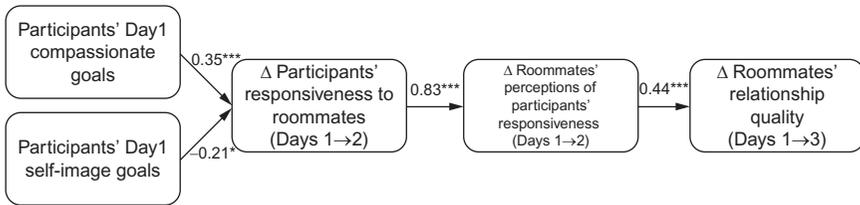


Figure 5.5 Path analyses of the effects of participants' compassionate and self-image goals on responsiveness dynamics and roommate's relationship quality across 3 days in the Roommate Goals Study. *Note:* All estimates are partial correlations. *** $p < 0.001$, * $p < 0.05$.

We examined these associations across 3-day intervals in lagged-day analyses. A path model, depicted in Fig. 5.5, showed that participants' goals on Day 1 predicted change in their responsiveness to roommates from Day 1 to Day 2: compassionate goals predicted increased responsiveness, whereas self-image goals predicted decreased responsiveness. Change in participants' responsiveness to roommates predicted change in roommates' perceptions of participants' responsiveness from Day 1 to Day 2; in other words, roommates were aware of change in participants' responsiveness. Change in roommates' perceptions of participants' responsiveness, in turn, predicted increases in roommates' reports of their relationship quality (a composition of closeness, satisfaction, and commitment) from Day 1 to Day 3.

These findings suggest that, through their compassionate and self-image goals, people in close relationships shape others' relationship satisfaction, closeness, and commitment. Responsiveness is one process through which these effects occur.

4.5. Contagion of goals

We next examined whether interpersonal goals are contagious, that is, whether one person's chronic goals predict change in their relationship partner's goals. We hypothesized that the responsiveness dynamics through which participants' goals influence their roommates' relationship quality might also lead roommates to develop more compassionate and less self-image goals for the relationship (Canevello & Crocker, 2010, Study 2).

We examined contagion of goals in the Roommate Goals Study by testing whether participants' chronic goals (averaged across the 21 daily reports) predict change in roommates' goals from pretest to posttest. As expected, participants' chronic compassionate goals directly predicted increases in roommates' compassionate goals from pretest to posttest, $pr = 0.57$, $p < 0.001$, and participants' chronic self-image goals directly predicted increases in roommates' self-image goals, $pr = 0.19$, $p < 0.05$.

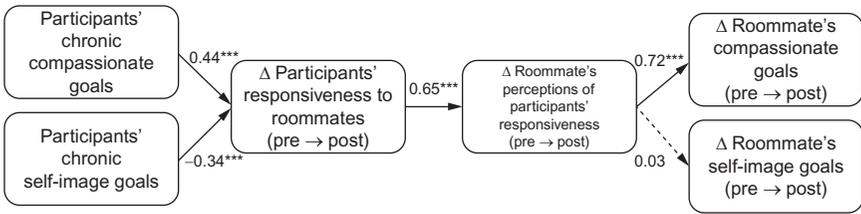


Figure 5.6 Path analyses demonstrating compassionate goal contagion, through responsiveness from pretest to posttest in the Roommate Goals Study. *Note:* All estimates are partial correlations. *** $p < 0.001$, ** $p < 0.01$, * $p < .05$.

We next tested whether contagion of goals occurs through responsiveness transactions (i.e., participants' increased responsiveness and roommates' perceptions of participants' increased responsiveness). As the path model depicted in Fig. 5.6 shows, participants' chronic compassionate goals predicted increases and self-image goals predicted decreases in participants' responsiveness to roommates from pretest to posttest, which, in turn, predicted increases in roommates' perceptions of participants' responsiveness. In other words, chronic compassionate goals lead to increased responsiveness between roommates, whereas chronic self-image goals lead to decreased responsiveness between roommates. Roommates' perceptions of participants' responsiveness, in turn, predicted roommates' increased compassionate goals but did not predict change in roommates' self-image goals.

These findings suggest that compassionate and self-image goals are contagious. People with compassionate goals create responsive relationship dynamics that foster compassionate goals in their relationship partners. People with self-image goals also foster self-image goals in their relationships partners, although the process by which this occurs does not appear to involve responsiveness. Through goal contagion, goals and their effects might spread through social networks. Even when participants' goals do not predict unique variance in roommates' experience once roommates' goals are controlled, participants' compassionate goals may spread to roommates and shape roommates' experience through goal contagion.

4.6. Mutual need satisfaction and relationship growth belief

Relationship growth belief involves the belief that relationships can be maintained and problems can be overcome (Franiuk, Pomerantz, & Cohen, 2004; Knee, 1998). These beliefs guide the meaning that people assign to relationship events and the inferences they draw about the self,

partner, and relationship and are particularly beneficial in the face of relationship problems (Franiuk et al., 2004; Knee, Patrick, & Lonsbary, 2003).

We examined whether chronic compassionate goals predict increased relationship growth belief and examined the role of need satisfaction in this association (Canevello & Crocker, 2011c, Study 2). When people have compassionate goals, they create environments in which people support each other's needs. Mutually supportive environments foster growth and learning (Deci, La Guardia, Moller, Scheiner, & Ryan, 2006) and may also foster growth beliefs about relationships. Thus, we hypothesized that compassionate goals increase mutual need satisfaction in the relationship, which, in turn, fosters growth beliefs about relationships.

We included measures of growth beliefs and mutual need satisfaction in the pretest and posttest surveys of the Roommate Goals Study. Items assessing growth belief about roommate relationships were derived from Knee (1998) and included items such as "problems in a roommate relationship can bring roommates closer together" and "successful roommate relationships require regular maintenance." Based on the measure developed by La Guardia, Ryan, Couchman, and Deci (2000), need satisfaction included items assessing fulfillment of participants' own needs for autonomy, competence, and relatedness in the roommate relationship, and items assessing how much participants tried to fulfill their roommates' needs. We combined these scales to create a mutual need satisfaction score. Growth belief in roommate relationships and mutual need satisfaction had good reliability when measured in the context of roommate relationships (growth beliefs: pretest $\alpha=0.83$, posttest $\alpha=0.84$; mutual need satisfaction: pretest $\alpha=0.92$, posttest $\alpha=0.96$).

We tested whether chronic compassionate goals, averaged across the 21 daily reports, predict increased relationship growth belief, through increased need satisfaction. Results supported our hypotheses. As depicted in Fig. 5.7, chronic compassionate goals predicted increased satisfaction of own needs and increased efforts to support roommates' needs from pretest to posttest, which, in turn, predicted increased growth belief about roommate relationships.

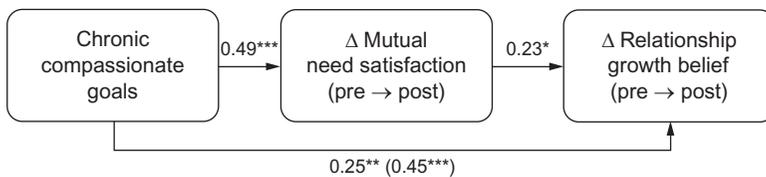


Figure 5.7 Path analyses of the effects of compassionate goals on mutual need satisfaction and relationship growth belief across 3 weeks in the Roommate Goals Study. *Note:* All estimates are partial correlations. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

Because previous analyses suggested that compassionate goals are contagious between roommates, participants' compassionate goals might indirectly lead to roommates' increased growth belief about roommate relationships. Path analyses also support this prediction: participants' pretest compassionate goals predict roommates' chronic compassionate goals, which lead to roommates' increased mutual need satisfaction, increasing roommates' growth belief about roommate relationships.

These findings suggest that through their compassionate goals, participants create an environment in which their own and others' needs are met, which then increases their own relationship growth belief. Through goal contagion, people's compassionate goals can also lead to others to perceive the relationship as mutually satisfying and promote others' relationship growth belief.

4.7. Summary

The Roommate Goals Study examined whether peoples' goals shape their experiences through their effects on other people. We addressed this issue in a variety of ways and for a variety of relationship-specific dependent variables.

We tested whether participants' goals predict change in roommates' subjective experience or behavior when roommates' goals are controlled. When we examined social support given and received in the relationship, participants' goals predicted change in their roommates' reports of support the roommates received and gave to participants, controlling for roommates' goals. Thus, in the case of social support, participants' goals seem to change their roommates' experience and behavior, which changes participants' experience of being supported. In fact, although we routinely test effects of partners' goals, social support is the only dependent measure on which we consistently observe significant effects of partners' goals on participants, controlling for participants' goals.

We also examined whether participants' goals indirectly predict change in roommates' experience, through change in participants' responsiveness to their roommates. Participants' goals predicted change in their responsiveness to roommates, which was mirrored in roommates' perceptions of participants' responsiveness, which, in turn, predicted change in roommates' relationship quality. Thus, one person's goals can affect another's experience indirectly, through change in responsiveness.

One person's goals can also affect another person through goal contagion. We found that participants' chronic goals predicted change in their roommates' goals over 3 weeks. Thus, even when we find no effects of partners' goals on participants' experience when both people's goals are entered simultaneously, partners' goals may indirectly shape participants' experience by shaping participants' goals, which, in turn, shape

participants' behavior and experience. We saw evidence for this process in analyses of interpersonal goals and growth beliefs about relationships.

In sum, the Roommate Goals Study provided evidence that one person's interpersonal goals can shape another person's relationship experiences through several processes. Participants' goals typically predict change in relationship partners' experience indirectly through relationship processes such as responsiveness or need satisfaction, or through goal contagion. We also found evidence in the case of social support that people's goals can shape their own social reality through interpersonal processes. Specifically, participants' goals predict change in the support they receive from their roommates, through effects on support their roommates receive and give in return. We explored the implications of this finding further in our next study.

5. DISTRESS AND SELF-ESTEEM: THE ROOMMATE GOALS AND MENTAL HEALTH STUDY

Whereas the Roommate Goals Study focused on whether goals predict the relationship experiences of participants and their roommates, our third study examined how goals shape psychological well-being, including self-esteem and mental health, of both participants and their roommates. In this context, we further explored three additional avenues through which people's goals shape their own and others' experience: reciprocity, benefits of giving versus receiving, and reverse effects of experience on goals.

First, we saw in the social support findings of the Roommate Goals Study that roommates tend to reciprocate the support they receive; change in support received by roommates strongly predicted change in support given by roommates. Thus, interpersonal goals can affect one person's experience through their effects on what relationship partners receive, and give in return. In the Roommate Goals and Mental Health Study, we examined reciprocation of both social support and responsiveness.

Second, evidence of reciprocity raises questions about whether the effects of interpersonal goals on well-being are due to what people receive or what they give to others. The social support literature focuses almost exclusively on the benefits of receiving support and perceiving that support is available, and ignores the potential consequences of giving support (see [Canevello & Crocker, 2011a](#) for a discussion). A small but growing body of evidence suggests that giving to others has beneficial effects on well-being ([Dunn, Aknin, & Norton, 2008](#); [Konrath, Fuhrel-Forbis, Lou, & Brown, in press](#); [Post, 2005](#)). This research suggests that self-image and compassionate goals might predict change in well-being through what people give, instead of or in addition to what they receive from others.

Third, we examined the possibility of reverse causal effects between goals and well-being. If goals predict change in well-being, and well-being predicts change in goals, then upward and downward spirals could potentially develop, creating longer-term change in well-being, and perhaps accounting for the episodic nature of some affective disorders, such as depression.

We followed 130 previously unacquainted college freshmen roommate pairs ($N=260$) weekly across their first semester. We recruited participants within the first 2 weeks of the fall semester. Both participants completed a pretest, posttest, and 10 weekly surveys.

This design was identical to that of the Roommate Goals Study with an important exception: instead of completing daily reports over 21 days, participants completed weekly reports across the course of a semester (i.e., 10 weeks). This allowed us to examine whether participants' goals affected their roommates' mental health and well-being outcomes from the beginning to the end of the semester.

We assessed compassionate and self-image goals using a measure similar to the one used in the Roommate Goals Study and included measures related to relationship experiences, mental health outcomes, and self-esteem.

5.1. Distress and social support

In the Goals and Adjustment to College Study, participants' chronic compassionate goals predicted decreased distress (symptoms of anxiety and depression), whereas self-image goals predicted increased distress. In the Roommate Goals and Mental Health Study, we aimed to replicate these findings, explore various explanations, and, in particular, investigate the role of social support given to and received from roommates. We also examined whether one person's interpersonal goals could indirectly affect another person's symptoms of anxiety and depression, through support given and received.

Both members of the roommate pairs reported their goals and distress at pretest and posttest and in each weekly report. We examined how participants' chronic goals across the 10 weeks predicted change in their distress over the semester. Results from these data replicated our previous findings. Chronic compassionate goals averaged across the 10 weeks predicted marginally decreased distress from the beginning to the end of the semester. Chronic self-image goals predicted increased distress from pretest to posttest. Change in participants' distress was not associated with their roommates' goals when participants' and roommates' goals were entered together as predictors.

We explored a number of alternative explanations for these findings. We assessed variables known to predict change in distress that might account for

these results. At pretest, we assessed individual differences in dysfunctional attitudes and validation- and growth-seeking, two known risk factors for distress (Brown, Hammen, Craske, & Wickens, 1995; Dykman, 1998). In weekly surveys, we measured risk factors more likely to fluctuate from week to week, including rumination, reflection, and reassurance-seeking (Joiner & Metalsky, 2001; Trapnell & Campbell, 1999). We also measured other variables related to interpersonal goals that might explain their associations with distress, including goal clarity, goal progress, goal setbacks, and goal-related pressure (Crocker et al., 2010). When we included these variables as covariates, none accounted for the effects of self-image goals and only having clear goals partly accounted for effects of compassionate goals.

Next, we examined the role of social support given to and received from roommates in the association between interpersonal goals and distress. We measured support given to roommates as well as support received from roommates using a modified version of the Multidimensional Survey of Perceived Social Support (Zimet, Powell, & Farley, 1990) at pretest and posttest and in each weekly survey. Thus, we could examine the unique effects of giving and receiving support on change in distress.

We tested path models examining whether chronic compassionate and self-image goals predict change in support received and support given from pretest to posttest, which, in turn, predict change in distress from pretest to posttest (see Fig. 5.8). As expected, change in support given was strongly related to change in support received. We examined the unique effects of interpersonal goals on support given and received by including change in support given as a predictor of change in support received, and vice versa.

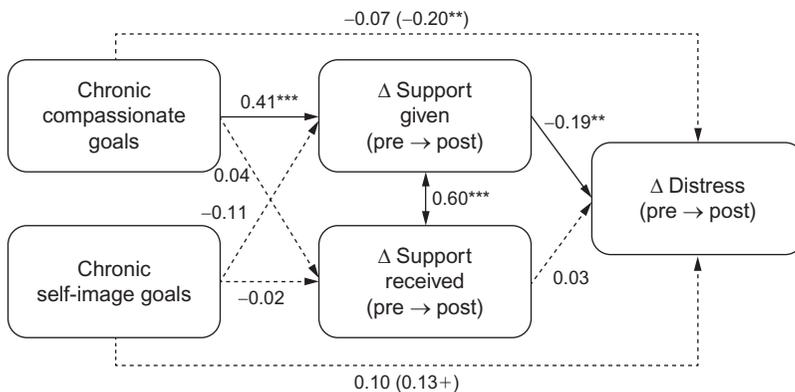


Figure 5.8 Path analyses of the effects of compassionate and self-image goals on support given and received and distress across a semester in the Roommate Goals and Mental Health Study. *Note:* All estimates are partial correlations. *** $p < 0.001$, ** $p < 0.01$.

Chronic compassionate goals predicted increased support given, controlling for support received. That is, the effect of compassionate goals on support given is not explained by support received. Increased support given in turn predicted decreased distress from pretest to posttest. Self-image goals did not predict change in support given. Neither compassionate nor self-image goals predicted change in support received when we controlled for change in giving support. Change in support received was unrelated to change in distress when we controlled for change in support given.

These findings suggest that compassionate goals lead to less distress because of the support people give to others, independent of the support they receive. The effect of self-image goals on distress was not explained by support given or received in these analyses.

Although we found no direct effects of participants' goals on their roommates' distress, the finding that giving support predicts decreased distress, combined with previous findings that roommates tend to reciprocate the support they receive, suggests an indirect route through which participants' goals could predict change in their roommates' distress. Participants' goals may contribute to roommates' distress, through the social support that roommates give back to participants in social support transactions. When participants' goals lead them to provide increased support to roommates, roommates should perceive that support and reciprocate, which should then decrease roommates' distress.

We tested whether participants' chronic goals indirectly predict change in their roommates' distress from pretest to posttest through the increased support roommates give to participants with high compassionate goals (see Fig. 5.9). As expected, participants high in chronic compassionate goals gave more support to their roommates over time, whereas participants high in self-image goals gave less support to their roommates over time. When participants reported giving increased support, their roommates reported receiving increased support. Roommates who perceived that they received increased support also gave increased support in return. Finally, the increased support that roommates gave predicted declines in roommates' distress.

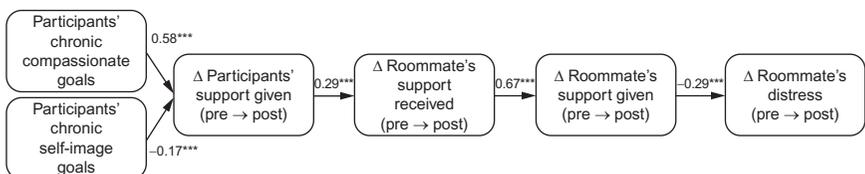


Figure 5.9 Path analyses of the indirect effects of participants' compassionate and self-image goals on roommates' distress across a semester in the Roommate Goals and Mental Health Study. *Note:* All estimates are partial correlations. *** $p < 0.001$.

In sum, participants with high compassionate goals initiated a chain of interpersonal effects that ultimately, albeit indirectly, led their roommates to experience decreased anxiety and depression. In contrast, participants with high self-image goals initiated a chain of interpersonal effects leading to increased anxiety and depression in their roommates. The critical variable predicting change in depression and anxiety seems to be the support people give, not the support they receive. Because roommates who receive support tend to give support in return, participants could reduce their roommates' distress by giving them support, which roommates reciprocate. These findings suggest one important pathway through which people shape the experience of those around them—by giving and affording others the opportunity to give in return.

5.2. Self-esteem and others' regard

People with self-image goals typically want others to hold them in high regard (Leary, 2005). We hypothesized that self-image goals have paradoxical effects; when people have self-image goals, the negative responsiveness dynamics they create undermine others' regard for them, whereas when people have compassionate goals, the resulting positive responsiveness dynamics boost others' regard for them (Canevello & Crocker, 2011b). We reasoned that people want relationship partners who are understanding, caring, and validating (i.e., responsive), and their esteem for relationship partners increases when they notice that their partners are more responsive and declines when they notice that partners are less responsive. In the Roommate Goals Study, self-image goals predicted decreased responsiveness, whereas compassionate goals predicted increased responsiveness (Canevello & Crocker, 2010). Therefore, we predicted that roommates' esteem declines when participants are high in self-image goals and increases when participants are high in compassionate goals, through these responsiveness processes.

We also hypothesized that participants' interpersonal goals predict change in their own and their roommates' self-esteem. People with self-image goals seem to assume that if they can get others to recognize their positive qualities, others will be more responsive—understanding, caring, and validating—thereby boosting people's self-esteem (see Gable & Reis, 2006 for a discussion). We suspect that this view reflects a misunderstanding of what actually leads to long-term boosts to self-esteem. Consistent with recent research showing that giving benefits well-being, increases in participants' self-esteem may result not from perceptions of roommates' responsiveness to participants, but rather from participants' responsiveness to their roommates. Alternatively, if self-esteem depends on others' responsiveness, then increases in perceived responsiveness of roommates may predict increased participants' self-esteem better than participants'

increased responsiveness to roommates. Extending this line of reasoning to change in roommates' self-esteem, roommates' self-esteem may increase when participants are more responsive to roommates, roommates reciprocate with increased responsiveness to participants, and as a result of their own increased responsiveness, roommates develop increased self-esteem.

We measured participants' and their roommates' self-esteem at pretest and posttest in the Roommate Goals and Mental Health Study with the Rosenberg Self-esteem Inventory (e.g., "I feel that I have a number of good qualities," and "I take a positive attitude with myself"; Rosenberg, 1965). To assess participants' and roommates' regard for the other at pretest and posttest, we reworded the Rosenberg Self-esteem Inventory to focus on roommates (e.g., "I feel that my roommate has a number of good qualities," and "I take a positive attitude with my roommate").

In three path models, we examined the consequences of participants' compassionate and self-image goals for their own self-esteem, roommates' regard for them, and roommates' self-esteem (see Fig. 5.10). The top of Fig. 5.10 depicts how participants' goals shape their own self-esteem

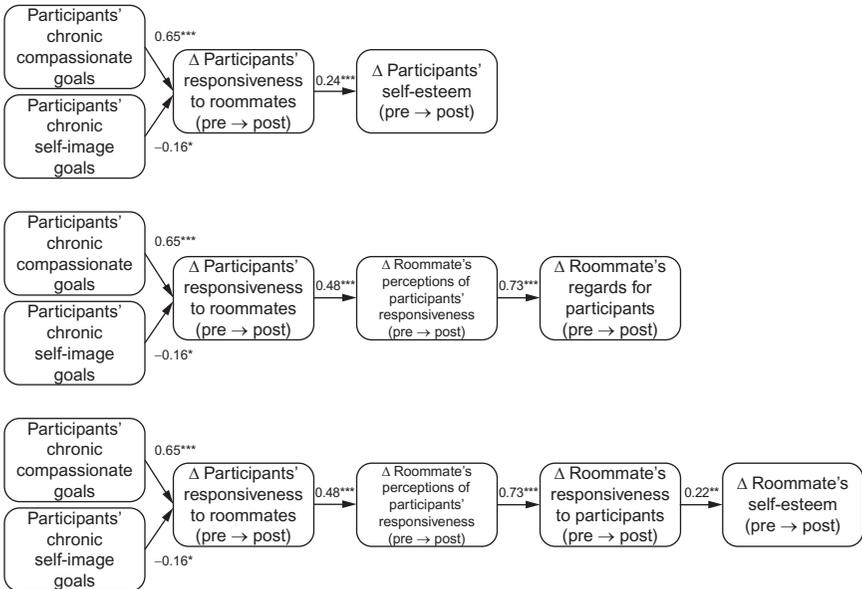


Figure 5.10 Path analyses of the effects of participants' compassionate and self-image goals on responsiveness dynamics and participants' self-esteem, roommates' regard for participants, and roommates' self-esteem across a semester in the Roommate Goals and Mental Health Study. *Note:* All estimates are partial correlations. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

through their responsiveness to roommates. Specifically, participants' chronic compassionate goals predicted increased responsiveness to roommates from pretest to posttest; chronic self-image goals predicted decreased responsiveness to roommates. Increased responsiveness, in turn, predicted increased self-esteem. In other words, participants' responsiveness to their roommates led to participants' increased self-esteem; their perceptions of their roommates' responsiveness did not.

As shown in the middle of Fig. 5.10, participants' goals and resulting responsiveness dynamics also predicted change in roommates' regard for them. Participants' compassionate goals predicted increases and self-image goals predict decreases in participants' responsiveness to roommates. Participants' responsiveness to roommates, in turn, predicted increases in roommates' perceptions of participants' responsiveness. Finally, roommates' perceptions of participants' responsiveness, in turn, predicted roommates' increased regard for participants. Thus, participants increased their roommates' regard for them, not by trying to get their roommates to see them positively, but rather by being responsive relationship partners.

The bottom of Fig. 5.10 shows how participants' goals affect their roommates' self-esteem. Again, participants' goals predicted change in their responsiveness and roommates noticed these changes. Roommates reciprocated by becoming more responsive in return. Roommates' increased responsiveness predicted increases in roommates' self-esteem.

In sum, self-image goals to increase others' regard for oneself can backfire, whereas compassionate goals to support others have unintended positive consequences. Through responsiveness dynamics, participants' self-image goals negatively affect and compassionate goals positively affect others' regard for them and their own self-esteem.

These findings also illustrate how the tendency for roommates to reciprocate change in responsiveness can lead one person's interpersonal goals to shape another person's self-esteem. People's goals can affect their relationship partners' self-esteem because interpersonal goals predict change in responsiveness, relationship partners tend to reciprocate responsiveness, and being responsive to others boosts self-esteem.

5.3. Reverse associations between well-being and interpersonal goals

Thus far, with the exception of goal contagion, we have focused on the consequences of interpersonal goals rather than the precursors of goals. We suggested at the outset that people are motivated by the egosystem, and thus self-image goals, when they lose trust that their needs can be met in collaboration with their environment. We hypothesized that psychological distress (i.e., high anxiety or depression) signals to people that their needs are not being met, or are unlikely to be met (Keller & Nesse, 2006). If so, then

anxiety and depression might predict increased self-image goals and decreased compassionate goals. Reverse effects of distress on goals could explain how self-image and compassionate goals could lead to upward and downward spirals in well-being, leading to change over weeks or months.

We tested effects of distress (a composite of anxiety and depression) on change in goals the same week, from one week to the next, and from pretest to posttest (Crocker et al., 2010). As hypothesized, distress predicted decreased compassionate goals in the same week, on the following week, and from pretest to posttest; distress predicted increased self-image goals the same week and from pretest to posttest, but not on the following week. These results suggest reciprocal causal associations between compassionate goals and decreased distress, and self-image goals and increased distress (although less consistently), and raise the possibility of virtuous or vicious cycles of goals and distress.



6. ALTERNATIVE EXPLANATIONS

Astute readers may have thought of a number of alternative explanations of our effects. Because we measure self-image and compassionate goals in our studies rather than manipulate them, any constructs associated with the goals might account for their effects. Across studies and analyses, we have tested a wide range of potential alternative explanations for our findings. Readers should refer to the original articles for exhaustive accounts. Here we consider some of the most obvious alternative explanations and discuss how well they account for our findings to date.

6.1. Gender

Across all three studies, women reported higher compassionate goals than men. Many of the variables associated with compassionate goals, such as positive relationship beliefs, support and responsiveness processes, and emotional clarity, might be construed as feminine characteristics and behaviors. On the other hand, self-image goals and associated variables might be construed as masculine. Because all of our samples were primarily female (61% in the Goals and Adjustment to College Study, 71% in the Roommate Goals Study, and 75% in the Roommate Goals and Mental Health Study), the effects of goals might be due to gender. Associations between goals and outcomes also could be moderated by gender—for example, responsiveness dynamics that result from compassionate goals might be stronger for women than men.

We have tested both main effects of gender and whether gender moderates the effects of interpersonal goals for each of our dependent variables. When we controlled for gender in our analyses, it did not statistically account for associations between goals and social support (Crocker & Canevello, 2008), affect (Crocker et al., 2011), distress (Crocker et al., 2010), relationship growth belief (Canevello & Crocker, 2011c), responsiveness processes (Canevello & Crocker, 2010), relationship security (Canevello et al., 2011), or self-esteem (Canevello & Crocker, 2011b). Further, either gender did not moderate associations between goals and outcomes, or the moderating effects were unreliable across studies, indicating that compassionate and self-image goals have similar effects for both men and women. In sum, to date gender has not accounted for the effects of interpersonal goals, and only rarely and inconsistently moderates the effects of goals.

6.2. Approach and avoidance goals

We also tested whether the effects of interpersonal goals could be explained by approach and avoidance orientations. Approach goals are associated with good relationship function and higher self-esteem, whereas avoidance goals are associated with poor relationship function and lower self-esteem (e.g., Gable, 2006; Impett et al., 2010; Tice, Masicampo, & Elliot, 2008). Thus, the effects of compassionate goals might be due to confounds with approach orientations, and the effects of self-image goals might be due to confounds with avoidance orientations. We thought this was unlikely, because in creating our measures, we included both approach and avoidance items in each scale, and when we forced a two-factor solution in exploratory factor analyses, the predicted compassionate and self-image goals factors emerged, not approach and avoidance factors.

Nonetheless, we addressed this concern in analyses examining the consequences of interpersonal goals for distress (Crocker et al., 2010), relationship growth belief (Canevello & Crocker, 2011c), affect (Crocker et al., 2011), relationship security (Canevello et al., 2011), and others' regard and self-esteem (Canevello & Crocker, 2011b). We created two measures of each goal, one composed of approach-oriented items and the other composed of avoidance-oriented items. Approach and avoidance compassionate goals items were strongly correlated ($r=0.88$, $p<0.001$), as were approach and avoidance self-image goals items ($r=0.79$, $p<0.001$). We then entered approach compassionate and self-image goals in one analysis and avoidance compassionate and self-image goals in another analysis to see if they produced similar effects. Across analyses, the results did not differ for approach- or avoidance-oriented items. Thus, effects of compassionate goals are not due to approach orientations, and effects of self-image goals are not due to avoidance orientations.

6.3. Social desirability

Because it seems more socially desirable to have compassionate goals than to have self-image goals, social desirability might also account for effects of compassionate and self-image goals. Associations between social desirability and self-image and compassionate goals vary across studies. When entered into analyses as a covariate, social desirability was unrelated to many of the outcomes of interest, including responsiveness, relationship quality, and distress (Canevello & Crocker, 2010; Crocker et al., 2010). When it was related to outcomes, social desirability did not account for effects of self-image or compassionate goals. Thus, social desirability does not provide a compelling alternative explanation for effects of compassionate and self-image goals.

6.4. Self-esteem and others' regard

A growing body of work suggests that self-esteem predicts relationship processes (e.g., Murray, Holmes, & Griffin, 2000; Murray, Rose, Bellavia, Holmes, & Kusche, 2002). Self-esteem correlates positively with compassionate goals and negatively with self-image goals (Canevello & Crocker, 2011b). Thus, self-esteem might account for the effects of compassionate and self-image goals on relationship outcomes. Self-esteem might also moderate links between goals and outcomes. For example, high self-esteem might enhance the benefits of compassionate goals and low self-esteem might exaggerate the negative impact of self-image goals.

We controlled for self-esteem in analyses when it seemed a plausible explanation of the effects of compassionate and self-image goals. The effects of goals on growth beliefs (Canevello & Crocker, 2011c), responsiveness (Canevello & Crocker, 2010), and relationship security (Canevello et al., 2011) remained unchanged when we controlled for self-esteem, indicating that it cannot account for the effects of goals on these variables. Further, self-esteem did not moderate the effects of compassionate and self-image goals (Canevello & Crocker, 2010; Canevello et al., 2011).

Similarly, people who evaluate their relationship partners positively have more compassionate and less self-image goals (Canevello & Crocker, 2011b), potentially accounting for the associations of the goals with relationship variables. When we controlled for regard for roommates, the effects of interpersonal goals on change in relationship growth belief and responsiveness processes remained significant (Canevello & Crocker, 2010, 2011c), indicating that positive regard for relationship partners could not account for the beneficial effects of compassionate goals and the detrimental effects of self-image goals on relationship processes.



7. REMAINING ISSUES

The research described here suggests that self-image and compassionate goals predict change in people's own emotional and relationship experiences, their behavior toward relationship partners, their beliefs about and feelings of security in relationships, their partners' emotional and relationship experiences, and their psychological well-being and symptoms of anxiety and depression. The longitudinal studies consistently indicate that self-image goals predict increased negative experiences for one and others, whereas compassionate goals predict increased positive experiences.

Despite the consistency of these findings across multiple longitudinal studies and across time frames from 1 day to 3 months, the studies described thus far have some limitations and raise a number of questions.

7.1. Causality

Perhaps the most obvious limitation of the research we have described involves the correlational nature of the research designs. Because we have not manipulated compassionate or self-image goals, we lack direct evidence that they cause the outcomes they predict. We have tested the plausibility of causal associations by examining lagged effects, showing that goals at one time predict residual change in various outcomes later. By replicating our analyses in data collected on the same day or the same week and person-centering the goals, we have shown that within-person fluctuations around people's own average levels of self-image and compassionate goals predict a wide range of outcomes. Effects of person-centered goals cannot be explained by any individual differences associated with the goals, such as personality variables. We have also controlled for a host of variables that might plausibly account for the effects of self-image and compassionate goals, depending on the outcome under consideration. The effects of compassionate and self-image goals have proven surprisingly robust, remaining significant in the vast majority of analyses. Nonetheless, the correlational nature of our studies and evidence that some of the processes we observe also work in reverse leave open the possibility that the observed effects are caused by some as-yet unmeasured or untested variable associated with compassionate and self-image goals.

Demonstrating that self-image and compassionate goals cause the effects we have observed requires manipulating the goals while holding all else constant, a task that turns out to be more difficult than it may seem. We have attempted to manipulate or induce people to have compassionate goals for more than 5 years, using tried and true methods such as nonconscious priming of goals, recalling a previous experience of having the goals, recalling a time the goal was active but not successfully completed, and instructing

people to adopt the goal. None of these methods succeeded in activating compassionate goals without simultaneously activating self-image goals.

This string of unsuccessful attempts at manipulating compassionate goals has led us to consider the possibility that people cannot be manipulated or “tricked” into shifting from self-image goals to compassionate goals. Compassionate goals involve caring about someone or something other than or in addition to one’s own self-interest; introductory psychology participants who show up for experiments to complete a course requirement may go through the motions in studies that manipulate compassionate goals but lack the emotional experience of truly caring about something besides their own self-interest.

Only one manipulation has successfully increased compassionate goals in our laboratory—the so-called self-affirmation manipulation, in which participants rank order a set of values (e.g., social relationships, business, science, religion/spirituality, and politics) and then write about either their most important value and why it is important to them or their least important value and why it might be important to others. Over the past 30 years, this procedure has reliably reduced or eliminated a wide range of self-defensive or self-protective responses to self-threats (see [Sherman & Cohen, 2006](#); [Steele, 1988](#) for reviews). Crocker and colleagues showed that values affirmation produces the emotional states of caring associated with compassionate goals (e.g., loving and connected feelings), and those feelings accounted for the effects of writing about important values on reduced defensiveness of smokers to a message about the health consequences of smoking ([Crocker, Niiya, & Mischkowski, 2008](#)).

A subsequent experiment manipulated values affirmation and showed that relative to the control group, participants who wrote about important values had increased compassionate goals, decreased zero-sum construals of relationships, and increased self-esteem ([Shade & Crocker, 2011](#)). Mediation analyses using the bootstrapping method ([Preacher & Hayes, 2008](#)) showed that compassionate goals fully accounted for the effects of values affirmation on self-esteem, and partly accounted for the effects on zero-sum construals. Although more research is needed, these studies suggest that inducing people to think about what they care about beyond their own self-interest might increase compassionate goals. In light of the wide range of positive outcomes associated with compassionate goals, understanding how people shift to increased compassionate goals remains a pressing issue for research.

7.2. Generalizability

Thus far, the research we have described on self-image and compassionate goals has focused on first-semester college student friendships and roommate relationships. One big unresolved issue, then, is how general these

effects are; for what other populations, what other relationships, and in what other domains might self-image and compassionate goals show similar effects? Initial investigations suggest that the consequences of self-image and compassionate goals extend far beyond first-semester college students' friendships and roommate relationships.

In one study, we examined the effects of self-image and compassionate goals in married couples (Canevello & Crocker, in preparation). Fifty-three married couples discussed an ongoing problem in their relationship for 10 min. This sample was older than previous samples (mean=37.9 years, $SD=13.8$). Couples had been together for an average of 13.5 years ($SD=14.15$) and married for 9.9 years ($SD=13.11$).

Before and after the discussion, both partners reported their compassionate and self-image goals, affective states, responsiveness to partners and perceptions of partners' responsiveness, and relationship distress and quality. Compassionate and self-image goals had effects similar to those we found in studies of roommates over time. For example, compassionate and self-image goals were contagious in these 10-min interactions. Pretest compassionate goals predicted increases in partners' compassionate goals 10 min later; similarly, pretest self-image goals predicted increases in partners' self-image goals, both $ps=0.20$, $p<0.05$. Further, pretest goals indirectly predicted change in partners' relationship quality and distress, through responsiveness transactions. People high in pretest compassionate goals had greater pretest emotional clarity, whereas people high in pretest self-image goals had less pretest emotional clarity. Pretest emotional clarity predicted increased responsiveness to partners. Partners' detected this increased responsiveness, which, in turn, predicted increases in partners' relationship quality and decreased relationship distress from before to after the discussion. These findings suggest that the consequences of self-image and compassionate goals extend to marital relationships in an older sample in well-established relationships. These results also suggest that the consequences of compassionate and self-image goals are detectable in 10-min interactions.

In other research, we have examined compassionate and self-image goals at work. In one study, 99 employees (including salaried and hourly employees, ranging from vice presidents to night shift laborers) at a small manufacturing parts distribution firm completed measures of self-image and compassionate goals for work (Crocker & Niiya, 2007). We revised the measures of self-image and compassionate goals in our earlier research, by changing the stem from "in friendships, I want to or try to ..." to "at [company name] I want to or try to ...". The self-image goals items included, "avoid appearing ignorant, incompetent, or unintelligent," "avoid being criticized by others," "get people to respect you," "avoid showing your weaknesses," "avoid being taken advantage of by others," and "avoid doing anything that would hurt your status at the company." The scale had adequate internal consistency ($\alpha=0.71$). The compassionate

goals items included “be constructive in your comments to others,” “avoid being selfish or self-centered,” “be supportive of others,” “avoid doing things that are unhelpful to others,” “avoid saying anything hurtful,” “avoid doing anything that would harm the company,” and “make a contribution.” The compassionate goals scale also had good internal consistency ($\alpha=0.81$).

Controlling for gender and social desirability, employees higher in self-image goals reported significantly more zero-sum views of work relationships (e.g., “In my work relationships at [company name], what is good for one person is often bad for another”) and marginally less responsiveness (e.g., “I did not really take their concerns seriously”). Employees higher in compassionate goals reported significantly more nonzero-sum views of work relationships, responsiveness, work support given to other employees, being more courteous toward other employees, and giving more constructive feedback. These findings indicate that people can have self-image and compassionate goals at work, and that the goals predict important behaviors and experiences at work.

We also developed measures of compassionate and self-image goals in the domain of academics and included them in the Goals and Adjustment to College Study and the Roommate Goals and Mental Health Study (Mischkowski et al., 2011). Lagged week analyses show that compassionate goals for friendships and roommate relationships 1 week spread to the academic domain, with beneficial consequences for academic engagement. That is, compassionate relationship goals predict increases the following week in compassionate goals for academics, which in turn predict increased growth orientations for academics, which predict increased academic engagement (e.g., interest in classes and asking questions in class) the following week.

In sum, attempts to extend research on compassionate and self-image goals suggest that our findings might apply more broadly to a wide variety of types of relationships in many domains of life. Currently, we are investigating self-image and compassionate goals in Japan, China, and India.

7.3. One compassionate goal and many self-image goals?

Our initial efforts to explore the generalizability of the effects of compassionate and self-image goals suggest to us that compassionate goals appear to be the same, and to have similar consequences, across domains of life, types of relationships, and social contexts. When people have compassionate goals, they want to be constructive and supportive and do not want to harm others, regardless of the context.

We suspect that self-image goals take many forms, however, and may vary widely across people and contexts. One person might want to construct the image of being strong, whereas another might want to construct

the image of being virtuous, or sexy, or funny, or independent, and so on. Further, different domains of life may “pull” for different self-image goals—work may elicit competence-related self-image goals, church might elicit virtue-related self-image goals, parties might elicit sociality-related self-image goals, and intergroup situations might elicit bias-related self-image goals. People seem to have long lists of how they want others to see them, depending on the context.

Although we intended to create a measure of self-image goals that would generalize across people and contexts, with items such as “avoid showing your weaknesses” and “get others to recognize your positive qualities,” our measure may lean toward the goal to appear competent rather than other possible self-image goals. This raises the question of whether different self-image goals have different consequences. For example, the goal to appear friendly or nice might not have the same consequences for responsiveness as the goal to appear intelligent.

Our research also raises questions concerning the mechanisms by which self-image goals operate. To this point, we have focused mainly on the roles of responsiveness and social support as mechanisms. Our results suggest that self-image goals predict decreases in positive relational processes (i.e., lack of responsiveness and lack of social support). Although these findings are consistent and significant, they are not strong, particularly in comparison to findings for compassionate goals. Self-image goals may operate more strongly via mechanisms characterized by the presence of negative relational processes rather than the absence of positive processes. For example, self-image goals to appear competent may operate through distrust of partners, negative communication patterns, hostile relationship behaviors, or emotional confusion. Further, different types of self-image goals may operate via different mechanisms.

7.4. Physiological correlates of self-image and compassionate goals

We hypothesize that self-image goals and compassionate goals involve distinct physiological systems. Specifically, self-image goals may activate the self-preservation, fight-or-flight system focused on individual survival, regulated by stress hormones such as cortisol (Henry & Wang, 1998). The fight-or-flight response involves evolutionarily old parts of the brain and is found in many species, including reptiles. Short-term activation of the fight-or-flight response mobilizes individual resources and facilitates adaptive responses to immediate survival threats. Threats to desired images can activate the self-preservation system, eliciting cortisol responses in laboratory experiments (see Dickerson & Kemeny, 2004 for a review). We think self-image threats activate the fight-or-flight response because people confuse the self-image with the physical self and so self-image threats feel like

threats to physical survival. When people deal with a self-image threat by either fleeing or fighting, they use parts of the brain that evolved to deal with life-or-death threats.

Compassionate goals, on the other hand, may involve the species-preservation, tend-and-befriend system, which increases others' chances of survival by fostering protective and caregiving behaviors. This system is regulated by reproductive hormones such as oxytocin, vasopressin, and progesterone (Brown & Brown, 2006). The species-preservation motivational system downregulates cortisol and the fight-or-flight response, enabling people to attend to others' needs in stressful circumstances (Henry & Wang, 1998).

The species-preservation motivational system evolved more recently than the self-preservation system; it is found in all mammals, for which reproduction requires not only giving birth but also caring for young (Henry & Wang, 1998). Activation of the species-preservation system motivates giving (Brown & Brown, 2006). Oxytocin, in particular, increases trust and generosity toward strangers (Zak, Kurzban, & Matzner, 2004, 2005) and is associated with positive, other-directed emotions such as love (Gonzaga, Turner, Keltner, Campos, & Altemus, 2006).

Evidence that compassionate goals activate the caregiving or species-preservation physiological system could have important implications for physical and emotional health. For example, psychosocial stress causes spikes in cortisol reactivity and can hinder recovery (e.g., Kirschbaum, Pirke, & Helhammer, 1993; Roy, Kirschbaum, & Steptoe, 2001). Prolonged elevation of cortisol is associated with numerous health problems (e.g., Sapolsky, 1998). If self-image goals exacerbate social stress, they may intensify HPA reactivity and delay recovery. Over time, chronic self-image goals may have significant detrimental health consequences due to chronically elevated cortisol (Canevello & Crocker, 2011a). Compassionate goals may attenuate cortisol reactivity and foster recovery by engaging the caregiving system, thus alleviating the health consequences associated with chronic cortisol elevation (Brown et al., 2011).

7.5. Potential benefits of self-image goals and costs of compassionate goals

The research described here has identified almost no benefits of self-image goals, and almost no costs of compassionate goals (Crocker et al., 2009). However, self-image goals could have beneficial consequences under some conditions, such as in short-term, one-time interactions with strangers, as demonstrated in the impression management literature. On the other hand, it seems plausible that self-image goals would lead to decreased responsiveness to strangers as well as intimates, and that they would foster competitive orientations leading to emotional confusion regardless of the context.

Likewise, compassionate goals may have costs in some circumstances, such as in interactions with psychopaths, who may be incapable of the emotional caring required to appreciate and reciprocate compassionate goals. One potential danger of compassionate goals is the risk of exploitation. Caring people could be more vulnerable to fraud, particularly scams that appeal for money on behalf of those in need. On the other hand, people who genuinely care about the well-being of others use their resources judiciously to help others, whereas people with the self-image goal to appear caring might be more susceptible to exploitation. Research that investigates the susceptibility of people with self-image and compassionate goals to exploitation could provide useful information about the limits of their costs and benefits.

8. CONCLUSIONS

We began this chapter by suggesting that interpersonal goals are a key mechanism through which people and their social environments influence each other. The three longitudinal studies described here and additional research conducted in our laboratory suggest that when people try to manage the impressions others have of them, they create a cascade of unintended negative consequences for both themselves and others. In contrast, when people try to contribute to the well-being of other people, they create a cascade of positive consequences for both themselves and others. Over time, for better or worse, by changing what they experience, people actually change themselves—the beliefs they hold, their goals, self-esteem, and even dispositional tendencies. People’s goals predict change in their own affective state, relationship security, psychological stress, self-esteem, support given and received, responsiveness, and beliefs about relationships. These effects can operate through several avenues. Further, goals spread from one person to another.

This program of research suggests that, to a greater extent than they realize, people may create what they experience. In the future, we aim to explore whether people can change their goals to create more of what they want and less of what they do not want in their lives.

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REFERENCES

- Barrera, M., Sandler, I. N., & Ramsay, T. B. (1981). Preliminary development of a scale of social support: Studies on college students. *American Journal of Community Psychology, 9*, 435–447.
- Batson, C. D. (1998). Altruism and prosocial behavior. In D. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., Vol. 2, pp. 282–316). New York: McGraw-Hill.
- Bowlby, J. (1969). Attachment and loss (Vol. 1). *Attachment*. New York: Basic Books.
- Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46–76). New York: Guilford.
- Brown, S. L., & Brown, R. M. (2006). Selective investment theory: Recasting the functional significance of close relationships. *Psychological Inquiry, 17*, 1–29.
- Brown, S. L., Brown, M., & Penner, L. A. (Eds.). (2011). *Self-interest and beyond: Toward a new understanding of human caregiving*. Oxford: Oxford University Press.
- Brown, G. P., Hammen, C. L., Craske, M. G., & Wickens, T. D. (1995). Dimensions of dysfunctional attitudes as vulnerabilities to depressive symptoms. *Journal of Abnormal Psychology, 104*, 431–435.
- Campbell, L., & Kashy, D. A. (2002). Estimating actor, partner, and interaction effects for dyadic data using PROC MIXED and HLM: A user-friendly guide. *Personal Relationships, 9*, 327–342.
- Canevello, A., & Crocker, J. (2010). Creating good relationships: Responsiveness, relationship quality, and interpersonal goals. *Journal of Personality and Social Psychology, 99*, 78–106.
- Canevello, A., & Crocker, J. (2011a). Interpersonal goals and close relationship processes: Potential links to health. *Compass: Health, 5*, 346–358.
- Canevello, A., & Crocker, J. (2011b). Interpersonal goals, others' regard for the self, and self-esteem: The paradoxical consequences of self-image and compassionate goals. *European Journal of Social Psychology, 41*, 422–434.
- Canevello, A., & Crocker, J. (2011c). What predicts growth beliefs about relationships? Intrapersonal and interpersonal consequences of the goal to support others. *Personal Relationships, 18*, 370–391.
- Canevello, A., & Crocker, J. (2011d). Unpublished data, The Ohio State University.
- Canevello, A., Granillo, M. T., & Crocker, J. (2011). *Predicting change in relationship security: The roles of compassionate and self-image goals*. Columbus: Ohio State University.
- Clark, M. S., Oullette, R., Powell, M. C., & Milberg, S. (1987). Recipient's mood, relationship type, and helping. *Journal of Personality and Social Psychology, 53*, 94–103.
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin, 98*, 310–357.
- Collins, N. L., & Feeney, B. C. (2006). Responding to need in intimate relationships: Normative processes and individual differences. In M. Mikulincer & G. S. Goodman (Eds.), *Dynamics of romantic love: Attachment, caregiving, and sex* (pp. 149–189). New York: Guilford.
- Cooley, C. H. (1956). *Human nature and the social order*. New York: Schocken. (Original work published 1902).

- Crocker, J. (2008). From egosystem to ecosystem: Implications for learning, relationships, and well-being. In H. A. Wayment & J. J. Brauer (Eds.), *Transcending self-interest: Psychological explorations of the quiet ego* (pp. 63–72). Washington, DC: APA.
- Crocker, J., & Canevello, A. (2008). Creating and undermining social support in communal relationships: The role of compassionate and self-image goals. *Journal of Personality and Social Psychology, 95*, 555–575.
- Crocker, J., Canevello, A., Breines, J. G., & Flynn, H. (2010). Interpersonal goals and change in anxiety and dysphoria in first-semester college students. *Journal of Personality and Social Psychology, 98*, 1009–1024.
- Crocker, J., Canevello, A., & Liu, M. Y. (2011). *Interpersonal goals, zero-sum relationship views, and relationship affect*. Unpublished manuscript, Columbus, OH.
- Crocker, J., & Niiya, Y. (2007). *Self-image and compassionate goals at work*. University of Michigan, Ann Arbor, MI.
- Crocker, J., Niiya, Y., & Mischkowski, D. (2008). Why does writing about important values reduce defensiveness? Self-affirmation and the role of positive other-directed feelings. *Psychological Science, 19*, 740–747.
- Crocker, J., Olivier, M.-A., & Nuer, N. (2009). Self-image goals and compassionate goals: Costs and benefits. *Self and Identity, 8*, 251–269.
- Cross, S. E., & Vick, N. V. (2001). The interdependent self-construal and social support: The case of persistence in engineering. *Personality and Social Psychology Bulletin, 27*, 820–832.
- Cutrona, C. E., Hessling, R. M., & Suhr, J. A. (1997). The influence of husband and wife personality on marital social support interactions. *Personal Relationships, 4*, 379–393.
- Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology, 44*, 113–126.
- Deci, E. L., La Guardia, J. G., Moller, A. C., Scheiner, M. J., & Ryan, R. M. (2006). On the benefits of giving as well as receiving autonomy support: Mutuality in close friendships. *Personality and Social Psychology Bulletin, 32*, 313–327.
- Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self-determination in personality. *Journal of Research in Personality, 19*, 109–134.
- Dickerson, S. S., & Kemeny, M. E. (2004). Acute stressors and cortisol responses: A theoretical integration and synthesis of laboratory research. *Psychological Bulletin, 130*, 355–391.
- Dunn, E. W., Aknin, L. B., & Norton, M. I. (2008). Spending money on others promotes happiness. *Science, 319*, 1687–1688.
- Dunning, D., Heath, C., & Suls, J. M. (2005). Flawed self-assessment: Implications for health, education, and the workplace. *Psychological Science in the Public Interest, 5*, 69–106.
- Dykman, B. M. (1998). Integrating cognitive and motivational factors in depression: Initial tests of a goal orientation approach. *Journal of Personality and Social Psychology, 74*, 139–158.
- Fishbach, A., & Ferguson, M. J. (2007). The goal construct in social psychology. In A. W. Kruglanski & E. T. Higgins (Eds.), *Social psychology: Handbook of basic principles* (2nd ed., pp. 490–515). New York, NY: Guilford Press.
- Fitzsimons, G. M., & Bargh, J. A. (2003). Thinking of you: Nonconscious pursuit of interpersonal goals associated with relationship partners. *Journal of Personality and Social Psychology, 84*, 148–163.
- Franiuk, R., Pomerantz, E. M., & Cohen, D. (2004). The causal role of theories of relationships: Consequences for satisfaction and cognitive strategies. *Personality and Social Psychology Bulletin, 30*, 1494–1507.
- Fritz, H. L., & Helgeson, V. S. (1998). Distinctions of unmitigated communion from communion: Self-neglect and overinvolvement with others. *Journal of Personality and Social Psychology, 75*, 121–140.
- Fujita, K., & MacGregor, K. (in press). Basic goal distinctions. In H. Aarts & A. J. Elliot (Eds.), *Goal-directed behavior*. New York: Psychology Press/Taylor & Francis.

- Gable, S. L. (2006). Approach and avoidance social motives and goals. *Journal of Personality, 74*, 175–222.
- Gable, S. L., & Reis, H. T. (2006). Intimacy and the self: An iterative model of the self and close relationships. In P. Noller & J. A. Feeney (Eds.), *Close relationships: Functions, forms and processes* (pp. 211–225). Hove England, UK: Psychology Press/Taylor & Francis.
- Gable, S. L., Reis, H. T., Noller, P., & Feeney, J. A. (2006). Intimacy and the self: An iterative model of the self and close relationships. *Close relationships: Functions, forms and processes*. (pp. 211–225). Hove England, UK: Psychology Press/Taylor & Francis.
- Garner, D. M., Olmstead, M. P., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders, 2*, 15–34.
- Gibson, B., & Poposki, E. M. (2010). How the adoption of impression management goals alters impression formation. *Personality and Social Psychology Bulletin, 36*, 1543–1554.
- Gonzaga, G. C., Turner, R. A., Keltner, D., Campos, B., & Altemus, M. (2006). Romantic love and sexual desire in close relationships. *Emotion, 6*, 163–179.
- Gore, J. S., Cross, S. E., & Morris, M. L. (2006). Let's be friends: Relational self-construal and the development of intimacy. *Personal Relationships, 13*, 83–102.
- Grouzet, F. M. E., Kasser, T., Ahuvia, A., Dols, J. M. F., Kim, Y., Lau, S., et al. (2005). The structure of goal contents across 15 cultures. *Journal of Personality and Social Psychology, 89*, 800–816.
- Hardin, C. D., & Higgins, E. T. (1996). Shared reality: How social verification makes the subjective objective. In R. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition* (Vol. 3, pp. 28–84). New York: Guilford Press.
- Henry, J. P., & Wang, S. (1998). Effects of early stress on adult affiliative behavior. *Psychoneuroendocrinology, 23*, 863–875.
- Impett, E. A., Gordon, A. M., Kogan, A., Oveis, C., Gable, S. L., & Keltner, D. (2010). Moving toward more perfect unions: Daily and long-term consequences of approach and avoidance goals in romantic relationships. *Journal of Personality and Social Psychology, 99*, 948–963.
- Joiner, T. E. Jr., & Metalsky, G. I. (2001). Excessive reassurance seeking: Delineating a risk factor involved in the development of depressive symptoms. *Psychological Science, 12*, 371–378.
- Kashy, D. A., & Kenny, D. A. (2000). The analysis of data from dyads and groups. In H. T. Reis & C. M. Judd (Eds.), *Handbook of research methods in social and personality psychology* (pp. 451–477). New York, NY: Cambridge University Press.
- Keller, M. C., & Nesse, R. M. (2006). The evolutionary significance of depressive symptoms: Different adverse situations lead to different depressive symptom patterns. *Journal of Personality and Social Psychology, 91*, 316–330.
- Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis*. New York, NY: Guilford Press.
- Kirschbaum, C., Pirke, K. M., & Hellhammer, D. H. (1993). The “Trier Social Stress Test”—A tool for investigating psychobiological stress responses in a laboratory setting. *Neuropsychobiology, 28*, 76–81.
- Knee, C. R. (1998). Implicit theories of relationships: Assessment and prediction of romantic relationship initiation, coping, and longevity. *Journal of Personality and Social Psychology, 74*, 360–370.
- Knee, C. R., Patrick, H., & Lonsbary, C. (2003). Implicit theories of relationships: Orientations toward evaluation and cultivation. *Personality and Social Psychology Review, 7*, 41–55.
- Konrath, S., Fuhrel-Forbis, A., Lou, A., & Brown, S. L. (in press). Motives for volunteering are associated with mortality risk in older adults. *Health Psychology*.
- Kruglanski, A. W. (1996). Goals as knowledge structures. In P. M. Gollwitzer & J. A. Bargh (Eds.), *The psychology of action: Linking cognition and motivation to behavior* (pp. 599–618). New York, NY: Guilford Press.

- La Guardia, J. G., Ryan, R. M., Couchman, C. E., & Deci, E. L. (2000). Within-person variation in security of attachment: A self-determination theory perspective on attachment, need fulfillment, and well-being. *Journal of Personality and Social Psychology*, *79*, 367–384.
- Leary, M. R. (2005). Sociometer theory and the pursuit of relational value: Getting to the root of self-esteem. *European Review of Social Psychology*, *16*, 75–111.
- Leary, M. R., & Baumeister, R. F. (2000). The nature and function of self-esteem: Sociometer theory. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 32, pp. 1–62). San Diego, CA: Academic Press.
- Leary, M. R., & Downs, D. L. (1995). Interpersonal functions of the self-esteem motive: The self-esteem system as sociometer. In M. H. Kernis (Ed.), *Efficacy, agency, and self-esteem* (pp. 123–144). New York: Plenum.
- Mikulincer, M., & Shaver, P. R. R. (2003). The attachment behavioral system in adulthood: Activation, psychodynamics, and interpersonal processes. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 35, pp. 53–152). San Diego, CA: Academic.
- Mikulincer, M., & Shaver, P. R. R. (Eds.), (2010). *Prosocial motives, emotions, and behavior: The better angels of our nature*. Washington, DC: American Psychological Association.
- Mischkowski, D., Crocker, J., Niiya, Y., & Canevello, A. (2011). *Compassionate goals foster growth orientation*. Unpublished manuscript, Columbus, OH.
- Murray, S. L., Holmes, J. G., & Griffin, D. W. (2000). Self-esteem and the quest for felt security: How perceived regard regulates attachment processes. *Journal of Personality and Social Psychology*, *78*, 478–498.
- Murray, S. L., Rose, P., Bellavia, G. M., Holmes, J. G., & Kusche, A. G. (2002). When rejection stings: How self-esteem constrains relationship-enhancement processes. *Journal of Personality and Social Psychology*, *83*, 556–573.
- Post, S. G. (2005). Altruism, happiness, and health: It's good to be good. *International Journal of Behavioral Medicine*, *12*, 66–77.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*, 879–891.
- Pyszczynski, T., Greenberg, J., Solomon, S., Arndt, J., & Schimel, J. (2004). Why do people need self-esteem? A theoretical and empirical review. *Psychological Bulletin*, *130*, 435–468.
- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, *1*, 385–401.
- Reis, H. T., Clark, M. S., & Holmes, J. G. (2004). Perceived partner responsiveness as an organizing construct in the study of intimacy and closeness. In D. Mashek & A. P. Aron (Eds.), *Handbook of closeness and intimacy* (pp. 201–225). Mahwah, NJ: Erlbaum.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Roy, M. P., Kirschbaum, C., & Steptoe, A. (2001). Psychological, cardiovascular, and metabolic correlates of individual differences in cortisol stress recovery in young men. *Psychoneuroendocrinology*, *26*, 375–391.
- Rushton, J. P., Chrisjohn, R. D., & Fekken, G. C. (1981). The altruistic personality and the Self-Report Altruism Scale. *Personality and Individual Differences*, *2*, 293–302.
- Sapolsky, R. M. (1998). *Why zebras don't get ulcers: An updated guide to stress, stress-related diseases, and coping* (2nd ed.). New York: W.H. Freeman and Company.
- Scheier, M. F., & Carver, C. S. (1988). A model of behavioral self-regulation: Translating intention into action. *Advances in Experimental Social Psychology*, *21*, 303–346.
- Schlenker, B. R. (2003). Self-presentation. In M. R. Leary & J. P. Tangney (Eds.), *Handbook of self and identity* (pp. 492–518). New York: Guilford.
- Shade, C., & Crocker, J. (2011). *Values affirmation boosts self-esteem by increasing compassionate goals*. Ohio State University: Columbus, OH.

- Sheldon, K. M., Ryan, R. M., Deci, E. L., & Kasser, T. (2004). The independent effects of goal contents and motives on well-being: It's both what you pursue and why you pursue it. *Personality and Social Psychology Bulletin, 30*, 475–486.
- Sherman, D. K., & Cohen, G. L. (2006). The psychology of self-defense: Self-affirmation theory. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 38, pp. 183–242). San Diego: Academic Press.
- Strauger, J. S., & Schoeneman, T. J. (1979). Symbolic interactionist view of self-concept: Through the looking-glass darkly. *Psychological Bulletin, 86*, 549–573.
- Spence, J. T., Helmreich, R. L., & Holahan, C. K. (1979). Negative and positive components of psychological masculinity and femininity and their relationships to self-reports of neurotic and acting out behaviors. *Journal of Personality and Social Psychology, 37*, 1673–1682.
- Spielberger, C. D., Vagg, P. R., Barker, L. R., Donham, G. W., & Westberry, L. G. (Eds.), (1980). *The factor structure of the state-trait anxiety inventory* (Vol. 7). Washington, DC: Hemisphere.
- Sprecher, S., & Fehr, B. (2005). Compassionate love for close others and humanity. *Journal of Social and Personal Relationships, 22*, 629–651.
- Steele, C. M. (1988). The psychology of self-affirmation: Sustaining the integrity of the self. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 21, pp. 261–302). New York: Academic Press.
- Strauman, T. J. (1989). Self-discrepancies in clinical depression and social phobia: Cognitive structures that underlie affective disorders? *Journal of Abnormal Psychology, 98*, 14–22.
- Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: A social-psychological perspective on mental health. *Psychological Bulletin, 103*, 193–210.
- Tesser, A. (1988). Toward a self-evaluation maintenance model of social behavior. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 21, pp. 181–227). San Diego, CA: Academic Press.
- Tetlock, P. E., & Manstead, A. S. R. (1985). Impression management versus intrapsychic explanations in social psychology: A useful dichotomy? *Psychological Review, 92*, 59–77.
- Tice, D. M., Masicampo, E. J., & Elliot, A. J. (2008). *Approach and avoidance motivations in the self-concept and self-esteem. Handbook of approach and avoidance motivation*. New York, NY: Psychology Press. pp. 505–519.
- Trapnell, P. D., & Campbell, J. D. (1999). Private self-consciousness and the five-factor model of personality: Distinguishing rumination from reflection. *Journal of Personality and Social Psychology, 76*, 284–384.
- Zak, P. J., Kurzban, R., & Matzner, W. T. (2004). The neurobiology of trust. In R. Yahuda & B. McEwen (Eds.), *Biobehavioral stress response: Protective and damaging effects* (pp. 224–227). New York: New York Academy of Sciences.
- Zak, P. J., Kurzban, R., & Matzner, W. T. (2005). Oxytocin is associated with human trustworthiness. *Hormones and Behavior, 48*, 522–527.
- Zimet, G. D., Dahlem, N. W., & Zimet, S. G. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment, 52*, 30–41.
- Zimet, G. D., Powell, S. S., & Farley, G. K. (1990). Psychometric characteristics of the Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment, 55*, 610–617.

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ADULT ATTACHMENT ORIENTATIONS, STRESS, AND ROMANTIC RELATIONSHIPS

Jeffrey A. Simpson* and W. Steven Rholes†

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Abstract

In this chapter, we discuss attachment theory and our programs of research on how individuals with different adult attachment orientations think, feel, and especially *behave* when they and their romantic partners encounter different types of stressful situations. In [Section 2](#), we review some basic principles of attachment theory, discuss what adult attachment orientations are, and summarize what they correlate with in the context of relationships. We also review how the different adult attachment orientations are associated with how individuals regulate negative emotions in threatening situations. In [Section 3](#), we discuss diathesis–stress thinking in attachment theory, and we introduce the

* Department of Psychology, University of Minnesota, Minneapolis, Minnesota, USA

† Department of Psychology, Texas A&M University, College Station, Texas, USA

general diathesis–stress process model that has guided most of our research on adult attachment, stress, and relationships during the past 20 years. In [Section 4](#), we review the various programs of attachment research we have conducted, which have tested how adults who have different attachment orientations cognitively, emotionally, and behaviorally react to different types of threat/stress vis-à-vis their romantic partners and relationships. We conclude the chapter by summarizing our diathesis–stress findings and by discussing promising directions for future research.

1. INTRODUCTION

Across human evolutionary history, protection from danger by a stronger, older, or wiser figure has been essential for the survival of vulnerable infants and young children. To ensure sufficient protection, evolutionary selection pressures produced an innate system—the attachment system—that motivates vulnerable individuals to seek close physical and/or emotional proximity to stronger/wiser protective figures, particularly when they are distressed ([Bowlby, 1969, 1973, 1980](#)). These behavioral tendencies would have increased the chances of surviving to reproductive age, permitting the genes that coded for the attachment system to be passed on to offspring ([Simpson & Belsky, 2008](#)). This principle—that humans evolved to seek and maintain close physical and emotional ties to their primary caregivers when they are distressed—is *the* fundamental tenet of attachment theory.

In this chapter, we focus on adult attachment research that has investigated how people who have different attachment histories (orientations) typically think, feel, and behave when they are confronted with different types of threat. Although the attachment system operates more visibly and strongly in infants and young children and it was more critical to their immediate survival, [Bowlby \(1969, 1973\)](#) maintained that attachment motives affect how people think, feel, and behave in close relationships “from the cradle to the grave” ([Bowlby, 1979, p. 129](#)). Most of the research that we review in this chapter tests diathesis–stress principles that flow from attachment theory. In our various programs of research, we have conceptualized attachment insecurity as a diathesis that sometimes generates maladaptive interpersonal responses to certain stressful or threatening events.

The chapter is divided into four major sections. In [Section 2](#), we discuss core principles of attachment theory and adult attachment orientations, including how these orientations are measured and their major correlates. We also review how each adult attachment orientation is associated with the way in which individuals regulate negative emotions in threatening situations. In [Section 3](#), we discuss diathesis–stress models and associated principles in attachment theory. We also introduce the general process model

that has guided most of our research on adult attachment, stress, and relationships during the past 20 years. [Section 4](#) reviews the programs of attachment research we have conducted, which have investigated how adults who possess different romantic attachment orientations cognitively, emotionally, and behaviorally respond to different types of threat/stress vis-à-vis their romantic partners and relationships. We conclude the chapter by summarizing our diathesis–stress findings and discussing promising directions for future research.



2. ATTACHMENT IN ADULTHOOD

In this section, we first briefly review core principles of attachment theory, the construct of attachment working models, and how they operate in adults. We then discuss the two primary dimensions that define individual differences in adult romantic attachment orientations (anxiety and avoidance), including the major correlates of each attachment orientation (style) and how each orientation is associated with the way individuals typically regulate their emotions in distressing situations.

2.1. Principles of attachment theory

According to [Bowlby \(1969\)](#), the primary purpose of the attachment behavioral system is to increase the likelihood that vulnerable individuals survive the numerous perils and dangers of childhood. The attachment system was ostensibly molded by natural selection to activate (turn on) whenever an individual experiences fear, anxiety, or related forms of distress. The primary conditions that activate the attachment system include what [Bowlby \(1973\)](#) termed “natural cues” to danger, such as unexpected noises, looming objects, heights, and darkness. They also include other fear-inducing stimuli such as wild animals, isolation from other people, separation from one’s attachment figure, and physical conditions such as extreme hunger, fatigue, or illness ([Bowlby, 1969, 1973](#)). From an evolutionary viewpoint, the attachment system is designed to promote survival. From a psychological viewpoint, however, it functions to reduce fear, anxiety, and related forms of distress, thus permitting individuals to pursue other important life tasks and goals. According to [Bowlby \(1969\)](#), the primary strategy for achieving this important “set-goal” is to seek proximity to and comfort from attachment figures when one is distressed, both in childhood and in adulthood.

Proximity seeking can take many forms. For example, individuals can reduce the physical distance between themselves and their attachment figures, as when a romantic partner moves closer to his/her mate after

hearing a sudden, loud noise. Proximity seeking also includes closely attending to or monitoring one's attachment figure by locating and tracking his/her whereabouts, and it can involve protests and signs of distress intended to motivate one's attachment figure to approach and provide comfort. In adults, proximity seeking also entails the manipulation of internal representations of attachment figures, either consciously or unconsciously (see Mikulincer & Shaver, 2007a, 2006b). When an attachment figure is open and receptive to proximity bids, proximity seeking becomes the primary strategy that individuals use to deal with fearful or anxiety-provoking events. However, when attachment figures are *not* open and receptive (such as when they are either absent or reject, ignore, or fail to notice proximity bids), individuals learn to use "secondary" strategies to manage distress (which are described in more detail below).

The attachment system is terminated (turns off) when individuals experience a sufficient reduction in fear, anxiety, or distress, a process known as the attainment of "felt security" (Sroufe & Waters, 1977). When felt security is not sufficiently attained, the attachment system remains partially or fully activated. If the attainment of felt security is continually denied by attachment figures, an individual's attachment system can remain in a chronic state of activation. When this happens, individuals cannot fully attend to other important life tasks, such as caring for others or exploring the environment.

2.2. Working models in adults

Over time, people develop a mental record of their efforts to achieve proximity and comfort from their attachment figures in different social contexts, including the successes or failures of prior contact-seeking attempts. These mental representations form one of the core cognitive-emotional components of the attachment system that Bowlby (1969, 1973) termed mental representations or "working models." According to Bowlby (1973), working models have two primary components: (1) a model of significant others (i.e., attachment figures), which includes their past responsiveness to bids for proximity and comfortable, and (2) a model of the self, which includes information about the self's ability to achieve sufficient proximity/comfort along with one's value as a relationship partner.

According to Bowlby (1969, 1973, 1980), the way in which individuals are treated by significant others across the lifespan (e.g., parents, close friends, romantic partners) shapes the expectations, attitudes, and beliefs that they hold about future partners and relationships. These interpersonal expectancies, attitudes, and beliefs, which are central features of working models, operate as "if/then" propositions that guide how people think, feel, or behave, especially when they are distressed (e.g., "*If I am upset, then I can*

count on my partner to comfort and support me” or “If I feel overwhelmed, then I cannot depend on my partner to help me out”). Working models are cognitive structures that reflect an individual’s cumulative perceptions of experiences with past attachment figures (Collins, Guichard, Ford, & Feeney, 2004). They contain episodic, semantic, and affective information that include (1) rules governing how one ought to think, feel, and behave with relationship partners in different situations; (2) guidelines for how to interpret and regulate emotional experiences with partners; (3) beliefs, attitudes, and values about partners, relationships, and relationship experiences; (4) expectations about what future partners, relationships, and relationship experiences will be like; and (5) episodic memories and emotions tied to prior relationship experiences. The accessibility of working models depends on the amount of direct personal experience on which they are based, the frequency with which they have been used in the recent past, and the density of neural connections with other related relationship schemas (Baldwin, 1992; Collins & Read, 1994). Once they develop, working models guide how individuals *orient* to their attachment figures and the interpersonal world around them, particularly in stressful contexts.¹ Working models also influence the way in which relationship-relevant information and events are filtered, interpreted, and acted upon in nonstressful situations as well.

A vast body of research has documented numerous ways in which attachment working models influence information processing and interpersonal functioning (see Mikulincer & Shaver, 2007a for a review). In the broadest terms, working models have been shown to affect whether, how, and when people selectively attend to and perceive their romantic partners; how they make inferences, judgments, and decisions about their partner’s actions and reactions; how they think, feel, and behave in specific interpersonal contexts; and what they remember—or fail to remember—about their partner’s previous actions (Collins et al., 2004; Feeney, 2008; Mikulincer & Shaver, 2007b). In most adult attachment studies, working models are not measured directly; rather, they are assessed indirectly based on how individuals report they typically think, feel, and behave in close relationships, especially romantic ones.²

2.3. The two-dimensional model of attachment orientations

Hazan and Shaver (1987) developed the first self-report measure of individual differences in attachment orientations (styles) with respect to adult romantic partners/relationships. To do so, they identified the prototypic

¹ This is why we prefer the term “attachment orientations” to “attachment styles.”

² Attachment-relevant events occur when individuals feel distressed and need protection, comfort, and/or support, especially from an attachment figure (Mikulincer & Shaver, 2007b).

emotional and behavioral characteristics of secure, anxious, and avoidant children documented by Ainsworth, Blehar, Waters, and Wall (1978). Hazan and Shaver then grouped these prototypic features into three short paragraphs that described what secure, anxious, and avoidant adults ought to look like. Their initial findings for each attachment orientation (style) were remarkably consistent with predictions derived from attachment theory. For example, secure, anxious, and avoidant people reported experiencing love and the course of love in relationships very differently, and they held different views about the availability and trustworthiness of themselves as well as their relationship partners. In addition, many of the prototypical features of secure, anxious, and avoidant adults closely paralleled what Ainsworth et al. (1978) had found for secure, anxious, and avoidant infants. Given the limitations associated with categorical measures, subsequent attachment researchers (e.g., Collins & Read, 1990; Feeney & Noller, 1990; Simpson, 1990) translated the sentences in Hazan and Shaver's three paragraphs into individual items that could be rated on Likert-type scales. Simpson (1990), for instance, factor analyzed 13 items taken from the Hazan and Shaver paragraphs and identified two orthogonal dimensions, which are now known as attachment anxiety and attachment avoidance.

Research has repeatedly confirmed that two relatively uncorrelated dimensions underlie individual differences in adult romantic attachment (see Brennan, Clark, & Shaver, 1998; Fraley, Waller, & Brennan, 2000; Griffin & Bartholomew, 1994; Simpson, Rholes, & Phillips, 1996). The first dimension, called *avoidance*, reflects the degree to which individuals feel comfortable with closeness and emotional intimacy in relationships. People who score higher on avoidance claim to be less invested in their relationships, and they strive to remain psychologically and emotionally independent of their partners. Avoidant individuals are more likely to agree with self-report items such as "I'm not very comfortable having to depend on other people," "I don't like people getting too close to me," and "I find it difficult to trust others completely."

The second dimension, called *anxiety*, assesses the degree to which individuals worry about being underappreciated and possibly abandoned by their romantic partners. Individuals who score higher on anxiety claim to be highly invested in their relationships (sometimes to the point of enmeshment), and they yearn to get closer to their partners and feel more secure in their relationships. Anxious people are more likely to endorse items such as "Others often are reluctant to get as close as I would like," "I often worry that my partner(s) don't really love me," and "I often want to merge completely with others, and this desire sometimes scares them away." Although avoidance and anxiety are continuously distributed measures, attachment researchers often use the terms "avoidant" and "anxious" to refer to people who score higher on these measures compared to those who score lower.

Prototypically *secure* people score lower on the anxiety and avoidance dimensions. Secure individuals are comfortable depending on their partners and having their partners depend on them in return. They enjoy closeness and emotional intimacy in relationships, and they do not worry about their partners withdrawing from or leaving them. Secure people are more likely to agree with items such as “I find it relatively easy to get close to others,” “I’m comfortable having others depend on me,” and “I’m confident others would never hurt me by suddenly ending our relationship.” Because security is defined as scoring lower on avoidance and/or anxiety, inferences about attachment security in adult attachment studies focus on how people who score lower on avoidance and/or anxiety respond to different situations.

Nearly 25 years of research has identified several foundational correlates of these adult attachment orientations. Securely attached adults, for example, tend to have more positive views of themselves and close others (Bartholomew, 1990; Hazan & Shaver, 1987), which helps them develop and maintain more positive, optimistic, and benevolent views of their partners and relationships (Hazan & Shaver, 1994). The overarching goal that motivates securely attached people is to build greater closeness and intimacy with their attachment figures (Mikulincer, 1998). Because secure people are confident that their attachment figures are (or will be) available, attentive, and responsive to their requests for support, they directly turn to their partners for help when distressed. By adopting this “problem-focused” coping strategy (Lazarus & Folkman, 1984), secure people are able to deactivate their attachment systems more quickly and completely than insecure people, allowing them to resume other important life tasks (Mikulincer & Shaver, 2003). As a result, securely attached people spend comparatively less time, energy, and effort dealing with attachment-related issues. All of these characteristics allow secure people to have relatively happier, better functioning, and more stable romantic relationships (Feeney, 2008).

Anxiously attached adults harbor negative self-views and guarded but somewhat hopeful views of their romantic partners (Bartholomew, 1990; Hazan & Shaver, 1987). These ambivalent perceptions lead anxious persons to question their worth as relationship partners, resent how they have been treated in past relationships, worry about losing their current partner, and remain vigilant to signs that their partner could be pulling away (Cassidy & Berlin, 1994). Consequently, the central goal of anxiously attached persons is to increase their deficient level of felt security (Mikulincer, 1998), which sometimes leads them to behave in ways that smother or scare their partners away. Because anxious persons are uncertain about whether they can truly count on their partners to be available and supportive when needed, their working models amplify distress, which often makes them feel even *less* secure in their relationships. At the same time, however, they want to

believe that their attachment figures may eventually be attentive and responsive. As a result, anxious people rely on “emotion-focused” (Lazarus & Folkman, 1984) or “hyperactivating” (Mikulincer & Shaver, 2003) coping strategies when they are distressed. These strategies sustain and sometimes escalate their concerns, worries, and cognitive ruminations, which keeps their attachment systems activated for longer periods of time. Each of these characteristics explains why anxious individuals tend to be involved in less satisfying, poorly adjusted, and more turbulent romantic relationships (Feeney, 2008).

Research has confirmed that attachment anxiety is associated with the use of more negative emotional, cognitive, and behavioral regulation strategies. For example, anxious individuals frequently respond to stressful events with heightened emotional distress (Feeney & Kirkpatrick, 1996), and they remain distressed well after actual threats have abated (Rholes, Simpson, & Oriña, 1999). They typically generate negative explanations for their partners’ ambiguous behaviors, frequently harboring thoughts that their relationships are in jeopardy and that their partners are unresponsive, not trustworthy, or deliberately rejecting them (Collins, 1996; Collins, Ford, Guichard, & Allard, 2006; Gallo & Smith, 2001; Pereg & Mikulincer, 2004). When their romantic partners display potentially relationship-damaging behaviors, anxious people usually respond defensively and destructively in return (Campbell, Simpson, Kashy, & Rholes, 2001; Gaines et al., 1997; Scharfe & Bartholomew, 1995), frequently displaying higher levels of anger, hostility, or coercive attempts to seek reassurance from their partners (Feeney, Noller, & Callan, 1994; Levy & Davis, 1988; Pistole, 1989; Simpson et al., 1996).

Avoidantly attached adults possess negative views of their attachment figures, and either positive self-views (in the case of dismissive-avoidants) or negative self-views (in the case of fearful-avoidants) (see Bartholomew, 1990). The primary goal of avoidant people is to create and maintain independence, control, and autonomy in their relationships (Mikulincer, 1998). They believe that seeking psychological or emotional proximity to their attachment figures is neither possible nor desirable. These beliefs impel avoidant people to use “distancing” (Lazarus & Folkman, 1984) or “deactivating” (Mikulincer & Shaver, 2003) coping strategies, which defensively suppress negative thoughts and emotions and increase independence and autonomy. Although their attachment systems appear to be quiescent, avoidant children (Vaughn & Sroufe, 1979) and adults (Dozier & Kobak, 1992; Mikulincer, 1998) are often physiologically aroused in stressful situations. All of these characteristics explain why avoidant people tend to have less close and less satisfying relationships that often end prematurely (Feeney, 2008).

Research has confirmed that avoidant individuals do use defensive deactivation strategies that limit intimacy and deny or suppress their

underlying need for closeness (Bowlby, 1980; Cassidy & Kobak, 1988; Crittenden & Ainsworth, 1989), and they actively strive to maintain autonomy, control, and emotional distance in their relationships (Fraley, Davis, & Shaver, 1996; Fraley & Shaver, 1998; Mikulincer, 1998; Shaver & Hazan, 1993). Nevertheless, they experience distress when their partners are not available or are unsupportive, particularly in stressful situations (Feeney & Kirkpatrick, 1996; Mikulincer, Florian, & Tolmacz, 1990; Wei, Vogel, Ku, & Zakalik, 2005). Avoidant individuals also experience elevated negative emotions during partner separations (Feeney & Kirkpatrick, 1996; Mikulincer, Florian, & Weller, 1993), make more negative attributions for their partners' ambiguous (and sometimes even positive) behaviors (Collins, 1996; Collins et al., 2006), engage in more defensive behaviors (Gaines et al., 1997; Pistole, 1989), and are less likely to use constructive conflict resolution tactics (Carmelley, Pietromonaco, & Jaffe, 1994; Simpson et al., 1996).

3. ATTACHMENT AND DIATHESIS–STRESS MODELS

In this section, we discuss diathesis–stress thinking within attachment theory. We begin by discussing how and why different sources of threat should reliably activate (switch on and make more accessible) attachment working models. We then discuss relationship-relevant events that ought to trigger the attachment systems of anxious and avoidant persons. Following this, we review the primary ways that stress has been conceptualized by attachment theorists, focusing on stress that is primarily external to relationships (stemming from physical or environmental events) or internal to them (stemming from events occurring within relationships), each of which can be either acute (temporary) or chronic (long-term). We then discuss Simpson and Rholes' (1994) original diathesis–stress model, which guided our program of research on person-by-situation attachment effects in the early-to-mid 1990s. We conclude the section by presenting a more recent and elaborate diathesis–stress process model that has guided our research in recent years.

3.1. Diathesis–stress thinking in attachment theory

Bowlby (1969, 1988) surmised that the attachment system becomes activated whenever individuals feel threatened or distressed. The principle activating conditions fall into three general categories: (1) *personal factors* (e.g., hunger, pain, fatigue, or illness), (2) *environmental factors* (e.g., frightening, dangerous, or overly challenging events), and (3) *relationship factors* (e.g., relationship conflict, discouragement of proximity by attachment

figures, prolonged absence of, separation from, or death of an attachment figure) (Mikulincer & Florian, 1998; Simpson & Rholes, 1994). Each of these threatening events has the potential to activate the attachment system by increasing the accessibility of working models and evoking behaviors designed to reduce distress and shut down the attachment system.

The cardinal (prototypic) emotional and behavioral tendencies of secure, anxious, and avoidant individuals should be witnessed in situations that trigger their attachment-relevant concerns, fears, worries, or unmet needs (Simpson & Rholes, 1994). Anxious people, for instance, should be more likely to display hypervigilance (by closely monitoring their partners or ruminating over “worst-case” relationship scenarios) in situations that lead them to question either their partners’ love and commitment or the long-term stability of their relationship. Unless these situations pose extreme or chronic threats, they should *not* activate the working models of secure or avoidant people, neither of whom worries about relationship loss. Avoidant people, however, should be motivated to establish or regain autonomy and control in situations in which their independence could be at risk, such as when their partners expect or demand greater emotional intimacy than they feel comfortable providing, or when avoidant persons are afraid yet do not want to turn to their partners for support. Avoidant individuals should also be motivated to reestablish their independence when relationship responsibilities begin to encroach on other important areas of their lives, such as their work or recreational activities. Unless these situations pose severe or chronic threats, they should *not* trigger the working models of secure or anxious people, neither of whom worries about increasing closeness or commitment.

One of the most specific diathesis–stress attachment predictions was made by Bowlby (1988), who described how the stress associated with unsupportive partners during the transition to parenthood should elicit postpartum depression, especially in women who have an anxious attachment history. According to Bowlby (1988, Fig. 3, p. 177), the loss of a mother and/or receiving poor care early in life should produce anxious working models centering on feelings of helplessness and low self-esteem. These working models should make anxiously attached individuals crave proximity to and support from their attachment figures (romantic partners) in adulthood. When faced with the chronic and intense stress of having a baby, anxiously attached mothers should be vigilant to and concerned about the amount of support from their romantic partners. According to Bowlby (1988), if anxious women enter parenthood believing that their partners are not or will not be sufficiently supportive, the combination of the diathesis (their attachment insecurity) and the stress (facing a chronic life transition with deficient partner support) should—and does—trigger increases in depression during the postnatal period (Rholes et al., 2011; Simpson, Rholes, Campbell, Tran, & Wilson, 2003).

3.2. Simpson and Rholes' (1994) attachment diathesis–stress model

Guided by Bowlby (1969, 1973, 1980, 1988), we (Simpson & Rholes, 1994) were among the first attachment theorists to systematically tie diathesis–stress thinking with attachment principles. We distinguished between acute and chronic stressors and developed a model outlining how acute and chronic stressors should influence the manner in which secure, avoidant, and anxious adults think, feel, and behave, particularly in stressful situations involving their romantic partners. According to this model, acute stressors potentiate the need for proximity with attachment figures in virtually all people, temporarily increasing the accessibility of their working models. However, the specific *type* of stressor that individuals confront (i.e., whether it is external to or internal to their relationships) ought to affect how secure, anxious, and avoidant individuals respond, depending on how distressed they or their partners are in the situation. Avoidant individuals, for example, should be particularly troubled when they encounter external sources of stress (e.g., fear-inducing situations) that lead them to want comfort and support (perhaps unconsciously) yet, given their history of rejection, also lead them to anticipate that support will not be forthcoming. Anxious individuals should be particularly disturbed by internal sources of stress (e.g., jealousy, relationship conflict) that signal their relationships might be unstable and in jeopardy.

Simpson and Rholes (1994) also propose that individuals differ in how accessible their working models are in nonstressful situations, with anxious persons having more chronically accessible models and avoidant persons having less chronically accessible ones. These differences stem from each individual's attachment history along with the specific stressor that she or he is currently experiencing, especially when it is associated with unmet needs for proximity and support from attachment figures. Among people with higher chronic baseline levels of felt insecurity (anxious persons), weaker and more mundane events, such as minor personal slights or inconsiderate partner behaviors, should evoke their needs for proximity and support. Higher chronic baseline levels should also amplify the impact that working models have on interpersonal perceptions, emotions, and behaviors, even in nonstressful settings.

Highly chronic stressors such as persistent health problems or major life transitions should also activate the need for proximity and support in most people, particularly anxious ones. When stress becomes chronic, however, even good and sustained partner support might not fully deactivate the attachment system if threat and anxiety never completely abate. In these contexts, chronic stress may generate prolonged and sustained activation of the attachment system, increasing baseline levels of felt insecurity. Over time, this may produce increases in attachment insecurity in most people.

The most novel prediction of [Simpson and Rholes' \(1994\)](#) model centers on “steeling effects” in which strong yet manageable (and eventually resolvable) stress is necessary for permanently strong emotional bonds to form between relationship partners. When chronic stress is pronounced, individuals tend to feel more insecure, which gives relationship partners unique opportunities to offer and receive the type of unambiguous, unwavering support needed to galvanize relationships. Steeling effects, however, are most likely to occur when chronic stress is not too extreme and the less distressed partner in the relationship can serve as a secure base for his/her more distressed partner. Examples of steeling effect bonds have been documented in wartime combat buddies ([Elder & Clipp, 1988](#); [Milgram, 1986](#)), female friends who have endured traumatic life events together ([Woolsey & McBain, 1987](#)), and traumatized children who have become resilient with the help of highly supportive mentors or parental figures ([Garmezy, Masten, & Tellegen, 1984](#); [Masten & O'Connor, 1989](#)).

3.3. Simpson and Rholes' (2012) attachment diathesis–stress process model

The general principles of our 1994 diathesis–stress model guided our early thinking about how attachment processes influence what transpires in romantic relationships, particularly when partners or relationships are threatened. This model, however, does not depict all of the constructs, stages, and processes that reflect our entire program of research on how adult romantic attachment affects the way in which partners think, feel, and behave in stressful situations. The more comprehensive diathesis–stress process model that has guided and informed our most recent research is shown in [Fig. 6.1](#).

Similar to most major theories, attachment theory has both a *normative* component that explains species–typical patterns of behavior and an *individual difference* component that explains how and why people sometimes differ in how they think, feel, and behave in certain situations. Our diathesis–stress process model can be viewed from both a normative (species–typical) and an individual difference viewpoint. We first describe the model from a normative attachment perspective and then describe it from an individual difference standpoint.

From a normative perspective, three types of negative events can activate the attachment system: (1) negative external events (e.g., dangerous situations, threatening events), (2) negative relational events (e.g., relationship conflict, separation from attachment figures, abandonment), and (3) cognitive/emotional stressors (e.g., imagined negative events that might occur). These events automatically evoke distress in all people, including those motivated to deactivate or suppress feelings of distress and vulnerability (i.e., avoidant individuals). Once aroused, distress automatically triggers the core (species–typical) attachment motivations to seek proximity,

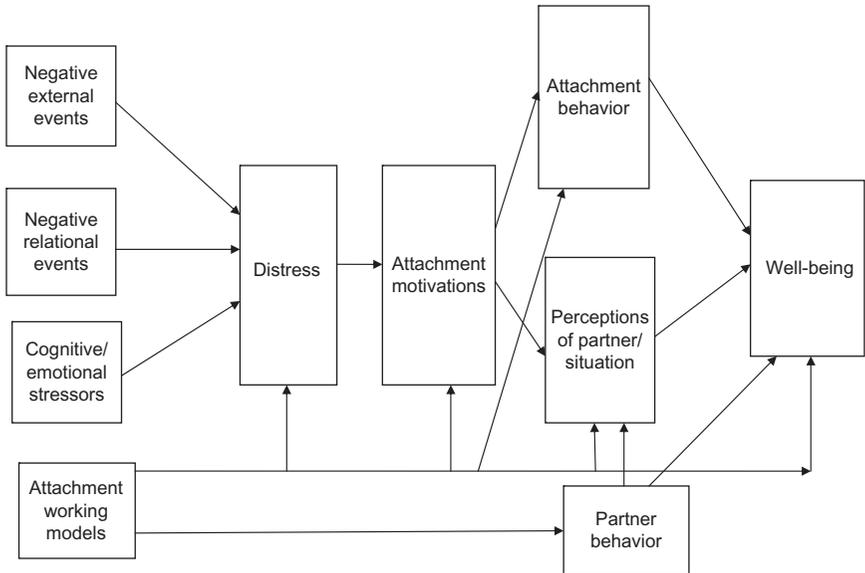


Figure 6.1 The attachment diathesis–stress process model.

support, and reassurance from attachment figures in virtually all people, even if they do not consciously feel or directly act on these basic motivations. These attachment motivations, in turn, elicit both attachment behaviors geared to mitigate and regulate distress (and hopefully deactivate the attachment system) and perceptions of the partner and current situation. Perceptions of the partner/situation can also be affected by how the partner behaves (i.e., what she or he says or does) in the situation. As we shall see, however, the specific attachment behaviors that individuals enact and the partner/relationship perceptions they have depends on their attachment histories and working models. These enacted behaviors and perceptions in turn influence the personal and relational well-being that individuals feel, report, or display in the stressful situation.

From a normative standpoint, attachment working models can affect all stages of this diathesis–stress process model, as depicted by the lines from attachment working models leading into each stage of the model shown in Fig. 6.1. For example, working models can influence how distressed individuals feel (or acknowledge feeling) in response to certain types of negative/stressful events, and they govern the specific types of attachment motivations that are evoked when distress is experienced (see below). Working models can also affect the types of attachment behaviors that individuals display once attachment motivations are triggered, how they perceive their partners within the situation, and how their partners behave.

Each of these pathways can impact the quality of personal and relational well-being during or following the stressful event, as indexed by relationship satisfaction, depression, relationship quality, and other outcomes. In isolated cases, working models may also exert a direct effect on well-being, independent of what else occurs in a specific stressful situation.³

From an individual difference perspective, our diathesis–stress process model highlights the different “pathways” that avoidant, anxious, and secure individuals should follow when they encounter certain types of distressing situations (see Fig. 6.1). When individuals with secure attachment histories experience distressing situations or events (relatively few of which should be caused by cognitive/emotional stressors), they should recognize that they are upset and might need help or assistance from their attachment figures, depending on the nature of the stressor and the skills they have to deal with it effectively. Given the positive nature of their working models, secure individuals should be motivated to manage distress by drawing closer to their partners physically and/or emotionally in order to increase closeness and intimacy with them (Mikulincer, 1998). This tendency should be facilitated by their use of problem–focused coping strategies, which allow secure people to resolve the current problem (i.e., the actual source of their distress) constructively, quickly, and completely with appropriate assistance from their attachment figures (Mikulincer & Shaver, 2003). The attachment behaviors that secure individuals enact should entail directly requesting and/or seeking proximity, comfort, and support from their attachment figures, which should help them dissipate distress so they can resume other important life tasks. Because of their positive working models and constructive, relationship–centered coping strategies, the *partners* of secure individuals should also react in more positive and constructive ways when secure individuals request comfort, care, or support from them (unless, of course, their partners are insecurely attached). Secure individuals should also perceive their partner’s intentions, motives, and actions in the situation as more benevolent, sometimes even more so than they actually might be (i.e., positive partner illusions; see Murray, Holmes, & Collins, 2006). These positive perceptions of the partner and the situation should result in better personal and/or relational well-being following most stressful events.

The model pathways are different and divergent for the two types of insecurely attached people. When anxiously attached individuals are exposed to stressful events (more of which should be generated by cognitive/emotional stressors given their tendency to ruminate obsessively), they

³ Though not depicted in Fig. 6.1, attachment working models may also affect how people perceive and imagine cognitive/emotional stressors. For example, individuals who have anxious working models should be more likely to envision and ruminate about “worst-case” outcomes that enhance distress and strengthen various pathways in the diathesis–stress process model shown in Fig. 6.1.

should be keenly aware that they are upset and should desire immediate, direct, and unqualified assistance from their attachment figures. Given the ambivalent and conflicted nature of their working models, anxious individuals should be motivated to reduce distress by doing whatever it takes to increase their sense of felt insecurity with their partners (Mikulincer, 1998). This process is likely to be exacerbated by their tendency to use emotion-focused/hyperactivating coping strategies (Mikulincer & Shaver, 2003), which direct their attention to the source of distress, trigger rumination about “worse-case” scenarios and outcomes, and divert attention away from how to constructively remove the stressor(s) that initially activated their attachment systems. Thus, the attachment behaviors that anxious individuals exhibit should take the form of intense and obsessive proximity, support, and reassurance seeking from their attachment figures (i.e., emotional clinginess), which often fail to fully abate their distress. Given their conflicted working models and use of emotion-focused coping styles, the *partners* of anxiously attached individuals should grow weary of having to continually provide “underappreciated” reassurance and support, which anxious individuals ought to view as signs of rejection. Anxious individuals should also perceive their partner’s intentions, motives, and actions in less benevolent terms during the stressful situation, underestimating the amount of care and support that their partners have provided or are willing to provide in the future. These negative perceptions of the partner and situation should, in turn, generate less personal and/or relational well-being in the aftermath of most stressful events.

When grappling with stressful events (very few of which should be caused by cognitive/emotional stressors), avoidant individuals may often be unaware that they are upset, and they should neither want nor seek assistance from their attachment figures. In view of the negative and cynical nature of their working models, avoidant individuals should be motivated to reduce and contain distress by being self-reliant, which allows them to reestablish a sense of independence, autonomy, and personal control (Mikulincer, 1998). This process should be facilitated by their use of avoidant/deactivating coping strategies (Mikulincer & Shaver, 2003), which defensively suppress conscious awareness of their distress, attachment needs, and attachment behaviors, at least in the short-run (as for the long-run, see Berant, Mikulincer, & Florian, 2001). Consequently, avoidant individuals engage in attachment behaviors that permit some contact with their attachment figures, but at a safe and emotionally comfortable distance and on terms dictated by avoidant individuals. Given their negative working models and avoidant/deactivating coping tactics, the *partners* of avoidant individuals should typically offer less reassurance and support to them, which avoidant individuals should prefer but still might interpret as evidence of rejection. Avoidant individuals should also perceive their partner’s intentions, motives, and behaviors in the stressful situation in less

benevolent ways, often underestimating the amount of care and support that their partners are willing to provide or have already given them. These negative partner and situation perceptions should, in turn, produce less personal and/or relational well-being in the wake of most stressful events.

4. REVIEW OF DIATHESIS–STRESS ATTACHMENT STUDIES

During the past two decades, several studies have documented diathesis–stress attachment effects (see Mikulincer & Shaver, 2007a, 2007b for reviews). Much of this research has focused on how experimentally manipulated sources of threat cause individuals to process information differently (e.g., Mikulincer, Gillath, & Shaver, 2002). Some of the most programmatic research on this topic has been conducted by our research group. For the past 20 years, we have tested attachment diathesis–stress effects in various situations that, according to attachment theory, should reliably activate the attachment systems of secure, anxious, and avoidant people. Our attention has focused on how different types of threat affect *behavior*—what people actually say and do in specific situations—in the context of their romantic *relationships*. This body of research, which is reviewed below, has also examined the unique role that different types of stress have in eliciting the quintessential behavioral and emotional features—the *relational signatures*—of attachment security, anxiety, and avoidance.

In this part of the chapter, we review more than 20 published studies from our labs that have examined three major sources of stress: (1) acute stress that is external to the relationship, (2) acute stress that is internal to the relationship, and (3) long-term/chronic stress (see Fig. 6.1). When describing the results of these studies, we report effects for “avoidant” and “anxious” people (i.e., for people who score high on these attachment dimensions). It is important to keep in mind that attachment security is reflected by lower scores on attachment anxiety and/or avoidance, and reported findings for anxiety and avoidance refer to statistical comparisons between individuals who score high versus low on each attachment dimension. It is also important to realize that each study reported below was designed to test only portions (i.e., specific paths) of the general diathesis–stress model shown in Fig. 6.1, and several paths have been tested in research conducted by other investigators.

4.1. External/acute stress

As shown in Fig. 6.1, one major type of stress is both acute and external to one’s current relationship. Bowlby (1969, 1973) devoted considerable attention to how temporary, environmentally based stressors, such as

dangerous, fear-inducing, or anxiety-provoking events, ought to activate the attachment systems of all people. The way in which individuals react to these stressors, however, should depend on their unique attachment histories and working models. Several laboratory experiments have confirmed that presenting people with subliminal or supraliminal threatening stimuli (e.g., threatening words, pictures) does increase the accessibility of mental representations of attachment figures (e.g., Mikulincer, Birnbaum, Woddis, & Nachmias, 2000; Mikulincer et al., 2002).

We now review our research that has tested whether and how different forms of external/acute stress affect the way in which anxious, avoidant, and secure people think, feel, and particularly behave in relationship contexts. We first describe a series of fear-induction studies, followed by a series of studies that have manipulated external relationship threats. Each of these studies involves external/acute stressors.

4.1.1. Fear/anxiety-induction studies

One of the most basic questions in the attachment literature is how do attachment bonds form between unacquainted people? Bowlby (1969) conjectured that initial feelings of attachment security should develop when an individual is distressed and another person (a potential attachment figure) provides a sense of protection and a “safe haven” from the stressful experience. Attachment bonds, therefore, should be forged in response to stress→relief experiences in which distressed individuals learn they can find a “safe emotional refuge” in another person, which reduces their negative affect (Mikulincer & Shaver, 2007b; Simpson & Rholes, 1994).

To test this idea, Beckes, Simpson, and Erickson (2010) exposed individuals to a backward conditioning paradigm. In this experiment, individuals saw subliminally presented pictures of fear-inducing stimuli (a striking snake or injured people) and neutral stimuli (kitchen items) for 14ms. Each subliminal prime was repeatedly paired with (backward conditioned to) photos of strangers who either were smiling or had neutral facial expressions. Once each face had been backward conditioned to either a fear-inducing image or a neutral image over 20 conditioning trials, individuals then did a lexical decision task. As part of this task, each conditioned face first appeared on a computer screen for 500ms immediately before individuals saw a series of letters. Their task was to indicate whether the letters formed a word or a nonword as quickly and accurately as possible. Four types of words were presented: secure words, insecure words, positive nonattachment words, and negative nonattachment words. According to attachment theory, people should start to feel a sense of attachment security toward strangers who appear more receptive (are smiling) when they are distressed, but not under other circumstances. As predicted, individuals identified secure words more quickly when they saw a smiling face of a stranger who had previously been conditioned with a *threatening* subliminal

stimulus (a striking snake or injured people) during the earlier conditioning trials. These results suggest that attachment security begins to form in response to stress→relief episodes rather than other types of interaction sequences.

The primary focus of our research on external/acute stressors, however, has been on how individuals *behave* with their romantic partners when they are exposed to stressful events in their immediate environment. Our first diathesis–stress study (Simpson, Rholes, & Nelligan, 1992) examined how adult attachment orientations moderate *support giving* and *support seeking* in romantic couples when one partner is induced to be upset and in need of support, while the other partner is not distressed and in a position to provide it. In this first behavioral observation study, we unobtrusively videotaped dating couples while the female partner was waiting to do an activity that ostensibly produced fear and anxiety in most people. To induce fear/anxiety, each female partner was told:

In the next few minutes, you are going to be exposed to a situation and set of experimental procedures that arouse considerable anxiety and distress in most people. Due to the nature of these procedures, I cannot tell you any more at the moment. Of course, I'll answer any questions or concerns you have after the experiment is over.

The experimenter then led the female partner to a room normally used for psychophysiological research. The experimenter opened a heavy metal door, exposing a dark, windowless room that looked like an isolation chamber and contained psychophysiological equipment. The experimenter made sure each female peered into the room and saw the equipment. The experimenter then stated that the equipment was “not fully set up,” after which she or he led the female back to the waiting room. The experimenter then escorted the male partner to the waiting room and left each couple alone for 5 min. Nothing was said to the male partner about his partner's impending stressful situation. During this time, the couple's spontaneous interaction was unobtrusively videotaped.

Trained observers then watched each videotaped interaction and rated how distressed and how much support each female partner sought during the 5-min waiting period and how much support her male partner offered (on Likert-type rating scales). High- and low-avoidant partners differed noticeably in the amount of support they both sought or gave, depending on how distressed the female partner was during the waiting period. As shown in Fig. 6.2, if women were less avoidant (i.e., more secure), they sought more support when they were more distressed but sought less support when they were less distressed. Conversely, highly avoidant women sought *less* support when they were more distressed and *more* support when they were less distressed. Less avoidant (more secure) men provided more support when their partners appeared more distressed

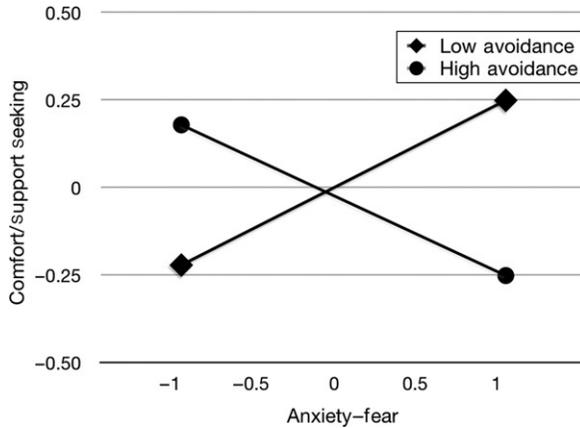


Figure 6.2 The relation between observer-rated anxiety/fear and comfort/support seeking for high and low avoidant women (from Simpson et al., 1992). Regression lines are plotted for women scoring 1 SD above and below the sample mean on avoidance. Values for anxiety/fear and comfort/support seeking are presented in SD units.

(regardless of their female partner's attachment orientation), whereas more avoidant men offered *less* support when their partners were *more* upset and more support when they were less upset. However, if the partners of highly distressed avoidant women were able to “break through” and provide more support, highly avoidant women benefitted the most from receiving support, as indicated by raters evaluating them as appearing most “calmed.” In sum, consistent with our diathesis–stress model (see Fig. 6.1), this initial behavioral observation study confirmed that, when stress is external and acute, highly avoidant women pull away from their romantic partners when they are more upset, and more avoidant men offer less support when their partners are more upset, whereas the reverse is true of securely attached women and men.

We have found conceptually similar effects when the support-giving and support-receiving roles are reversed (when men are waiting to do a stressful task with their nonstressed female partners) and when a different attachment measure (the Adult Attachment Interview [AAI]) is used. Simpson, Rholes, Oriña, and Grich (2002) videotaped dating couples while the male partner was waiting to do the same anxiety-provoking activity described above as his female partner waited with him, believing that she would be doing a nonstressful activity. After the study, trained observers rated how distressed and how much support each male partner sought and how much support his female partner provided on Likert-type scales. Women who had more secure representations of their *parents* (based on their AAI scores) and whose dating partners sought more support actually provided more support

than less secure women did. Secure women, however, provided *less* support if their male partners did not directly request it. This pattern of “situationally contingent support” is similar to how the mothers of securely attached children behave when their children are upset. When their children are distressed and require assistance, the mothers of secure children directly and actively offer guidance and help; however, when their children can solve tasks on their own, these mothers step back and let their children solve problems on their own, which increases the child’s skills and competence.

Other investigators have documented similar patterns of findings involving external/acute stressors. Fraley and Shaver (1998), for example, observed and rated what romantic couples did while they were separating in an airport terminal, after which they measured each partner’s attachment orientation. As separation loomed in this distressing situation, avoidant individuals were less likely to seek physical contact with their partners and more likely to engage in avoidance behaviors (e.g., looking elsewhere, watching TV, turning away, appearing distracted) than were less avoidant (more secure) individuals. These findings are consistent with other laboratory experiments, which show that simply thinking about death increases proximity seeking more in securely attached persons than in insecurely attached ones (Mikulincer & Florian, 2000; Taubman Ben-Ari, Findler, & Mikulincer, 2002).

In sum, consistent with both attachment theory and our diathesis–stress process model, avoidantly attached people are *not* poorer support seekers and poorer support providers in general; they are deficient only when they (or their partners) are upset and support seeking or support giving is prescribed by the situation. Moreover, securely attached people do not always seek or provide greater support; rather, they do so primarily when they (or their partners) are distressed and direct emotional support truly needs to be sought or offered.

We have also investigated how fear-inducing situations differentially influence the display of *anger* directed toward romantic partners. In another behavioral observation study, Rholes et al. (1999) induced fear/anxiety in women by telling them they were going to engage in an anxiety-provoking activity (described above). While women waited with their dating partner for the activity to begin, each couple’s interaction was videotaped during a 5-min “stress” period. Each couple was then told that, due to malfunctioning equipment, the woman would *not* have to do the stressful activity, after which each couple was videotaped during a 5-min “recovery” period. After the study was over, the behavior of both partners was coded during each period (stress and recovery) by trained raters on Likert-type scales. Avoidant men displayed greater anger toward their distressed partners during the stress period than less avoidant (more secure) men did, especially if their partners appeared more distressed or sought more support from them during the stress period. Avoidant women also displayed greater anger toward their

partners than less avoidant (more secure) women did, particularly if they were more distressed and received less support during the stress period or if they encountered anger from their male partners. During the recovery period, anxiously attached women behaved much more negatively toward their partners, especially if they had been distressed during the stress period or had sought support from their partners.

These findings make sense when viewed in the context of our diathesis–stress model (see Fig. 6.1). During the stress period, the attachment systems of women should have been activated by the impending anxiety-provoking event; the attachment systems of men, in contrast, should have been elicited indirectly by their *partner's* distress and bids for support (Kobak & Duemmler, 1994). During the recovery period, the stressor—and therefore the need to seek or give support—was removed. As a result, the recovery period gave both partners—especially women—an opportunity to evaluate their relationships based on how their partners had just behaved during the stress period. The stress period should have been (and was) particularly difficult for avoidant persons because it accentuated emotional dependence and caregiving, issues that avoidant people try to circumvent whenever possible (Bowlby, 1973). The recovery period should have been more difficult for anxious persons because their deep-seated relationship worries and concerns should make them question their partners' true feelings and actual level of commitment (Cassidy & Berlin, 1994). Thus, having the opportunity to reflect on their partners' actions in the stress period during the nonstressful recovery period should have been especially important to anxious people.

Although not depicted in Fig. 6.1, some of these effects may be contingent on the amount of *dependence* that individuals have on their partners and relationships. For example, reanalyzing data from the Simpson et al. (1992) study, Campbell et al. (2001) found that avoidantly attached individuals behaved more “negatively” toward their partners during the stressful 5-min waiting period (i.e., they were rated as being more likely to distance themselves from their partners, display more negative emotions, act in a more irritated manner, and be more critical of their partners) (cf. Collins & Feeney, 2000; Feeney, 2004). Individuals also behaved more negatively if their *partners* were more avoidant. Most importantly, however, avoidance and the degree of dependence on the partner/relationship also interacted to predict how *both* relationship partners behaved during the stressful waiting period. In particular, less avoidant (more secure) and more dependent individuals behaved the *least* negatively toward their partners during the waiting period, whereas more avoidant and less dependent people behaved the most negatively.

These findings are also consistent with our diathesis–stress model (see Fig. 6.1). People who view attachment figures as more trusting and caring (i.e., secure individuals) should act less negatively when they are distressed,

especially if they have forged more closeness and dependence with their partners. Conversely, people who hold more negative views of their attachment figures should behave more negatively, especially if they have not developed dependence, which is true of many avoidant people. Even though avoidant people generally behave more negatively toward their partners when they are upset, they respond even *more* negatively if they are not dependent on them. Similarly, although more dependent people usually respond less negatively toward their partners, they tend to be most responsive and behave even *less* negatively when they are less avoidant (more secure). In sum, both avoidant attachment and relationship dependence are important in fully understanding how people behave toward their romantic partners in external/acute stressful situations.

4.1.2. Relationship threat studies

A second major set of external/acute stress studies have tested how threats posed by attractive alternative partners and other transient relationship-related threats affect individuals who have different attachment orientations. A central question in attachment research has been what are anxiously attached people thinking and feeling during relationship-threatening situations that might explain why their relationships tend to be so turbulent and unhappy?

To address this question, [Simpson, Ickes, and Grich \(1999\)](#) examined how attachment orientations are associated with *empathic accuracy* when relationships are under threat. Empathic accuracy is the degree to which one partner can accurately infer the private thoughts and feelings of his/her partner during a conversation. [Simpson et al. \(1999\)](#) had dating couples try to infer what their partners were actually thinking and feeling (from a videotape of their interaction) while both partners rated and discussed slides of attractive opposite-sex people who ostensibly were interested in “meeting and dating new people on campus.” This slide-rating task was designed to be relationship threatening, especially for anxiously attached people. In this taxing situation, anxious individuals were better at inferring the relationship-threatening thoughts and feelings that their partners were having about the attractive opposite-sex stimulus persons they were rating and evaluating. Anxious people, in other words, got more directly “into the heads” of their romantic partners in this relationship-threatening situation, displaying cognitive hypervigilance. Less anxious (more secure) persons, in contrast, were much less empathically accurate. More empathically accurate anxious individuals also perceived that their relationships were less stable and they felt more threatened and upset during the slide-rating task. They also reported declines in feelings of closeness to their partners immediately following the task. Finally, anxious individuals who were more empathically accurate were more likely to break up with their partners 4 months later. This study was among the first to document that anxiously attached

people work to “get into the heads” of their partners and accurately infer their relationship-threatening thoughts and feelings, precisely when what they value the most—their relationships—are in jeopardy. Consistent with our diathesis–stress model, anxious people are not more empathically accurate in general; instead, they are more accurate in situations that threaten their relationships.

Most recently, we have examined how externally imposed relationship threats impact sexual desire and the reasons for having sex. In two experiments, [Birnbaum, Weisberg, and Simpson \(2011\)](#) asked individuals to imagine either relationship-threatening or nonrelationship-threatening scenes. They then rated the strength of their desire to have sex and the reasons (motives) for doing so. Across the entire sample, relationship threat increased the desire to improve one’s current relationship as well as pro-relationship motives in the majority of people, indicating that most people engage in sex following relationship threats to feel better and to bolster their threatened relationships. Avoidant individuals, however, were least likely to desire their partners sexually after experimentally induced threats, which is consistent with their reliance on distancing/deactivating strategies. Anxious individuals, by comparison, were least likely to want sex for hedonistic reasons after experimentally induced threats, reflecting their inability to enjoy sex once they become flooded with emotion-focused relationship concerns.

These findings fit well with other studies that have tested diathesis–stress predictions. For example, when they are asked to imagine being permanently separated from their attachment figures, anxiously attached people report stronger emotional responses (e.g., more distress and self-blame) than do less anxious (more secure) people, whereas avoidant people do not react emotionally to separation threats ([Mayselless, Danieli, & Sharabany, 1996](#); [Scharf, 2001](#)). Avoidant men do, however, report being less emotionally distressed following romantic relationship break-ups ([Simpson, 1990](#)). Similarly, when they are asked to write about the thoughts or feelings they are having while trying to suppress thoughts of their romantic partners leaving them, anxious individuals find it more difficult to suppress thoughts of abandonment, whereas avoidant individuals can do so and have lower autonomic responses (indicative of less anxiety) ([Fraley & Shaver, 1997](#)). Avoidant individuals often accomplish suppression, at least in part, by not encoding potentially threatening information ([Fraley, Garner, & Shaver, 2000](#)).

In summary, our external/acute stress studies have documented that secure, avoidant, and anxious persons think, feel, and behave very differently when they confront external, acute stressors with their romantic partners, which in turn affects their personal and relational well-being. When securely attached people encounter acute/external stressors, they directly turn to their partners for comfort, help, and support. And when

securely attached individuals are interacting with distressed partners, they provide good, situationally appropriate care, help, and support. Both of these processes are facilitated by the benevolent working models, prorelationship motives, and optimistic partner and relationship perceptions harbored by secure people. The end result is better personal and relational well-being following external/acute stressors, as indexed by a wide array of well-being outcome measures. When avoidantly attached individuals encounter acute/external stressors, they typically wall themselves off and withdraw from their partners, and when their partners are overtly distressed, avoidant individuals pull away and fail to provide sufficient support. These tendencies result in poorer personal and relational outcomes in the aftermath of external/acute stressors. When anxiously attached individuals encounter acute/external stressors, they become hypervigilant which, in combination with their distrusting and ruminating working models, has deleterious effects on various measures of both personal and relational well-being.

4.2. Internal/acute stress

We now turn to the second major type of stress in our diathesis–stress process model, namely stress that is acute and internal to the relationship (see Fig. 6.1). Some of the strongest forms of stress do not stem from external threats, but from stress-inducing behaviors enacted by relationship partners (Hammen, 2000; Simpson & Rholes, 1994). If they are powerful enough, these internal/acute stressors can also activate the attachment system in most people. How people manage these stressors, however, should depend on their attachment histories and associated working models. We now review another series of studies from our research that have tested how different forms of internal/acute stress influence the way in which secure, anxious, and avoidant individuals think, feel, and behave in relational contexts.

4.2.1. Relationship conflict studies

A number of our studies have examined how relationship-based sources of stress are related to the enactment of different conflict resolution strategies and tactics, depending on the attachment orientations of each relationship partner. In the first study in this line of work, we (Simpson et al., 1996) randomly assigned dating couples to discuss either a major or a minor unresolved problem in their relationship. The instructions for the discussion were adapted from Gottman's (1979) classic dyadic interaction paradigm. Partners assigned to the major problem condition were asked to jointly identify the most significant unresolved problem in their relationship. Once they agreed on the problem, they were asked to think about the last major

argument or disagreement they had about the topic/issue and to resolve it as best they could. Specifically, partners were told to:

Remember what you were arguing about and why you were upset with your partner. Remember what you were thinking about and how you felt during the argument. After remembering these things, we would like you to discuss this issue with each other. We'd like each of you to tell the other what it is about his or her attitudes, habits, or behaviors that bothers you. Please discuss the issue in detail.

Partners assigned to the minor problem condition identified a minor relationship-based problem and were given the same set of instructions asking them to discuss and try to resolve the minor problem.

Each couple was videotaped, and the discussions were then coded by trained observers. Consistent with attachment theory and our diathesis–stress model (see Fig. 6.1), anxiously attached individuals were rated by observers as behaving less positively toward their partners, but only when they were trying to resolve a *major* problem that could pose a threat to their relationship. Anxious individuals who discussed a major problem exhibited greater distress and more discomfort during these conflict discussions, and they reported feeling more anger and animosity toward their partners. Once their discussions ended, they viewed their partners and relationships less positively in terms of the amount of love, commitment, mutual respect, openness, and supportiveness that existed in the relationship. Moreover, anxious women who discussed a major problem had discussions rated as lower in quality of resolution (see Fig. 6.3). Thus, consistent with both our

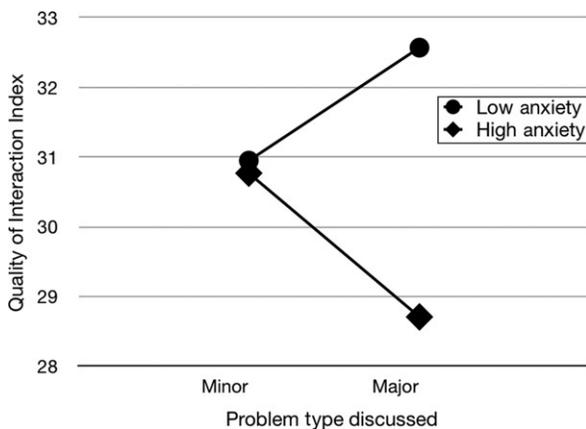


Figure 6.3 The relation between severity of the relationship problem and observer-rated quality of the discussion for high and low anxious women (from Simpson et al., 1996). Regression lines are plotted for women scoring 1 SD above and below the sample means.

diathesis–stress model and attachment theory, anxious people do not behave in a dysfunctional manner in all relationship conflict situations; they do so primarily in stressful situations that threaten the stability and quality of their valued relationships. Less anxious (more secure) individuals, by comparison, react in a more functional manner, especially when trying to resolve major relationship conflicts.⁴

These findings dovetail nicely with other social interaction research by [Collins and Feeney \(2000\)](#), who have investigated support seeking and support giving when couples discuss personal problems. In these videotaped discussions, avoidantly attached individuals are less inclined to seek support from their partners in order to solve their problems, whereas anxiously attached people use indirect means of soliciting support, most likely because they worry that direct requests might be rebuffed or ignored by their partners.

We have also tested how people with different attachment orientations respond to less difficult but still stressful daily relationship conflicts. [Campbell, Simpson, Boldry, and Kashy \(2005\)](#) asked dating partners to complete daily diaries for 14 days. After the diary period ended, each couple was videotaped trying to resolve the most serious unresolved problem that arose during the diary period. Anxiously attached individuals perceived greater daily conflict in their relationships across the diary period, significantly more than their partners perceived. They also perceived that daily conflict was more likely to harm the future course of their relationships. Furthermore, on days when they perceived greater relationship conflict, anxious individuals assumed that their partners had a more negative outlook on their relationship and its future, a view that typically was *not* shared by their partners. When dating partners discussed the most serious conflict in the lab following the diary phase, anxious individuals reported and were rated as more distressed, even after controlling for how positively their partners had behaved toward them during their lab discussion. Less anxious (more secure) individuals showed the opposite patterns in both the diary and the lab phases of this study.

Recently, we have expanded our research to explore how people with different attachment orientations remember how they behaved during stressful discussions with their romantic partners. We ([Simpson, Rholes, & Winterheld, 2010](#)) had dating couples engage in two videotaped discussions of major, unresolved conflicts in their relationship. Immediately

⁴ In other longitudinal research, [Simpson, Collins, Tran, and Haydon \(2007\)](#) have found that individuals classified as secure in the Strange Situation at 12–18 months of age are more likely than those classified as insecure to experience positive emotions in their adult romantic relationships and less negative affect during conflict resolution discussions with their romantic partners approximately 20 years later. Furthermore, both individuals who were securely attached early in life and their adult romantic partners show better immediate emotional recovery from conflict discussions as young adults ([Salvatore, Kuo, Steele, Simpson, & Collins, 2011](#)).

following the discussions, each partner reported how supportive and emotional distant he or she was during each discussion. One week later, both partners returned to the lab and were asked to recall how supportive and emotionally distant they had been 1 week earlier. Avoidant individuals remembered being less supportive 1 week later, but only if they were rated by trained raters as being more distressed during the original discussions. Anxious individuals remembered being less emotionally distant, but only if they were rated as more distressed during the discussions. These memory biases are consistent with the chronic needs and goals of avoidant and anxious people. Avoidant people yearn to limit intimacy and to maintain autonomy and control in their relationships and thus remember themselves as being less supportive, particularly during more difficult conversations with their partners. Anxious people, in contrast, crave greater felt security, so they remember themselves as being less emotionally distant (emotionally closer), particularly if their conversations were difficult.

We have also tested how relationship conflicts are associated with empathic accuracy in people with different attachment orientations. In Study 1, [Simpson et al. \(2011\)](#) videotaped married couples while they discussed either a major or a minor relationship issue that centered on intimacy or jealousy topics. In Study 2, dating couples were videotaped while they tried to resolve a serious relationship conflict. In general, avoidant individuals were less empathically accurate in both studies, opting to not “get into the heads” of their partners. Consistent with our diathesis–stress model (see [Fig. 6.1](#)), anxious individuals were more empathically accurate when discussing intimacy issues that posed a potential threat to their relationship (in Study 1), and if they were more distressed (rated by observers) while discussing a serious relationship conflict (in Study 2). Viewed together, these findings reveal how anxious and avoidant people differentially “manage” empathic accuracy in the service of regulating negative affect and promoting their interpersonal goals. Avoidant individuals refuse to “get into the heads” of their romantic partners during relationship conflicts, which is consistent with their use of deactivating coping strategies. Anxious individuals cannot resist “getting into the heads” of their partners, despite the fact that doing so might expose them to relationship-damaging thoughts or feelings their partners could be harboring.

The pattern of attachment to one’s parents (assessed by the AAI) is also systematically related to the type of caregiving that “works best” in calming secure and insecure people when they are upset during stressful discussions. We ([Simpson, Winterheld, Rholes, & Oriña, 2007](#)) had romantic partners first complete the AAI. One week later, each couple came to the lab and was videotaped trying to find solutions to an important current problem in their relationship. Trained observers then rated each discussion at peak distress points for the degree to which (a) emotional, instrumental, and physical

caregiving behaviors were displayed by the less distressed partner; (b) distressed care recipients appeared to be calmed by their partner's caregiving attempts; and (c) each partner was distressed during the discussion. Individuals who had secure representations of their parents were rated as more calmed if their partners gave them more emotional care (e.g., encouraging the partner to talk about his/her emotions or experiences with the problem, being nurturant/soothing, expressing/sharing emotional intimacy and closeness), especially at points when they were most visibly upset during the discussion. Conversely, individuals who had avoidant representations of their parents were more calmed by instrumental caregiving from their partners (e.g., receiving specific advice or suggestions for how to solve the problem, discussing the problem in an intellectual or rational manner), especially at points when they were most upset. In sum, as predicted by attachment theory and consistent with our diathesis–stress model, securely attached people benefit more from emotional forms of support, which they probably received earlier in life. Avoidant people benefit more from instrumental support (see also Mikulincer & Florian, 1997). Avoidant people, in other words, *do* benefit from certain forms of support, particularly those that do not threaten their independence and autonomy.

4.2.2. Accommodation/capitalization studies

We have also investigated two other forms of internal/acute stressors that ought to influence how people with different attachment orientations think, feel, and behave with their romantic partners: *accommodation situations* (in which partners try to jointly negotiate issues on which they hold different initial opinions) and *capitalization situations* (in which one partner discloses a positive event or experience while the other partner listens and responds to the positive disclosure). Both of these situations have the potential to be stressful, especially for insecurely attached people.

Tran and Simpson (2009) investigated emotional and behavioral reactions to threatening accommodation situations in married couples. Specifically, they had married couples identify and discuss issues that required significant concessions by one or both partners. The discussions were videotaped and then coded by trained observers. Although anxious attachment hindered each partner's tendency to behave constructively during these difficult discussions, greater relationship commitment buffered anxiously attached partners from their insecurities. For example, partners who were both highly anxious and highly committed felt less rejection from their partners, perceived greater acceptance from them, and displayed more constructive accommodation behaviors as rated by observers. In other words, anxious individuals behaved in a more constructive and accommodative fashion if they—and especially if their *partners*—were more committed to the relationship. Commitment,

therefore, is another important variable that buffers anxiously attached people from “acting” on their insecurities.

At first glance, one might presume that sharing good news with a partner should not be very stressful. According to attachment theory (Bowlby, 1973), however, perceptions of stress should depend on an individual's needs and motives in a given situation. Anxious individuals should want to share positive events with their partners in order to feel more secure in their relationships, but they should react very negatively if their partners are not good responders. Avoidant individuals, however, should not want to share or receive positive disclosures, which might generate excessive closeness and emotional intimacy.

To test these ideas, Shallcross, Howland, Bemis, Simpson, and Frazier (2011) had dating couples discuss positive events in the lives of each partner. In one discussion, the male partner disclosed a positive personal event, while his female partner listened and responded as she wished. In a second discussion, the roles were reversed. Trained observers then rated both videotaped discussions. Avoidant responders (those who listened to a positive event being discussed by their partner) reported and were rated as being less responsive during these discussions, particularly if their disclosing partner was anxiously attached. Avoidant disclosers also underestimated how responsively their partners behaved compared to observers' ratings. Anxious responders underestimated their own responsiveness when their disclosing partners were avoidantly attached. In sum, insecurely attached people were less responsive and perceived less responsiveness in their partners during these capitalization discussions than did less anxious and less avoidant (more secure) persons. This was particularly true when anxious people disclosed positive events to avoidant responders, confirming that anxious and avoidant attachment pairings may be especially troublesome (cf. Kirkpatrick & Davis, 1994).

In summary, our internal/acute stress studies have confirmed that secure, avoidant, and anxious persons also think, feel, and behave quite differently when they encounter acute relationship-centered stressors with their romantic partners, which in turn affect their personal and relational well-being. When anxiously attached people encounter internal/acute stressors, they perceive their partners and behave in more dysfunctional and relationship-damaging ways, a tendency that is amplified by their proclivity to “get into the heads” of their partners and accurately infer relationship-threatening thoughts and feelings, even when doing so might harm their relationship. Avoidant individuals, in contrast, disengage behaviorally, emotionally, and cognitively when exposed to internal/acute stressors, opting to retract from and avoid getting into the heads of their partners. However, greater dependency on the relationship or greater partner commitment buffers insecure people from acting on the potentially harmful

effects of their insecure working models. Secure individuals, however, typically think, feel, and behave in more constructive ways, especially when acute relationship-based stress is high. These tendencies help secure people experience and maintain higher levels of personal and relational well-being.

4.3. Long-term/chronic life stress

Most of the research discussed to this point has examined stress created in a laboratory setting. The purpose of the next set of studies was to examine the impact of naturally occurring stressors, which are likely to entail a combination of external and internal sources of stress over time. Two major naturally occurring stressors were investigated. First, we conducted two longitudinal studies of the transition to parenthood, the taxing period surrounding the birth of a couple's first child. This difficult period of life often has adverse effects on marital satisfaction and the quality of couple interactions (Belsky & Pensky, 1988). Our goal in these studies was to determine whether (and why) the negative effects of the transition to parenthood are found primarily among persons who have insecure (avoidant or anxious) attachment orientations. Second, we conducted a large cross-cultural study of the correlates of the avoidant attachment in which we compared people who were living in individualistic or collectivistic cultures. We conjectured that the incongruence between avoidant tendencies and the prescribed norms concerning what close relationships should entail in more collectivistic cultures should be a form of stress that heightens negative relationship outcomes (e.g., dissatisfaction) commonly associated with avoidance.

4.3.1. Transition to parenthood studies

The period surrounding the birth of a first child is one of the most joyful but also most stressful times that couples ever face, making it an ideal phase of life during which to test diathesis-stress processes. During the transition to parenthood, couples must cope with a wide range of stressors, including dramatic role changes, fatigue, new family demands, financial strain, and work-family conflict. Although the transition enhances marital well-being in some couples (Cowan & Cowan, 2000), most partners experience sharp downturns in marital satisfaction, declines in companionate activities, and increases in conflict (e.g., Belsky & Pensky, 1988; Doss, Rhoades, Stanley, & Markman, 2009). Attachment theorists such as Bowlby (1988) and Mikulincer and Florian (1998) have proposed that attachment insecurity should render certain people more vulnerable to marital distress and related negative outcomes during the transition period. In our program of research, we have examined how attachment anxiety and avoidance are systematically related to three outcomes indicative of well-being: changes in marital

satisfaction, depressive symptoms, and attachment orientations. In this research, we have tested the basic hypothesis that events or conditions (e.g., the quality of spousal support, the presence of relationship conflict) experienced during the transition to parenthood that activate the fundamental worries or concerns of persons who have avoidant or anxious attachment orientations should have adverse effects on their well-being over time.

In this section, we review the findings of two longitudinal transition to parenthood studies. The first transition study started 6 weeks before the birth of each couple's first child and ended when their child was 6 months old. This first study focused on women's well-being in relation to what their male partners did while in the role of potential support providers. We examined three markers of well-being: marital satisfaction, depression, and changes in attachment orientations across the transition. The second transition study tested both how husbands support their wives and how wives support their husbands across a longer time period (the first two years of the transition). Two measures of well-being—marital satisfaction and depressive symptoms—were investigated in this longer and more detailed transition study.

In our first 6-month transition study, we (Rholes, Simpson, Campbell, & Grich, 2001) found that, under specific conditions, women who have insecure attachment orientations experience more negative outcomes at 6 months postpartum. For example, as shown in Fig. 6.4, marital satisfaction

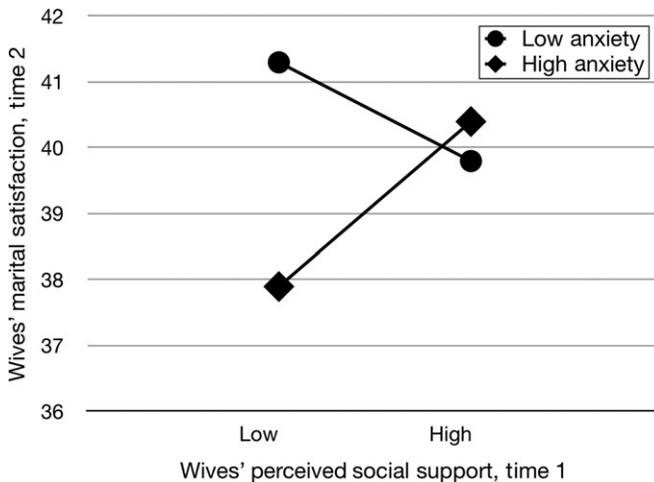


Figure 6.4 The relation between women's attachment anxiety and their perceptions of prenatal spousal support predicting over-time changes in their marital satisfaction (from Rholes et al., 2001). Regression lines are plotted for women scoring 1 SD above and below the sample mean.

declined significantly from the prenatal to the 6-month postnatal testing period in more anxiously attached women if, at the prenatal session, they perceived their husbands were less supportive. According to attachment theory (Bowlby, 1973), perceptions of deficient support should increase fears of abandonment, especially in highly anxious women who need support and are already preoccupied with thoughts of possible abandonment.⁵ These deep-seated fears are likely to be the root cause of marital dissatisfaction among highly anxious women during the transition to parenthood (Bowlby, 1988). Conversely, the relative absence of worries about abandonment may explain why perceptions of lower spousal support did not reduce marital satisfaction in less anxious (more secure) women; such women remained confident that their relationships were not in jeopardy.

Statistical interactions between women's attachment anxiety and their perceptions of their spouses' degree of supportiveness also produce several other effects. For example, highly anxious women who perceived their spouses as less supportive during the prenatal testing session reported larger prenatal-to-postnatal declines in the amount of support that was available from their husbands, and these changes fully mediated their declines in marital satisfaction over time. Anxious women who perceived less spousal support also reported seeking less support from their husbands between the prenatal and the postnatal periods. In addition, the husbands of women who perceived less spousal support differed from other husbands. These men reported significant declines over time in both their marital satisfaction and the amount of support they reported giving to their wives. Similar to women, changes in men's marital satisfaction were also fully mediated by changes in their wives' perceptions of spousal support across the 6-month transition period.

Viewed together, these findings indicate that perceptions of low or declining spousal support by anxiously attached women have broad impact on their marriages. Consistent with our diathesis–stress model (see Fig. 6.1), anxious women are not invariably unhappy with their marriages. When they perceive higher levels of prenatal and postnatal spousal support, anxious wives and their husbands both have higher marital satisfaction that is on par with securely attached spouses.

In our second transition study, we (Kohn et al., 2011) focused on changes in marital satisfaction over the first 2 years of the transition to parenthood. This study also addressed partner perceptions and their ties to personal well-being (see Fig. 6.1). The findings of Kohn et al. (2011) were similar in many ways to those of Rholes et al. (2001). For instance, Kohn et al. found that anxiously attached women and men who perceived less spousal support were less satisfied with their marriages compared to less

⁵ Fear of “abandonment” refers to a set of fears that include not only sudden abandonment but also emotional withdrawal by one's partner, declines in affection or love, and/or the prospect of relationship dissolution.

anxiously attached people. Anxious women who perceived lower levels of spousal support started the transition to parenthood with lower levels of satisfaction, which remained consistently low throughout the 2-year study. Anxious men who perceived less partner support also started the transition with lower satisfaction, but they experienced further declines in satisfaction across the 2-year period, leaving them even more dissatisfied than their wives, on average, 2 years after childbirth. These findings reveal that relationship problems that occur during the transition do not flair up and settle down quickly. Rather, many of them begin during the very early stages of the transition and exert long-term effects on marriages, especially among anxiously attached persons.

Besides perceiving deficient spousal support, anxiously attached men and women who perceived that their partners behaved more negatively toward them (by being angry, sarcastic, or irritated with them) also reported lower marital satisfaction than others in the sample. For example, among women who perceived that they were the targets of more negative behavior from their partners, marital satisfaction started low and remained low across the 2-year transition. Anxious men who perceived greater partner negativity showed consistent declines in satisfaction across the 2-year period so that, by the end of the study, they were more dissatisfied than their wives. According to attachment theory (Bowlby, 1973, 1988), lower levels of perceived partner support and more negative partner behavior should both accentuate fears of being abandoned, which should fuel marital dissatisfaction, especially in highly anxious people. The declining satisfaction of highly anxious men indicates that the transition to parenthood may have been increasingly stressful for them across time. Consistent with this conjecture, Kohn et al. (2011) also found that women who were married to highly anxious husbands (regardless of women's own attachment orientations) reported behaving in an increasing negative manner (e.g., with anger, irritation) toward their spouses across the transition. Although we do not know the precise cause this behavior, one possibility is that anxious men may have engaged in more excessive reassurance seeking as the transition unfolded (Shaver, Schachner, & Mikulincer, 2005).

Kohn et al. (2011) also found that avoidance plays an important role in marital satisfaction during the transition to parenthood. The effects of avoidance, however, were moderated by a different set of variables, the first of which was perceptions that the new baby was interfering with outside activities such as leisure pursuits, free-time, etc. Specifically, more avoidant men and women who anticipated greater baby interference prenatally reported less marital satisfaction prior to childbirth, and those who perceived greater baby interference postnatally experienced declines in satisfaction over time, especially in the case of highly avoidant men. Work-family conflict was also a significant moderator. Highly avoidant men and women who perceived greater work-family conflict started the

transition with lower satisfaction, and avoidant men experienced continued declines in satisfaction across time. Finally, the demands associated with family responsibilities also moderated this effect, such that avoidant men and women who perceived heavier demands began the transition with lower satisfaction, and avoidant men experienced continued declines over time.

Some of the most dissatisfied people in the [Kohn et al. \(2011\)](#) study were highly avoidant people, especially men, who perceived that their baby was interfering with their other life activities, creating too many family responsibilities, and generating work–family conflicts. These findings suggest that many avoidant parents may resent childcare responsibilities. [Bowlby \(1988\)](#), in fact, claimed that one of the gravest fears of avoidant people is that they will have to become caregivers at some point during their lives. Whereas anxious individuals worry about abandonment, avoidant individuals are concerned with losing autonomy and becoming too interdependent with others. For this reason, avoidant people become dissatisfied with their marriages when they perceive that their children are interfering with other outside activities, when they encounter work–family conflict, or when they perceive heavy demands from their family life because all of these factors can undermine autonomy and independence.

The second measure of well-being examined in our transition to parenthood studies was depressive symptomatology. With regard to the model in [Fig. 6.1](#), two of our depressive symptoms studies have focused on partner behaviors, perceptions of partners, and how both of these variables predict changes in depressive symptoms across the transition. The results we have found for depressive symptoms conceptually parallel those we have found for marital satisfaction. [Simpson, Rholes, Campbell, Tran, et al. \(2003\)](#), for example, found that anxiously attached women who perceived less spousal support or more negative social interactions with their spouses during the prenatal period experienced increases in depressive symptoms across the first 6 months of the transition. The increase in depressive symptoms over time was fully mediated by women's perceptions of declining spousal support across the 6-month transition period. Specifically, anxious women were more likely to perceive declining support from their husbands over the first 6 months of the transition, and these negative support perceptions forecasted increases in their depressive symptoms. Thus, as with marital satisfaction, perceptions of low prenatal spousal support and declining spousal support from the prenatal to the 6-month postnatal period assume a major role in predicting changes in depressive symptoms in anxiously attached women.

[Simpson, Rholes, Campbell, Tran, et al. \(2003\)](#) also sought to determine whether anxiously attached women held biased perceptions of the spousal support that was potentially available to them. To test this hypothesis, women's perceptions of available spousal support were regressed on their partner's perceptions of the support that they gave them. Residual scores were then calculated to assess the difference between the amount of support

women perceived relative to the amount that would be expected based on their male partner's reports of support giving, controlling for his attachment orientation. These residual scores were then correlated with women's attachment anxiety scores. The results revealed that: (1) more anxious women perceived less support than would be expected based on their husband's reports of support-given, and (2) less anxious (more secure) women perceived more support than would be expected based on their husband's reports. Viewed together, these findings suggest that highly anxious women may have a negative support perceptual bias, whereas less anxious (more secure) women might have a positive support perceptual bias.⁶

Men's reports of support giving were also examined in relation to their wife's attachment anxiety to determine whether men who were involved with more anxious partners provided less support. There was no association between men's support giving and women's attachment anxiety at the prenatal period. Six months after childbirth, however, there was a significant association, such that men—regardless of their own attachment orientation—reported providing less support if they had more anxious wives. Thus, highly anxious women's perceptions of low/declining spousal support appear to have a partial basis in reality.

The final question addressed in the [Simpson, Rholes, Campbell, Tran, et al. \(2003\)](#) study dealt with why men withdraw support from anxious women. At 6 months postpartum, men completed a questionnaire about dispositional attributions for their wife's behavior during the transition period. Men rated their wives on four dispositions: mature versus immature, emotionally strong versus emotionally weak, self-reliant versus excessively needy, and stable versus unstable. Men involved with more anxiously attached partners attributed more negative dispositions to their partners, and their more negative attributions fully mediated the link between women's attachment anxiety and men's reports of support giving at 6 months postpartum. Thus, men who have highly anxious spouses tend to pull away from them during the transition, causing these men to reduce their levels of support. One reason for their alienation may be excessive reassurance seeking on the part of highly anxious women ([Shaver et al., 2005](#)).

[Rholes et al. \(2011\)](#) also investigated changes in depressive symptoms across the first 2 years of the transition to parenthood. The results for attachment anxiety were very consistent with the [Simpson, Rholes, Campbell, Tran, et al. \(2003\)](#) depression findings. For example, [Rholes et al. \(2011\)](#) found that highly anxious women who perceived lower spousal support reported more depressive symptoms, which remained constant over

⁶ This conclusion rests on the assumption that men were not overly biased their perceptions of the support they gave to their partners during the transition.

2 years. Anxious men who perceived less spousal support started the transition with fewer depressive symptoms than their female partners, but they increased in symptom levels across the 2 years of the study and eventually had symptom levels that were as high as their female partners. Anxious men and women who perceived their partners were interacting more negatively with them (e.g., by being disrespectful, rude, irritated, angry) had depressive symptom outcomes that were almost identical to anxious individuals who perceived lower spousal support. These findings are noteworthy because they replicate our 2003 depression study and they also show that depressive symptoms that arise during the transition continue to be problematic for an extended period of time. As discussed earlier, both lower perceived spousal support and greater negative social exchanges with partners should exacerbate abandonment concerns. Highly anxious individuals often ruminate about negative events and negative potential outcomes much more than less anxious (more secure) people do (Burnette, Davis, Green, Worthington, & Bradfield, 2009). The well-established link between rumination and depression (Rood, Roelofs, Bogels, Nolen-Hoeksema, & Schouten, 2009) suggests that greater rumination about abandonment may play a primary role in generating depressive symptoms in highly anxious people.

The Rholes et al. (2011) findings for avoidance and depressive symptoms focused on perceptions that the new baby was interfering with the romantic relationship (e.g., not having enough alone-time with one's spouse) and/or outside personal activities (e.g., recreation). Avoidant people who harbored these views started the transition having more depressive symptoms, which increased across the 2 years of the study. Interference with the relationship may seem surprising because avoidant people claim that they do not want, need, or value close relationships. This finding, however, clearly indicates that some aspects of romantic relationships are important even to highly avoidant individuals.

To summarize, the four transition to parenthood studies reviewed above reveal findings that are consistent with both attachment theory and our process model. The results concerning the predictors of marital satisfaction were very consistent across the two marital satisfaction transition studies, and those regarding the predictors of depressive symptoms were also consistent across the two depression transition studies. Moreover, the predictors of marital satisfaction and depressive symptoms were also conceptually consistent with one another. The core findings indicate that certain circumstances arising during the transition to parenthood tend to activate and/or exacerbate the cardinal concerns of highly anxious and highly avoidant people—abandonment for anxious persons, and lack of autonomy and independence for avoidant persons—which have negative effects on marital satisfaction and depressive symptoms across the transition to parenthood. The findings are consistent with our diathesis-stress model by showing that the principle vulnerabilities of avoidant and anxious persons emerge only

when these individuals confront certain difficult circumstances or events. In the absence of such circumstances or events, highly avoidant and highly anxious persons appear to be just as well adjusted as their less avoidant and less anxious (more secure) counterparts.

We now turn to the final measure of well-being in our transition to parenthood work, namely changes in levels of attachment avoidance and anxiety over time. The goal of this study (Simpson, Rholes, Campbell, & Wilson, 2003) was to determine whether certain events during the transition to parenthood increase or decrease levels of avoidance and anxiety. With regard to the model in Fig. 6.1, Simpson, Rholes, Campbell, and Wilson (2003) tested the effects of partner perceptions and attachment-related behavior on changes in chronic attachment orientations.

The transition to parenthood is an excellent context for studying potential changes in attachment orientations. According to Bowlby (1980), individuals are likely to experience such changes if they encounter events that reinforce or contradict the central assumptions of their working models. During chronically stressful periods, changes in attachment orientations should be more common because working models are both more accessible and more open to assimilating new attachment-relevant information and experiences (Bowlby, 1988). The transition is also a time when individuals have radically new interpersonal experiences (e.g., caring for and trying to soothe a newborn) that may alter their interpersonal expectations and underlying working models.

Consistent with this hypothesis, Simpson, Rholes, Campbell, and Wilson (2003) found that, regardless of their initial attachment orientations, women who perceived their partners as less supportive or as interacting more negatively toward them at the beginning of the transition became more anxiously attached across time. Deficient partner support and/or greater partner negativity ought to heighten concerns about abandonment, reinforcing a fundamental component of anxious working models. Simpson, Rholes, Campbell, and Wilson (2003) also found that changes in women's avoidance were associated with their husband's attachment orientation. Specifically, women who had more avoidant husbands became more avoidant across the transition. Previous research has confirmed that avoidant men behave less supportively, especially when their partners are upset (e.g., Simpson et al., 1992). To the extent that avoidant men persistently reject bids for comfort and support from their romantic partners during the transition, these actions should strengthen a central component of avoidant working models—that support and care will not be forthcoming when one is distressed.

Simpson, Rholes, Campbell, and Wilson (2003) also found that men's and women's level of avoidance changed as a function of their own behavior during the transition. For example, men became less avoidant if they perceived they had given more support to their partners, and women

became less avoidant if they perceived they had sought more support from their partners. The seeking and giving of support are both starkly inconsistent with the working models and typical behavior of avoidant persons. When the parental role strongly elicits and sustains these behaviors, the sheer inconsistency between them and avoidant working models ought to produce changes in the cognitions underlying avoidance (cf. [Festinger, 1957](#)).

4.3.2. Culture-fit studies

Attachment orientations may also generate behaviors that may be incongruent with a given culture's prescriptive norms about how to think, feel, and behave in relationships. As a result, certain attachment orientations may "fit better" in some cultures than others, a concept we have termed the "cultural fit" hypothesis. When an individual's interpersonal style of relating to others (i.e., his/her attachment orientation) goes against the grain of what a culture deems appropriate or desirable, she or he should experience chronic stress.

[Friedman et al. \(2010\)](#) tested whether avoidance fits better (or has fewer negative relationship consequences) in individualistic cultures (such as the United States) than in interdependent cultures (such as Hong Kong and Mexico). [Friedman et al. \(2010\)](#) hypothesized that avoidance, with its emphasis on emotional distance and autonomy, should be a stronger predictor of relationship problems in Hong Kong and Mexico than in the United States, considering the greater importance of closeness and interpersonal harmony in more interdependent cultures. As expected, avoidance was associated with greater relationship problems in all three cultures, but the associations were significantly stronger in Hong Kong and Mexico than in the United States. Compared to the United States, avoidance was more strongly associated with greater conflict with romantic partners, less perceived partner support, less investment in the relationship, and lower relationship satisfaction in Hong Kong. Also compared to the United States, greater avoidance was more strongly linked to lower relationship satisfaction, less perceived partner support, and more relationship conflict in Mexico.

Within interdependent cultures, the romantic partners of avoidant people may find that their expectations of what constitutes a "good" relationship are less completely met than are the expectations of partners who live in more independent cultures such as the United States. This should create disappointment and frustration, exacerbating the relationship problems of highly avoidant individuals. Another contributing factor may be pressures from either romantic partners or others (e.g., family members, friends) that impel avoidant individuals to engage in behaviors they find uncomfortable and would prefer not to do. Interdependent cultures may, for instance, exert

pressure on avoidant people to engage in levels of self-disclosure they find disconcerting or to perform levels of caregiving they find stifling (Wilson, Simpson, & Rholes, 2000). Living in a culture that makes it difficult to avoid behaviors that activate the attachment system should generate considerable stress and resentment in avoidant people, only aggravating their relationship problems.

Mak, Bond, Simpson, and Rholes (2010) tested whether relationship satisfaction mediated the link between attachment insecurity and depressive symptoms in the United States and Hong Kong. Mak et al. (2010) predicted that attachment insecurity should be related to perceptions of less support from romantic partners, and that these perceptions should in turn be associated with lower relationship satisfaction enroute to predicting more depressive symptoms. Consistent with the cultural fit hypothesis, avoidance was more strongly associated with perceptions of less partner support and greater relationship dissatisfaction in Hong Kong than in the United States. The partners of avoidant persons in Hong Kong should be particularly upset by their partners' normatively low levels of support and, therefore, may withdraw from the partner/relationship, generating these clear cultural differences. In addition to withdrawing support, the partners of avoidant persons may also display their dissatisfaction in other ways by being more critical or rebuking when their avoidant partners violate cultural practices and norms for intimate relationships.



5. CONCLUSIONS AND FUTURE DIRECTIONS

Viewed in their entirety, our programs of research have documented that certain types of stressful situations have powerful and unique effects on people who possess different adult attachment orientations. Our work has examined the way in which relationship partners think, feel, and especially *behave* in a variety of interpersonal situations, ranging from lab-based conflict and support interactions, to lab-based relationship-threatening discussions, to major life transitions, to everyday life stressors. Across these different social contexts, avoidant people are not always unsupportive, withdrawn, or uncooperative with their romantic partners; rather, the cardinal features of avoidance are elicited by certain types of stressful situations, such as feeling pressure to give or receive support, to become more intimate, or to share deep emotions. Likewise, anxious people are not always clingy, demanding, or prone to engaging in dysfunctional conflict resolution tactics; instead, the quintessential features of anxiety are evoked by certain types of stressful situations, especially those that threaten the stability or quality of their relationships. Both avoidant and anxious people

are less likely to “act” on their attachment insecurities when they are involved in closer relationships or have more committed partners. Secure people are not always supportive, nondepressed, or inclined to display good and cooperative conflict resolution tactics; the defining features of security are witnessed in stressful situations that activate their positive working models and benevolent interpersonal motivations.

As we have shown, anxiously attached individuals have chronically activated working models, which accentuate their worries about rejection, loss, and abandonment and disrupt how they seek support, give support, and behave with their romantic partners, especially in relationship-threatening stressful situations. Avoidantly attached individuals often react to threats at below-conscious levels of awareness, but the activation of their attachment system does not always register consciously and, thus, does not motivate them to seek or provide support to their romantic partners in stressful attachment-relevant situations. Securely attached people, who score low on attachment anxiety and avoidance, directly seek and give support when they feel distressed, which enables them to build and maintain closer, better functioning relationships that help to enhance their well-being.

There are several novel and important directions in which future attachment research adopting a diathesis–stress perspective might head. In this final section, we discuss two particularly promising avenues.

One important agenda for future research should be to understand the processes that transform a new romantic partner into a bona fide attachment figure. An attachment figure is someone whose presence one seeks, whose absence is distressing, and—most importantly—whose physical or symbolical availability provides a sense of felt security (Bowlby, 1969). As reviewed earlier, Beckes et al. (2010) took an initial step toward understanding the formation of secure attachments. Participants in their experiment were shown pictures of neutral and fear-inducing stimulus scenes subliminally (i.e., below-conscious recognition). These subliminal pictures were repeatedly paired with photographs of supraliminally presented strangers whose faces expressed either a genuine (Duchene) smile or a neutral facial expression. Each face was paired with either a fear-arousing or a neutral scene across 20 conditioning trials. After the conditioning procedure, the faces were shown to participants immediately before each trial of a word recognition test. Four types of words were used: secure attachment-related words, insecure attachment-related words, positive nonattachment words, and negative nonattachment words. Beckes et al. (2010) hypothesized that smiling faces that had been paired with (conditioned to) threatening subliminal pictures (e.g., a striking snake) would acquire security-inducing properties and, thus, would increase the cognitive accessibility of secure attachment-related words in particular. This is exactly what they found.

These findings imply that a secure attachment is more likely to form if a person experiences *repeated instances* of support seeking during times of distress, which are consistently followed by effective efforts by a partner to relieve that distress. This process highlights a critical distinction between attachment security and relationship closeness. Relationship events that increase closeness but do *not* involve support resulting in relief from distress should not produce attachment bonds. For example, sexual intimacy or self-disclosure ought to encourage closeness, but they should not result in the development of attachment security unless they occur in a context in which one partner is distressed and the other partner repeatedly assuages that distress. Secure attachment, therefore, is different than closeness, and the two need not coincide. Events that generate secure attachment may also create closeness, but many events that produce closeness may have little if any effects on attachment bonds. Feeling close may, over time, encourage a person to seek or provide more support in a relationship. Thus, even though closeness might launch or facilitate the processes through which attachment bonds are eventually formed, closeness itself is not the direct causal agent.

The conceptual distinction between closeness and attachment security raises another important question about relationship satisfaction. Is satisfaction more strongly determined by closeness or by attachment security? We conjecture that both constructs affect relationship satisfaction, but that the strength of the connection between these two variables and relationship satisfaction is likely to vary depending on life circumstances. During chronically stressful times, for example, attachment security may have a stronger influence on relationship satisfaction. During less stressful times, however, it may exert a weaker impact.

Another implication of the [Beckes et al. \(2010\)](#) findings is that attachment security does not develop in the absence of stressful conditions, and it may develop more quickly in couples that must cope with major stressors *together* early in their relationships (cf. [Simpson & Rholes, 1994](#)). Stress alone, however, is not sufficient to generate attachment bonds and security. The process also requires high levels of partner support seeking followed by good partner support provision that reliably dispels distress. The likelihood of strong support seeking and effective support provision ought to depend on the attachment orientations of both relationship partners. As we have seen, [Simpson et al. \(1992\)](#) found that avoidant persons are less likely to seek support when they are distressed, and they also are less likely to provide it when their partner is distressed. In couples with one or more avoidant partners, attachment bonds may be slower to develop, and they may never reach a high level of strength or produce a sense of security. Anxious partners are more inclined to seek support when they are distressed, but they may not receive enough support—or may not *perceive* they have received enough support—to develop secure attachment bonds. As evident in our research on the transition to parenthood (e.g., [Rholes et al., 2001](#);

Simpson, Rholes, Campbell, Tran, et al., 2003), the romantic partners of anxious persons are less likely to give them support, they are more likely to view anxious persons in negative and derogatory terms (e.g., as weak and needy), and they express more negative behavior (e.g., irritation, anger) toward them. Nevertheless, the right conditions can allow secure attachments to develop, even among highly avoidant and highly anxious people (cf. Simpson, Rholes, Campbell, & Wilson, 2003).

A final implication of the Beckes et al. (2010) findings is that attachment security exists on a continuum, with the degree of security being determined by the number of pairings between threat/distress and someone who provides a sense of relief from threat/distress. The strength of attachment bonds has rarely been studied directly in prior attachment research. Instead, most research has assessed adult attachment orientations, which are proxies of underlying working models. The results of Beckes et al. (2010) suggest that researchers should include measures of attachment strength in addition to attachment orientations in future studies.

Another future research agenda should focus on the integration of what we currently know about emotion regulation from an attachment perspective with mainstream theory and research on emotion regulation processes. Gross (1998a, 2001) has proposed an emotion regulation process model that outlines five discrete stages at which the experience of emotions can be controlled and managed. According to this model, individuals can regulate the experience of positive and negative emotions by (1) selecting specific situations to enter or to avoid, (2) influencing what happens (or does not happen) once in a situation, (3) using cognitive tactics to regulate the experience of emotions (e.g., distraction techniques), and (4) selectively interpreting the meaning or importance of a situation or event. These stages all involve reappraisal processes, which occur *before* a person has an emotional response. Once an emotion is experienced, individuals can (5) try to suppress/control its expression, which represents a response-focused emotional regulation strategy.

When people are exposed to negative or unpleasant stimuli in lab experiments, the use of reappraisal strategies reduces negative expressive behavior (such as facial reactions indicating anxiety or disgust) and buffers individuals from experiencing strong physiological arousal (Gross, 1998b). The use of suppression strategies also decreases expressive behavior, but it increases physiological reactivity. Suppression also impairs memory (Richards & Gross, 2000), predicts negative long-term health outcomes (English, John, & Gross, *in press*), and has negative physiological effects on individuals who habitually suppress negative emotions (Butler, Wilhelm, & Gross, 2006).

What transpires at each stage in Gross's emotion regulation model may illuminate precisely how secure, avoidant, and anxious people regulate emotions in stressful, attachment-relevant situations. Securely attached individuals should be especially good at using reappraisal strategies, not

only to avert or dampen the experience of negative emotions but also to increase the experience of positive ones (Mikulincer & Shaver, 2007c). Secure people may also be more adept at entering situations that generate positive emotional experiences and avoiding those that trigger negative affect. Once in a situation, secure people may be more skilled at steering conversations or activities toward positive outcomes and away from negative ones, and they might also be more inclined to direct their attention toward positive outcomes and away from negative ones. Evidence already indicates that secure people are better at reappraising the meaning of ambiguous or negative events involving their partners in a more benevolent light (see Mikulincer & Shaver, 2007c). To the extent that secure people consistently use these “antecedent” emotion regulation strategies more often or more effectively than insecure people, they should be less likely to need to use suppression strategies, which are associated with poorer long-term health outcomes. This may partially explain how and why secure individuals maintain better physical health outcomes from infancy into middle adulthood (Puig, Englund, Collins, & Simpson, 2011).

The emotion regulation stages and pathways are bound to be different for avoidantly and anxiously attached people, particularly when they encounter certain types of stressful situations. Many insecure people may not routinely use antecedent emotion regulation strategies that result in constructive reappraisal processes, such as avoiding situations that tend to elicit negative emotions or altering the structure of situations when they become difficult. Anxious and avoidant individuals, however, should diverge at the attention deployment stage. As discussed earlier, avoidant individuals use cognitive distraction techniques so they do not have to feel negative emotions (Fraley, Garner, & Shaver, 2000; Fraley & Shaver, 1997), even more so than secure individuals do. Anxious individuals find it difficult to use constructive cognitive reappraisal strategies (Collins, 1996), especially when they are already flooded with distress. Once a negative emotion is felt, avoidant individuals are more capable of suppressing it (Fraley, Garner, & Shaver, 2000), even if this comes at a physiological cost (e.g., Dozier & Kobak, 1992). And when stressors are chronic and intense, the defenses of avoidant people may break-down, with the physiological toll of negative emotions being debilitating (e.g., Berant et al., 2001). Gaining a deeper and more nuanced understanding how emotion regulation versus dysregulation operates and “gets under the skin” to influence long-term health outcomes should be a major priority of future attachment research (Simpson & Rholes, 2010).

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REFERENCES

- Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the Strange Situation*. Hillsdale, NJ: Erlbaum.
- Baldwin, M. W. (1992). Relational schemas and the processing of social information. *Psychological Bulletin*, *112*, 461–484. DOI: 10.1037/0033-2909.112.3.461.
- Bartholomew, K. (1990). Avoidance of intimacy: An attachment perspective. *Journal of Social and Personal Relationships*, *7*, 147–178.
- Beckes, L., Simpson, J. A., & Erickson, A. (2010). Of snakes and succor: Learning secure attachment associations with novel faces via negative stimulus pairings. *Psychological Science*, *21*, 721–728. DOI: 10.1177/0956797610368061.
- Belsky, J., & Pinsky, E. (1988). Marital change across the transition to parenthood. *Marriage and Family Review*, *12*, 133–156. DOI: 10.1300/J002v12n03_08.
- Berant, E., Mikulincer, M., & Florian, V. (2001). Attachment style and mental health: A one-year follow-up study of mothers of infants with congenital heart disease. *Personality and Social Psychology Bulletin*, *27*, 956–968. DOI: 10.1177/0146167201278004.
- Birnbaum, G. E., Weisberg, Y. J., & Simpson, J. A. (2011). Desire under attack: Attachment orientations and the effects of relationship threat on sexual motivations. *Journal of Social and Personal Relationships*, *28*, 448–468. DOI: 10.1177/0265407510381932.
- Bowlby, J. (1969). *Attachment and loss: Vol. 1. Attachment*. New York: Basic Books.
- Bowlby, J. (1973). *Attachment and loss: Vol. 2. Separation: Anxiety and anger*. New York: Basic Books.
- Bowlby, J. (1979). *The making and breaking of affectional bonds*. London: Tavistock.
- Bowlby, J. (1980). *Attachment and loss: Vol. 3. Loss*. New York: Basic Books.
- Bowlby, J. (1988). *A secure base*. New York: Basic Books.
- Brennan, K., Clark, C., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46–76). New York: Guilford Press.
- Burnette, J. L., Davis, D. E., Green, J. D., Worthington, E. L., & Bradfield, E. (2009). Insecure attachment and depressive symptoms: The mediating role of rumination, empathy, and forgiveness. *Personality and Individual Differences*, *46*, 276–280. DOI: 10.1016/j.paid.2008.10.016.
- Butler, E. A., Wilhelm, F. H., & Gross, J. J. (2006). Respiratory sinus arrhythmia, emotion, and emotion regulation during social interaction. *Psychophysiology*, *43*, 612–622. DOI: 10.1111/j.1469-8986.2006.00467.x.
- Campbell, L., Simpson, J. A., Boldry, J., & Kashy, D. A. (2005). Perceptions of conflict and support in romantic relationships: The role of attachment anxiety. *Journal of Personality and Social Psychology*, *88*, 510–531. DOI: 10.1037/0022-3514.88.3.510.
- Campbell, L., Simpson, J. A., Kashy, D. A., & Rholes, W. S. (2001). Attachment orientations, dependence, and behavior in a stressful situation: An application of the Actor-Partner Interdependence Model. *Journal of Social and Personal Relationships*, *18*, 821–843. DOI: 10.1177/0265407501186005.
- Carnelley, K. B., Pietromonaco, P. R., & Jaffe, K. (1994). Depression, working models of others, and relationship functioning. *Journal of Personality and Social Psychology*, *66*, 127–140. DOI: 10.1037/0022-3514.66.1.127.
- Cassidy, J., & Berlin, L. J. (1994). The insecure/ambivalent pattern of attachment: Theory and research. *Child Development*, *65*, 971–981.
- Cassidy, J., & Kobak, R. R. (1988). Avoidance and its relationship with other defensive processes. In J. Belsky & T. Nezworski (Eds.), *Clinical implications of attachment* (pp. 300–323). Hillsdale, NJ: Erlbaum.

- Collins, N. L. (1996). Working models of attachment: Implications for explanation, emotion, and behavior. *Journal of Personality and Social Psychology*, *71*, 810–832. DOI: 10.1037/0022-3514.71.4.810.
- Collins, N. L., & Feeney, B. C. (2000). A safe haven: An attachment theory perspective on support seeking and caregiving in intimate relationships. *Journal of Personality and Social Psychology*, *78*, 1053–1073. DOI: 10.1037//0022-3514.78.6.1053.
- Collins, N. L., Ford, M. B., Guichard, A. C., & Allard, L. (2006). Working models of attachment and attribution processes in intimate relationships. *Personality and Social Psychology Bulletin*, *32*, 201–219. DOI: 10.1177/0146167205280907.
- Collins, N. L., Guichard, A. C., Ford, M. B., & Feeney, B. C. (2004). Working models of attachment: New developments and emerging themes. In W. S. Rholes & J. A. Simpson (Eds.), *Adult attachment: Theory, research, and clinical implications* (pp. 196–239). New York: Guilford.
- Collins, N. L., & Read, S. J. (1990). Adult attachment, working models, and relationship quality in dating couples. *Journal of Personality and Social Psychology*, *58*, 644–663. DOI: 10.1037/0022-3514.58.4.644.
- Collins, N. L., & Read, S. J. (1994). Cognitive representations of attachment: The structure and function of working models. In K. Bartholomew & D. Perlman (Eds.), *Attachment processes in adulthood* (pp. 53–90). London: Kingsley.
- Cowan, C. P., & Cowan, P. A. (2000). *When partners become parents: The big life change in couples*. Mahwah, NJ: Erlbaum.
- Crittenden, P. M., & Ainsworth, M. (1989). Child maltreatment and attachment theory. In D. Cicchetti & V. Carlson (Eds.), *Child maltreatment: Theory and research on the causes and consequences of child abuse and neglect* (pp. 432–463). Cambridge, England: Cambridge University Press.
- Doss, B. D., Rhoades, G. K., Stanley, S. M., & Markman, H. J. (2009). The effect of the transition to parenthood on relationship quality: An 8-year prospective study. *Journal of Personality and Social Psychology*, *96*, 201–619. DOI: 10.1037/a0013969.
- Dozier, M., & Kobak, R. R. (1992). Psychophysiology in attachment interviews: Converging evidence for deactivating strategies. *Child Development*, *63*, 1473–1480.
- Elder, G. H., & Clipp, E. C. (1988). Wartime losses and social bonding: Influences across 40 years in men's lives. *Psychiatry*, *51*, 177–198.
- English, T., John, O. P., & Gross, J. J. (in press). Emotion regulation in close relationships. In J. A. Simpson, & L. Campbell (Eds.), *The Oxford handbook of close relationships*. New York: Oxford University Press.
- Feeney, B. C. (2004). A secure base: Responsive support of goal strivings and exploration in adult intimate relationships. *Journal of Personality and Social Psychology*, *87*, 631–648. DOI: 10.1037/0022-3514.87.5.631.
- Feeney, J. A. (2008). Adult romantic attachment: Developments in the study of couple relationships. In J. Cassidy & P. R. Shaver (Eds.), *The handbook of attachment: Theory, research, and clinical applications* (2nd ed., pp. 456–481). New York: Guilford Press.
- Feeney, B. C., & Kirkpatrick, L. A. (1996). Effects of adult attachment and presence of romantic partners on physiological responses to stress. *Journal of Personality and Social Psychology*, *70*, 255–270. DOI: 10.1037/0022-3514.70.2.255.
- Feeney, J. A., & Noller, P. (1990). Attachment style as a predictor of adult romantic relationships. *Journal of Personality and Social Psychology*, *58*, 281–291. DOI: 10.1037/0022-3514.58.2.281.
- Feeney, J. A., Noller, P., & Callan, V. J. (1994). Attachment style, communication, and satisfaction in the early years of marriage. In K. Bartholomew & D. Perlman (Eds.), *Attachment processes in adulthood* (pp. 269–308). London: Kingsley.

- Festinger, L. (1957). *A theory of cognitive dissonance*. New York: Row & Peterson.
- Fraley, R. C., Davis, E. E., & Shaver, P. R. (1996). Dismissing avoidance and the defensive organization of emotion, cognition, and behavior. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 201–232). New York: Guilford.
- Fraley, R. C., Garner, J. P., & Shaver, P. R. (2000). Adult attachment and the defensive regulation of attention and memory: Examining the role of preemptive and postemptive defensive processes. *Journal of Personality and Social Psychology*, *79*, 816–826. DOI: 10.1037/0022-3514.79.5.816.
- Fraley, R. C., & Shaver, P. R. (1997). Adult attachment and the suppression of unwanted thoughts. *Journal of Personality and Social Psychology*, *73*, 1080–1091. DOI: 10.1037/0022-3514.73.5.1080.
- Fraley, R. C., & Shaver, P. R. (1998). Airport separations: A naturalistic study of adult attachment dynamics in separating couples. *Journal of Personality and Social Psychology*, *75*, 1198–1212. DOI: 10.1037/0022-3514.75.5.1198.
- Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, *78*, 350–365. DOI: 10.1037/0022-3514.78.2.350.
- Friedman, M., Rholes, W. S., Simpson, J. A., Bond, M. H., Diaz-Loving, R., & Chan, C. (2010). Attachment avoidance and the cultural fit hypothesis: A cross-cultural investigation. *Personal Relationships*, *17*, 107–126. DOI: 10.1111/j.1475-6811.2010.01256.x.
- Gaines, S. O., Reis, H. T., Summers, S., Rusbult, C. E., Cox, C. L., Wexler, M. O., et al. (1997). Impact of attachment style on reactions to accommodative dilemmas in close relationships. *Personal Relationships*, *4*, 93–113. DOI: 10.1111/j.1475-6811.1997.tb00133.x.
- Gallo, L. C., & Smith, T. W. (2001). Attachment style in marriage: Adjustment and responses to interaction. *Journal of Social and Personal Relationships*, *18*, 263–289. DOI: 10.1177/0265407501182006.
- Garnezy, N., Masten, A. S., & Tellegen, A. (1984). The study of stress and competence of children: A building block for developmental psychopathology. *Child Development*, *55*, 97–111.
- Gottman, J. M. (1979). *Marital interaction: Experimental investigations*. New York: Academic Press.
- Griffin, D., & Bartholomew, K. (1994). Models of the self and other: Fundamental dimensions underlying measures of adult attachment. *Journal of Personality and Social Psychology*, *67*, 430–445. DOI: 10.1037/0022-3514.67.3.430.
- Gross, J. J. (1998a). The emerging field of emotion regulation: An integrative review. *Review of General Psychology*, *2*, 271–299. DOI: 10.1037/1089-2680.2.3.271.
- Gross, J. J. (1998b). Antecedent- and response-focused emotion regulation: Divergent consequences for experience, expression, and physiology. *Journal of Personality and Social Psychology*, *74*, 224–237. DOI: 10.1037/0022-3514.74.1.224.
- Gross, J. J. (2001). Emotion regulation in adulthood: Timing is everything. *Current Directions in Psychological Science*, *10*, 214–219. DOI: 10.1111/1467-8721.00152.
- Hammen, C. (2000). Interpersonal factors in an emerging developmental model of depression. In S. L. Johnson & A. M. Hayes, et al. (Eds.), *Stress, coping, and depression* (pp. 71–88). Mahwah, NJ: Erlbaum.
- Hazan, C., & Shaver, P. R. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, *52*, 511–524. DOI: 10.1037/0022-3514.52.3.511.
- Hazan, C., & Shaver, P. R. (1994). Attachment as an organizational framework for research on close relationships. *Psychological Inquiry*, *5*, 1–22.

- Kirkpatrick, L. A., & Davis, K. E. (1994). Attachment style, gender, and relationship stability: A longitudinal analysis. *Journal of Personality and Social Psychology*, *66*, 502–512. DOI: 10.1037/0022-3514.66.3.502.
- Kobak, R. R., & Duemmler, S. (1994). Attachment and conversation: Toward a discourse analysis of adolescent and adult security. In K. Bartholomew & D. Perlman (Eds.), *Attachment processes in adulthood* (pp. 121–149). London: Jessica Kingsley.
- Kohn, J. L., Rholes, W. S., Simpson, J. A., Martin, A. M., Tran, S., & Wilson, C. L. (2011). *Changes in marital satisfaction across the transition to parenthood: The role of attachment orientations*. Unpublished manuscript, Texas A&M University, College Station, TX.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Levy, M. B., & Davis, K. E. (1988). Lovestyles and attachment styles compared: Their relations to each other and to various relationship characteristics. *Journal of Social and Personal Relationships*, *5*, 439–471.
- Mak, M. C. K., Bond, M. H., Simpson, J. A., & Rholes, W. S. (2010). Adult attachment, perceived support, and depressive symptoms in Chinese and American cultures. *Journal of Social and Clinical Psychology*, *29*, 144–165. DOI: 10.1521/jscp.2010.29.2.144.
- Masten, A. S., & O'Connor, M. J. (1989). Vulnerability, stress, and resilience in the early development of a high risk child. *Journal of the American Academy of Child and Adolescent Psychiatry*, *28*, 274–278. DOI: 10.1097/00004583-198903000-00021.
- Maysless, O., Danieli, R., & Sharabany, R. (1996). Adults' attachment patterns: Coping with separations. *Journal of Youth and Adolescence*, *25*, 667–690. DOI: 10.1007/BF01537360.
- Mikulincer, M. (1998). Attachment working models and the sense of trust: An exploration of interaction goals and affect regulation. *Journal of Personality and Social Psychology*, *74*, 1209–1224. DOI: 10.1037/0022-3514.74.5.1209.
- Mikulincer, M., Birnbaum, G., Woddis, D., & Nachmias, O. (2000). Stress and accessibility of proximity-related thoughts: Exploring the normative and intraindividual components of attachment theory. *Journal of Personality and Social Psychology*, *78*, 509–523. DOI: 10.1037/0022-3514.78.3.509.
- Mikulincer, M., & Florian, V. (1997). Are emotional and instrumental supportive interactions beneficial in times of stress? The impact of attachment style. *Anxiety, Stress, and Coping*, *10*, 109–127.
- Mikulincer, M., & Florian, V. (1998). The relationship between adult attachment styles and emotional and cognitive reactions to stressful events. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 143–165). New York: Guilford.
- Mikulincer, M., & Florian, V. (2000). Exploring individual differences in reactions to mortality salience: Does attachment style regulation terror management mechanisms? *Journal of Personality and Social Psychology*, *79*, 260–273. DOI: 10.1037//0022-3514.79.2.260.
- Mikulincer, M., Florian, V., & Tolmacz, R. (1990). Attachment styles and fear of personal death: A case study of affect regulation. *Journal of Personality and Social Psychology*, *58*, 273–280. DOI: 10.1037/0022-3514.58.2.273.
- Mikulincer, M., Florian, V., & Weller, A. (1993). Attachment styles, coping strategies, and post-traumatic psychological distress: The impact of the Gulf War in Israel. *Journal of Personality and Social Psychology*, *64*, 817–826. DOI: 10.1037/0022-3514.64.5.817.
- Mikulincer, M., Gillath, O., & Shaver, P. R. (2002). Activation of the attachment system in adulthood: Threat-related primes increase the accessibility of mental representations of attachment figures. *Journal of Personality and Social Psychology*, *83*, 881–895. DOI: 10.1037//0022-3514.83.4.881.
- Mikulincer, M., & Shaver, P. R. (2003). The attachment behavioral system in adulthood: Activation, psychodynamics, and interpersonal processes. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 35, pp. 53–152). New York: Academic Press.
- Mikulincer, M., & Shaver, P. R. (2007a). *Attachment in adulthood: Structure, dynamics, and change*. New York: Guilford.

- Mikulincer, M., & Shaver, P. R. (2007b). Attachment theory and research: Core concepts, basic principles, conceptual bridges. In A. W. Kruglanski & E. T. Higgins (Eds.), *Social psychology: Handbook of basic principles* (2nd ed., pp. 650–677). New York: Guilford.
- Mikulincer, M., & Shaver, P. R. (2007c). Boosting attachment security to promote mental health, prosocial values, and inter-group tolerance. *Psychological Inquiry*, *18*, 139–156. DOI: 10.1080/10478400701512646.
- Milgram, N. A. (Ed.), (1986). *Stress and coping in time of war: Generalizations from the Israeli experience*. New York: Brunner/Mazel.
- Murray, S. L., Holmes, J. G., & Collins, N. L. (2006). Optimizing assurance: The risk regulation system in relationships. *Psychological Bulletin*, *132*, 641–666. DOI: 10.1037/0033-2909.132.5.641.
- Pereg, D., & Mikulincer, M. (2004). Attachment style and the regulation of negative affect: Exploring individual differences in mood congruency effects on memory and judgment. *Personality and Social Psychology Bulletin*, *30*, 67–80. DOI: 10.1177/0146167203258852.
- Pistole, M. C. (1989). Attachment in adult romantic relationships: Style of conflict resolution and relationship satisfaction. *Journal of Social and Personal Relationships*, *6*, 505–510.
- Puig, J., Englund, M. M., Collins, W. A., & Simpson, J. A. (2011). *Predicting adult physical illness from infant attachment: A prospective longitudinal study*. Unpublished manuscript, University of Minnesota, Minneapolis, MN.
- Rholes, W. S., Simpson, J. A., Campbell, L., & Grich, J. (2001). Adult attachment and the transition to parenthood. *Journal of Personality and Social Psychology*, *81*, 421–435. DOI: 10.1037/0022-3514.81.3.421.
- Rholes, W. S., Simpson, J. A., Kohn, J. L., Wilson, C. L., Martin, A. M., Tran, S., et al. (2011). Attachment orientations and depression: A longitudinal study of new parents. *Journal of Personality and Social Psychology*, *100*, 567–586. DOI: 10.1037/a0022802.
- Rholes, W. S., Simpson, J. A., & Oriña, M. M. (1999). Attachment and anger in an anxiety-provoking situation. *Journal of Personality and Social Psychology*, *76*, 940–957. DOI: 10.1037/0022-3514.76.6.940.
- Richards, J. M., & Gross, J. J. (2000). Emotion regulation and memory: The cognitive costs of keeping one's cool. *Journal of Personality and Social Psychology*, *79*, 410–424. DOI: 10.1037/0022-3514.79.3.410.
- Rood, L., Roelofs, J., Bogels, S. M., Nolen-Hoeksema, S., & Schouten, D. (2009). The influence of emotion-focused rumination and distraction on depressive symptoms in non-clinical youth: A meta-analytic review. *Clinical Psychology Review*, *29*, 607–616. DOI: 10.1016/j.cpr.2009.07.001.
- Salvatore, J. E., Kuo, S. I., Steele, R. D., Simpson, J. A., & Collins, W. A. (2011). Recovering from conflict in romantic relationships: A developmental perspective. *Psychological Science*, *22*, 376–383. DOI: 10.1177/0956797610397055.
- Scharf, M. (2001). A “natural experiment” in childrearing ecologies and adolescents' attachment and separation representations. *Child Development*, *72*, 236–251.
- Scharfe, E., & Bartholomew, K. (1995). Accommodation and attachment representations in young couples. *Journal of Social and Personal Relationships*, *12*, 389–401.
- Shallcross, S., Howland, M., Bemis, J., Simpson, J. A., & Frazier, P. (2011). Not “capitalizing” on social capitalization interactions: The role of attachment insecurity. *Journal of Family Psychology*, *25*, 77–85. DOI: 10.1037/a0021876.
- Shaver, P. R., & Hazan, C. (1993). Adult romantic attachment: Theory and evidence. In D. Perlman & W. Jones (Eds.), *Advances in personal relationships* (Vol. 4, pp. 29–70). London: Jessica Kingsley.
- Shaver, P. R., Schachner, D. A., & Mikulincer, M. (2005). Attachment style, excessive reassurance seeking, relationship processes, and depression. *Personality and Social Psychology Bulletin*, *31*, 343–359. DOI: 10.1177/0146167204271709.

- Simpson, J. A. (1990). Influence of attachment styles on romantic relationships. *Journal of Personality and Social Psychology*, *59*, 971–980. DOI: 10.1037/0022-3514.59.5.971.
- Simpson, J. A., & Belsky, J. (2008). Attachment theory within a modern evolutionary framework. In J. Cassidy & P. R. Shaver (Eds.), *The handbook of attachment: Theory, research, and clinical applications* (2nd ed., pp. 131–157). New York: Guilford Press.
- Simpson, J. A., Collins, W. A., Tran, S., & Haydon, K. C. (2007). Attachment and the experience and expression of emotions in adult romantic relationships: A developmental perspective. *Journal of Personality and Social Psychology*, *92*, 355–367. DOI: 10.1037/0022-3514.92.2.355.
- Simpson, J. A., Ickes, W., & Grich, J. (1999). When accuracy hurts: Reactions of anxiously-attached dating partners to a relationship-threatening situation. *Journal of Personality and Social Psychology*, *76*, 754–769. DOI: 10.1037/0022-3514.76.5.754.
- Simpson, J. A., Kim, J., Fillo, J., Ickes, W., Rholes, W. S., Oriña, M. M., et al. (2011). Attachment and the management of empathic accuracy in relationship-threatening situations. *Personality and Social Psychology Bulletin*, *37*, 242–254. DOI: 10.1177/0146167210394368.
- Simpson, J. A., & Rholes, W. S. (1994). Stress and secure base relationships in adulthood. In K. Bartholomew & D. Perlman (Eds.), *Advances in personal relationships (vol. 5): Attachment processes in adulthood* (pp. 181–204). London: Kingsley.
- Simpson, J. A., & Rholes, W. S. (2010). Attachment and relationships: Milestones and future directions. *Journal of Social and Personal Relationships*, *27*, 173–180. DOI: 10.1177/0265407509360909.
- Simpson, J. A., Rholes, W. S., Campbell, L., Tran, S., & Wilson, C. L. (2003). Adult attachment, the transition to parenthood, and depressive symptoms. *Journal of Personality and Social Psychology*, *84*, 1172–1187. DOI: 10.1037/0022-3514.84.6.1172.
- Simpson, J. A., Rholes, W. S., Campbell, L., & Wilson, C. L. (2003). Changes in attachment orientations across the transition to parenthood. *Journal of Experimental Social Psychology*, *39*, 317–331. DOI: 10.1016/S0022-1031(03)00030-1.
- Simpson, J. A., Rholes, W. S., & Nelligan, J. S. (1992). Support-seeking and support-giving within couples in an anxiety-provoking situation: The role of attachment styles. *Journal of Personality and Social Psychology*, *62*, 434–446. DOI: 10.1037/0022-3514.62.3.434.
- Simpson, J. S., Rholes, W. S., Oriña, M. M., & Grich, J. (2002). Working models of attachment, support giving, and support seeking in a stressful situation. *Personality and Social Psychology Bulletin*, *28*, 598–608. DOI: 10.1177/0146167202288004.
- Simpson, J. A., Rholes, W. S., & Phillips, D. (1996). Conflict in close relationships: An attachment perspective. *Journal of Personality and Social Psychology*, *71*, 899–914. DOI: 10.1037/0022-3514.71.5.899.
- Simpson, J. A., Rholes, W. S., & Winterheld, H. A. (2010). Attachment working models twist memories of relationship events. *Psychological Science*, *21*, 252–259. DOI: 10.1177/0956797609357175.
- Simpson, J. A., Winterheld, H. A., Rholes, W. S., & Oriña, M. M. (2007). Working models of attachment and reactions to different forms of caregiving from romantic partners. *Journal of Personality and Social Psychology*, *93*, 466–477. DOI: 10.1037/0022-3514.93.3.466.
- Sroufe, L. A., & Waters, E. (1977). Attachment as an organizational construct. *Child Development*, *48*, 1184–1199.
- Taubman Ben-Ari, O., Findler, L., & Mikulincer, M. (2002). The effect of mortality salience on relationship strivings and beliefs: The moderating role of attachment style. *The British Journal of Social Psychology*, *41*, 419–441.
- Tran, S., & Simpson, J. A. (2009). Pro-relationship maintenance behaviors: The joint roles of attachment and commitment. *Journal of Personality and Social Psychology*, *97*, 685–698. DOI: 10.1037/a0016418.

- Vaughn, B., & Sroufe, L. A. (1979). Temporal relationship between infant heart-rate acceleration and crying in an aversive situation. *Child Development, 50*, 565–567.
- Wei, M., Vogel, D. L., Ku, T., & Zakalik, R. A. (2005). Adult attachment, affect regulation, negative mood, and interpersonal problems: The mediating roles of emotional reactivity and emotional cutoff. *Journal of Counseling Psychology, 52*, 14–24. DOI: 10.1037/0022-0167-52.1.14.
- Wilson, C. L., Simpson, J. A., & Rholes, W. S. (2000). *Attachment orientations and support-giving*. Paper presented at the annual meeting of the Midwestern Psychological Association, Chicago, IL.
- Woolsey, L. K., & McBain, L. (1987). Women's networks: Strengthening the bonds of friendships between women. In K. Storrie (Ed.), *Women: Isolation and bonding* (pp. 59–76). Toronto: Methuen.

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