CHAPTER 15

High-Maintenance Interaction and Self-Regulation

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Scenario #1. Imagine that you and your spouse have decided to repaint your kitchen. Both of you have experience with domestic painting, so you decide to do the job yourselves rather than hire a professional painter. You know from experience that you (working alone) would be able to apply the first coat of paint in approximately 3 hours, which would leave 2 hours to finish preparing tomorrow's lecture before bedtime. Given that your spouse also has painting experience, you are confident that your estimate of 3 hours is conservative. It soon becomes clear, however, that you and your spouse have learned incompatible painting strategies over the years; despite your best efforts, you keep getting in each other's way. You are forced to exert effort to discern what your partner is doing so the two of you can coordinate your work. This effort offsets the advantage of having two competent painters working together. In the end, the painting does indeed take 3 hours, but when you turn your attention to lecture preparation, you find that your mind is unfocused and your motivation is diminished. You have trouble forcing yourself to spend those 2 hours working hard, and the quality of your work is poor.

Scenario #2. Imagine that two unacquainted white college seniors—Chad and Jake—take the Graduate Record Exam (GRE) at separate exam

locations. Chad and Jake both arrive 10 minutes early and find themselves waiting in a room with only one other person in it: a black student who is also waiting to take the GRE. Each pair of students strikes up a conversation about GRE study strategies. After discussing how the GRE is generally a politically correct test, they wind up talking casually about affirmative action more generally before being summoned to take the exam. Chad and Jake are quite similar to one another, except that whereas Chad has minimal prejudice against black people, Jake is strongly prejudiced. When they receive their exam scores, Chad finds that he performs as well as he typically did on his practice tests, but Jake finds that he underperforms relative to his practice tests scores.

In the present chapter, we explore the idea that the preceding scenarios are representative of a recently identified category of interpersonal interactions that impair subsequent self-regulation; we refer to such interactions as *high-maintenance interactions*. The goal of this chapter is to review evidence that effortful social coordination on interpersonal tasks (e.g., painting with others) can impair personal self-regulation on subsequent, unrelated tasks (e.g., maintaining focus and concentration). We first provide a conceptual analysis of social coordination by addressing definitional issues, identifying social coordination as an interdependence phenomenon, and emphasizing the distinction between social coordination and social conflict. We then highlight some relevant developments in the self-regulation literature before reviewing the rapidly expanding evidence supporting the idea that high-maintenance interactions impair self-regulation on subsequent unrelated tasks. Next we advance a model of self-regulation and relationship functioning. We conclude with a discussion of the implications of this work and directions for future research.

SOCIAL COORDINATION

We adopt the following definitions for the terms *social coordination* and *high maintenance* (Finkel, Campbell, Brunell, Dalton, & Chartrand, 2005): "Interpersonal interactions are characterized by effective *social coordination* to the degree that the interacting individuals are able to align their behaviors with one another in an efficient and effortless manner. The term *high-maintenance interaction* refers to the degree to which social coordination on an interpersonal task requires energy exertions beyond those required to perform the task itself." The interracial interaction scenario presented previously is an example of a high-maintenance interaction for Jake (the student with strong prejudice) because facilitating smooth social coordination with his black waiting room companion requires that he exert energy (to inhibit his prejudice in the interest of facilitating smooth interaction) beyond that required by the

social interaction itself. The identical situation is not a high-maintenance interaction for Chad (the student with minimal prejudice) because he does not have to exert extra energy to facilitate smooth social interaction. Below we review evidence that differences in the degree to which social coordination experiences are high maintenance affect the degree to which the interactants experience personal self-regulatory failure on subsequent unrelated tasks. In the interracial interaction scenario, for example, Jake's GRE performance would likely suffer after the social interaction whereas Chad's would not.

An Interdependence Theory Analysis of Social Coordination

Interdependence theory researchers define *interdependence* as "the process by which interacting persons influence one another's experiences" (Rusbult & Van Lange, 1996, p. 564; see also Kelley et al., 2003; Kelley & Thibaut, 1978; Thibaut & Kelley, 1959). Although this definition is broad enough to include diverse interdependence phenomena, some topics have been well researched whereas others have been largely neglected. Examples of well-researched topics include how people navigate conflicts of interest (e.g., Finkel, Rusbult, Kumashiro, & Hannon, 2002; Rusbult, Verette, Whitney, Slovik, & Lipkus, 1991; Van Lange, 1999) and how trust develops (e.g., Holmes & Rempel, 1989). We suggest that the self-regulatory consequences of high-maintenance interaction is a central interdependence topic that has been neglected empirically until the last few years. This neglect is surprising given the degree to which effective social coordination promotes enhanced quality of life. Tasks requiring coordination are pervasive, and many tasks are more efficiently accomplished by people working in concert than by individuals working alone. We next examine how efficient versus inefficient social coordination influences the interactants' subsequent self-regulatory success.

Coordination versus Conflict

Although research examining the personal consequences of interpersonal *conflict* has been common over the past several decades, research investigating the personal consequences of poor interpersonal *coordination* has been sparse until the last few years. Rusbult and Van Lange (2003) highlight the distinction between these two topics by presenting two different scenarios for John and Mary as they decide where to spend their summer vacation. In the first, John wants to go to a beach resort and Mary wants to go to Rome. In the second, John and Mary both want to go to Rome. Whereas the first scenario requires that John and Mary make delicate decisions that account for their different preferences, the second does not—after all, they have the same preferences in the first place. Rusbult and Van Lange observe that interaction in the second scenario "is a coordination problem—the two must agree on a date for

their vacation, and one person must arrange for travel and lodging. Thus, in comparison to situations with conflicting interests, *situations with corresponding interests are relatively simple*. . . . They entail coordinating in such a manner as to enjoy the good outcomes that are readily available to the pair" (p. 352, emphasis added).

Efficient versus Effortful Coordination

We suggest that such coordination is frequently simple not because coordinating with others is easy (e.g., consider how difficult it would be to program a robot to engage in smooth social coordination), but rather because humans possess remarkable behavioral repertoires for effecting smooth social coordination. Furthermore, once these repertoires are developed, we can generally apply them effortlessly and nonconsciously to diverse social situations. As a result, well-coordinated social interactions are the norm; poor social coordination is the salient exception (Hatfield, Cacioppo, & Rapson, 1994).

Although efficient social coordination is the norm, interactions requiring effortful attention to the nuances of such coordination still exist in everyday life. For example, it is often complicated—and exhausting—for a group of friends to decide which movie to see, even if everybody would be content to see any movie under consideration. We suggest that when people have compatible goals but the interpersonal execution of these goals is inefficient enough to require heightened vigilance to social coordination issues, the interactants' self-regulatory success on subsequent unrelated tasks may well become impaired. Before reviewing the literature examining the effects of high-maintenance interactions on self-regulation, we turn our attention to some recent and relevant developments in the rapidly expanding self-regulation literature.

SELF-REGULATION

We use the term *self-regulation* to refer to what Baumeister (1998, p. 712) has called the self's "executive function," which is the aspect of the self that "makes decisions, initiates actions, and in other ways exerts control over both self and environment." Self-regulation is the psychological process activated when studying on a Friday night rather than going out to a bar with friends or when forcing oneself to concentrate on a difficult task when one's mind begins to wander; it entails efforts by the self to alter its own inner states or responses (Vohs & Baumeister, 2004) in a goal-directed manner. Self-regulation is a superordinate category consisting of many lower level processes, including (1) general self-regulatory effectiveness (e.g., using time well, being responsible), (2) willpower, (3) effective task performance, (4) motivation to perform challenging but potentially rewarding tasks rather than easy tasks with a low likelihood of being satisfying in the long run, and (5) inhibiting inappropriate behavioral tendencies. The present chapter reviews research relevant to all five of these components of self-regulation.

Self-regulation has been an increasingly hot area of research over the last 20 years (see Baumeister & Vohs, 2004, for a comprehensive edited volume on the topic), but most of this research emphasizes processes within a given individual. The research reviewed here builds on this literature by exploring whether the interpersonal process of high-maintenance interaction impairs personal self-regulatory success on subsequent unrelated tasks. This research serves as one illustration of a more general point: A comprehensive theory of self-regulation requires greater insight into the processes by which interpersonal processes influence individuals' self-regulatory success (see also Fitzsimons, Chapter 3; Koole, Kuhl, Jostmann, & Finkenauer, Chapter 18; Kumashiro, Rusbult, Wolf, & Estrada, Chapter 16; Rawn & Vohs, Chapter 2; Seeley & Gardner, Chapter 20; and Shah, Chapter 19, this volume).

Self-Regulatory Strength Depletion and the Two-Task Paradigm

We suggest that a primary mechanism by which high-maintenance interaction impairs self-regulation is by depleting psychological resources. Accumulating evidence suggests that engaging in successful self-regulation requires the individual to tap into a central psychological resource called *self-regulatory strength*, which refers to "the internal resources available to inhibit, override, or alter responses" (Schmeichel & Baumeister, 2004, p. 86). In the context of high-maintenance interactions, tempting responses might include being rude, losing focus, or discontinuing the interaction; striving to achieve efficient coordination in such interactions requires that one exert self-regulatory strength to override these tempting responses. Evidence suggests that self-regulatory strength is a limited and depletable resource that fluctuates in response to previous self-regulatory exertions (for reviews, see Muraven & Baumeister, 2000; Schmeichel & Baumeister, 2004). To the degree that individuals exert self-regulation in a given situation, they will have fewer self-regulatory resources available on a separate task they perform moments later; their "strength" is sapped and they are left in a state of *self-regulatory strength depletion*. An important implication is that "a person can become exhausted from many simultaneous demands and so will sometimes fail at self-control even regarding things at which he or she would otherwise succeed" (Baumeister & Heatherton, 1996, p. 3).

Research on self-regulatory strength depletion typically employs a *two-task paradigm* in which participants perform an initial task that either requires self-regulatory exertion or does not. After completing this first task, all participants complete the identical follow-up task that also requires self-regulatory

exertion. Research reveals that relative to participants who first performed a task requiring no self-regulatory exertion, those who first performed a task requiring self-regulatory exertion exhibit impaired performance on the second task (e.g., Baumeister, Bratslavsky, Muraven, & Tice, 1998; Finkel & Campbell, 2001; Muraven, Collins, & Neinhaus, 2002; Muraven, Tice, & Baumeister, 1998; Vohs & Heatherton, 2000; Vohs & Schmeichel, 2003), although experiencing the initial task requiring self-regulatory exertion only impairs performance on follow-up tasks that also require self-regulatory exertion (Schmeichel, Vohs, & Baumeister, 2003). In addition, these depletion effects are not caused by differences across experimental conditions in mood (e.g., Schmeichel et al., 2003; Vohs & Schmeichel, 2003), self-efficacy (Wallace & Baumeister, 2002), or even subjectively experienced depletion (e.g., Muraven & Slessareva, 2003); this raises the possibility that self-regulatory exertion results in depleted self-regulatory strength for follow-up tasks without mediation through high-level conscious processes. The research reviewed here adapts the two-task paradigm to explore the effects of high-maintenance interaction on impaired personal self-regulation on subsequent unrelated tasks.

EMPIRICAL EVIDENCE

Two lines of research have emerged over the past few years to provide support for the idea that high-maintenance interaction results in impaired personal self-regulation on subsequent unrelated tasks. The first emerges from a desire to understand dynamics in romantic relationships and emphasizes the importance of interpersonal coordination. The second emerges from a desire to understand the consequences of being concerned about enacting prejudiced responses during interracial interaction. Together, the two lines of research paint a clear picture: Experiencing high-maintenance interactions results in impaired self-regulation.

Inefficient Social Coordination and Impaired Self-Regulation

In a series of seven studies, Finkel, Campbell, and their colleagues present evidence that coordination difficulties can impair subsequent self-regulation. The first three studies employ correlational procedures to investigate high-maintenance interaction processes in ongoing romantic relationships (Finkel, Campbell, & Sands, 2004), whereas the next four employ experimental procedures to investigate these processes in interactions between strangers (Finkel et al., 2005).

In the first study, participants (all of whom were involved in dating relationships) first completed a new, 12-item measure assessing the degree to which interpersonal coordination with their partner over the preceding 1-month period required effort (Finkel et al., 2004, Study 1). Sample items are "Over the past month, I have had to exert a lot of effort to coordinate things with my partner" and "Over the past month, it has required a lot of effort to understand my partner." Participants then completed a new, 6-item measure of general self-regulatory effectiveness over the same time frame. Sample items from this scale are "I tended to prioritize my time well" and "I was less responsible than I usually am" (reverse-scored). Results revealed a strong negative correlation between high-maintenance interaction and effective self-regulation: Having to exert effort to coordinate with a romantic partner is associated with ineffective self-regulation.

The primary goals of the second study were (1) to replicate the earlier findings with a design that does not depend upon retrospective reports and controls for the effects of five potential confounds and (2) to discern whether high-maintenance interaction is associated with increasingly impaired self-regulation over time (Finkel et al., 2004, Study 2). Willpower served as a new measure of self-regulation, as it strongly predicts effective performance on important self-regulatory tasks (e.g., Mischel, 1974; Mischel, Shoda, & Rodriquez, 1989). In this study, participants (all of whom were involved in dating relationships) completed one-item measures of high-maintenance interaction ("Maintaining efficient and pleasant interaction with my partner requires a lot of energy") and willpower ("I am able to resist temptation and work effectively toward long-term goals") 14 times over a 6-month period (every other week). Results extended findings from the first study by demonstrating that high-maintenance interaction was not only associated with impaired self-regulation, but it also predicted increasingly impaired self-regulation over time. These associations were robust beyond the effects of mood, happiness, vitality, self-deception, and impression management. (Additional results revealed that this effect also works in reverse, with self-regulation predicting increasing perceptions of high-maintenance interaction over time; such evidence of bidirectional causation suggests that the processes of impaired self-regulation and high-maintenance interaction may well exacerbate one another in a vicious cycle.)

The third study set out to replicate the findings from the first two with an entirely different method (Finkel et al., 2004, Study 3). The new procedure (1) employed a specific and behavioral (rather than a general and self-report) measure of self-regulation (GRE performance) and (2) balanced competing demands for internal validity and external validity. To strengthen external validity, high-maintenance interaction was assessed regarding an interaction with the participant's ongoing romantic partner (as in the first two studies) rather than with a stranger. In addition, it was assessed as partners engaged in an unscripted interaction that allowed them to communicate without constraints on what they were allowed to say. To strengthen internal validity, this

interaction (with regard to which high-maintenance interaction was assessed) took place in a well-controlled laboratory setting and revolved around a specific dyadic task (described below).

Participants (who were both members of heterosexual romantic couples) engaged in a 4-minute laboratory interaction task, in which one partner instructed the other to place a set of abstract shapes in a specific order determined by the experimenter. The partners were allowed to communicate with one another as much as they liked, but they could not see each other because they were on separate sides of a visual divider. When this 4-minute interaction was over, partners reported the degree to which they experienced it as a high-maintenance interaction. Sample items from the four-item high-maintenance interaction scale are "We had a difficult time communicating" and "It was easy for us to coordinate our efforts" (reverse-scored). Results revealed that the high-maintenance interaction measure was negatively associated with GRE performance, an effect that remained robust beyond the effects of mood and self-efficacy. Although this trend of associations held for both males and females, it was statistically significant only for females.

Although these three studies provide compelling evidence that experiencing high-maintenance interaction with a romantic partner is associated with impaired self-regulation, they are limited insofar as (1) their nonexperimental methods do not allow for firm causal conclusions, (2) they depend on self-report measures of high-maintenance interaction, and (3) they examine high-maintenance interaction exclusively in romantic relationships. To address these limitations, the fourth study set out (1) to garner evidence that high-maintenance interaction *causes* impaired self-regulation and (2) to provide additional support for this association without relying on self-report measures to assess either high-maintenance interaction or self-regulation (Finkel et al., 2005, Study 1). Female participants interacted with a same-sex confederate whose behavior rendered the interaction either high maintenance (inefficient, difficult) or low maintenance (efficient, easy) for them. The rationale behind using this method was that high-maintenance interaction is not limited to interactions between previously acquainted individuals; rather, any interaction characterized by inefficient coordination and requiring energy exertion should result in impaired self-regulation. Participants used a joystick to navigate a computer-based maze for 3 minutes. The rub, however, is that the experimenter had configured the room so that the participant was not able to see the computer monitor; rather, she had to rely on the confederate's verbal instructions to guide her through the maze. In the high-maintenance condition, the confederate made a scripted series of errors (e.g., "Wait!" and "Right . . . I mean left") in the directions she gave. In the low-maintenance condition, she followed the same script but without making errors.

Self-regulation was assessed with two different, theoretically derived measures (Gottfredson & Hirschi, 1990): *task motivation*, or whether participants preferred to engage in a challenging task that had the potential to be rewarding or in an easy task that was unlikely to be rewarding, and *task performance*, or how participants performed on a task of intermediate difficulty. Consistent with previous research suggesting that preferring simple tasks to complex ones is a common characteristic of individuals with low self-control (Gottfredson & Hirschi, 1990; Grasmick, Tittle, Bursik, & Arneklev, 1993; see also Flora, Finkel, & Foshee, 2003) and with the observation that depleted people prefer to engage in simple tasks like watching television rather than challenging tasks like doing homework, results revealed that participants who had experienced the high-maintenance interaction were significantly and substantially less likely to choose the challenging task (15%) than were those who had experienced the low-maintenance interaction (62%). After participants selected the easy or the challenging task, the experimenter presented all of them with the identical task of intermediate difficulty. Consistent with the idea that high-maintenance interaction impairs aspects of self-regulation like concentration and motivation, results revealed that participants who had been assigned to interact with the low-maintenance confederate solved 56% more anagrams than did those who had been assigned to interact with the high-maintenance confederate.

The fifth study set out to gather additional evidence for the processes uncovered in the fourth one with a method that employed (1) new coordination and self-regulation tasks and (2) a no-interaction control condition (Finkel et al., 2005, Study 2). Participants once again interacted with a same-sex confederate of the experimenter whose behavior rendered the interaction either high maintenance or low maintenance for them. In this new task, participants were randomly assigned to perform a data entry task (1) with a confederate who made the interaction high maintenance, (2) with a confederate who made the interaction low maintenance, or (3) alone. In the two dyadic conditions, the confederate read a string of numbers to the participant, who entered them into a computer-based spreadsheet. In the high-maintenance condition, the confederate made a scripted series of errors (e.g., "2—I mean 1" and "9, oops, sorry, I meant 4"). To strengthen the manipulation further, the confederate made sure to remain out of sync with the participant: He or she could hear the strokes of the keyboard and deliberately avoided developing a rhythm with the participant. In the low-maintenance condition, he or she followed the same script but without making errors.

After completing this task, participants spent 10 minutes working (alone) on the same GRE task used in the third study. Consistent with expectations, results revealed that participants who had been assigned to experience the high-maintenance interaction subsequently performed worse on the GRE task relative to those who had been assigned to experience the low-maintenance interaction and relative to those who performed the data entry task alone. Similar results emerged for the sixth study (Finkel et al., 2005, Study 3).

The seventh study was inspired by a striking pattern of null findings in the three previous experimental studies: Intensive efforts to find evidence that the effect of high-maintenance interaction on impaired self-regulation was mediated through three plausible conscious processes (subjectively experienced depletion, mood, and self-efficacy) consistently failed to find evidence for mediation. This reliable pattern of findings suggests that high-maintenance interaction may well influence self-regulation without requiring high-level cognitive mediation. Building on the plausible notion that humans are constantly but nonconsciously attuned to their social coordination experiences—particularly to social coordination *failures*—in their everyday lives, the seventh study incorporated a subtle manipulation of high-maintenance interaction in which participants were not consciously aware that social coordination had been inefficient (Finkel et al., 2005, Study 4). This design differed from those employed in the previous studies employing experimental manipulations of high-maintenance interaction because those previous manipulations involved obvious instances of social coordination failure; participants in the high-maintenance interaction conditions, for example, surely recognized that the confederate was making errors when guiding them on how to navigate the maze or on how to enter the data. Unlike these previous studies, the procedure for the seventh study manipulated social coordination without affecting performance on the dyadic task.

In addition, social coordination was manipulated without participants' awareness. To accomplish this, procedures were adapted from the burgeoning literature on nonconscious behavioral mimicry (for a review, see Chartrand, Maddux, & Lakin, 2005). Half of the participants interacted with a confederate who subtly mimicked their mannerisms and gestures (low-maintenance interaction, or *mimicry*, condition) and the other half interacted with a confederate who subtly but deliberately stayed out of sync with their mannerisms and gestures (high-maintenance interaction, or *misalignment*, condition). The reason why this study employed behavioral mimicry and antimimicry procedures to manipulate social coordination nonconsciously is that poorly synchronized behavioral mimicry may well render otherwise efficient social interactions more complex, requiring at a nonconscious level heightened attention to social coordination. The increased vigilance required during interactions characterized by such social misalignment may well transform them into high-maintenance interactions and increase the likelihood of impaired self-regulation on subsequent unrelated tasks.

After participants experienced either the high-maintenance (social misalignment) or low-maintenance (mimicry) interaction, they played the game Operation, a commercial board game for children that involves delicately removing small plastic body parts from a cartoon patient using a tweezer-like device (see Vohs et al., 2005, Study 7). The experimenter explained that the participant's tasks were (1) to remove each of the plastic body parts in a single smooth motion and (2) to do so as quickly as possible. If participants accidentally failed to remove the piece on a given removal attempt, they were required to remove the tweezers from the board and initiate a new attempt to remove that particular piece. Participants were allowed to give up on any particular piece and move on to the next one with the understanding that they could not go back and attempt to remove that piece again; they knew that deciding to move on without successfully removing the piece would represent a failure to perform optimally on the task.

Results revealed that although participants in both conditions successfully removed most of the pieces, participants who had experienced the high-maintenance (misalignment) interaction experienced 86% more removal failures relative to those who had experienced the low-maintenance (mimicry) interaction. In addition, relative to participants who were assigned to the high-maintenance interaction (misalignment) condition, those who were assigned to the low-maintenance interaction (mimicry) condition were 39% more likely to remove a piece successfully on any given attempt.

Taken together, these seven studies provide strong support for the hypothesis that high-maintenance interactions impair personal self-regulation on subsequent unrelated tasks. We now turn our attention to an independent line of research suggesting that interracial interactions can serve as high-maintenance interactions.

Interracial Interactions and Impaired Executive Control

In a series of five studies, Richeson and her colleagues (2003; Richeson & Shelton, 2003; Richeson & Trawalter, 2005) present evidence that interracial interactions can impair subsequent executive control (a crucial component of self-regulation). The logic underlying this line of research is that suppressing prejudicial behaviors frequently requires that one exert self-regulation (e.g., Devine, 1989; Dovidio & Gaertner, 1998; Monteith, 1993). Individuals frequently feel compelled to exert self-regulatory effort to avoid behaving in a prejudicial manner because there are strong social norms against being prejudiced in modern Western societies (e.g., Crandall, Eshleman, & O'Brien, 2002; Gaertner & Dovidio, 1986). As a result of this self-regulatory exertion, engaging in an interracial interaction when prejudice concerns are elevated, we suggest, functions as a high-maintenance interaction.

In the first study, white participants first completed an implicit association test assessing their implicit prejudice against blacks. Subsequently, they were randomly assigned to talk for 5 minutes to a white or a black confederate about controversial topics, one of which was racial profiling in light of the September 11th attacks (Richeson & Shelton, 2003). After completing this interaction with the confederate, participants completed the Stroop (1935) color-naming task. Because effective performance on the Stroop task requires that

individuals override their automatic response tendencies, it is a standard task employed to measure executive control. Results revealed a significant interaction between prejudice and confederate race in predicting Stroop interference: Prejudice was positively associated with Stroop interference for white participants who had interacted with a black confederate but not for those who had interacted with a white confederate. These results suggest that engaging in interracial interaction forced prejudiced participants to exert self-regulatory efforts during the interaction and that these efforts depleted their resources for the subsequent executive control task.

The second study set out to investigate whether individual differences in racial prejudice predict the activation and potential depletion of executive control resources during interracial interactions, which in turn predicts impaired Stroop performance (Richeson et al., 2003). White participants experienced a procedure virtually identical to the one employed in the first study, but this time they also completed a separate and ostensibly unrelated testing session in which their brain activity was recorded using functional magnetic resonance imaging (fMRI) techniques while they looked at pictures of black faces and of white faces. In this fMRI session, the researchers examined differential activation when looking at black faces relative to looking at white faces in two brain areas that have been associated with executive control processes: the dorsolateral prefrontal cortex (DLPFC) and the anterior cingulate cortex (ACC). The fMRI data were matched with the behavioral data to explore the plausibility of the hypothesis that activation in these brain regions might mediate the association of white participants' prejudice scores with impaired Stroop performance after interacting with a black confederate. Results provide preliminary evidence that DLPFC activation does indeed mediate this association, although ACC activation does not. As predicted, results revealed nonsignificant associations of brain activation with Stroop performance for same-race interactions. Taken together, these results are consistent with a resource depletion explanation for the impaired Stroop performance of prejudiced white participants following interracial interaction: Such interactions seem to require that prejudiced white people exert self-regulation (as detected through DLPFC activation), which may well deplete self-regulatory resources and ultimately impair executive control performance.

The goal of the third study was to examine whether elevating white participants' concerns about behaving in a racially prejudicial manner immediately before they experienced an interracial (but not a same-race) interaction would result in especially impaired Stroop performance following the interaction (Richeson & Trawalter, 2005, Study 1). Half of the participants were given feedback suggesting that they were prejudiced; the other half were given negative feedback unrelated to prejudice. After receiving this feedback, the participants (all of whom were white) interacted with a black or a white confederate in a research paradigm similar to that employed in the two previous studies: They talked to the confederate about racially sensitive topics before performing an ostensibly unrelated Stroop task. Results revealed that participants who experienced an interracial interaction after receiving the prejudice feedback exhibited greater interference on the Stroop task relative to those who had received the negative but nonracial feedback. This pattern of findings did not emerge for participants who experienced a same-race interaction. These results suggest that elevated concerns about appearing prejudiced require participants to exert self-regulatory effort in interracial interactions, and that this exertion impairs subsequent efforts at executive control.

Whereas the third study incorporated a manipulation that increased the self-regulatory demands on the participants, the fourth study incorporated a manipulation that decreased such demands (Richeson & Trawalter, 2005, Study 2). White participants again talked to either a black or a white confederate about a racially sensitive topic before completing an ostensibly unrelated Stroop task. To reduce self-regulatory demands, half of the participants read their responses from a standardized script, while the other half were required to generate their own responses during the course of the interaction. The logic underlying this manipulation is that reading racially sensitive information from a standardized script should reduce uncertainty regarding what to say or how to behave during the interracial interaction, thereby reducing the need to exert active self-regulation. In a replication of previous findings, results revealed that participants in the no script condition exhibited greater Stroop interference after interracial interactions than after same-race interactions. Consistent with hypotheses, however, this effect failed to emerge in the script condition. Another way of thinking about these results is that participants in the script condition exhibited less Stroop interference relative to those in the no script condition for interracial interactions, but that the script manipulation failed to influence Stroop interference for same-race interactions. These results suggest that minimizing the self-regulatory demands of interracial interaction can diminish the impairment in subsequent executive control that would otherwise emerge.

Like the fourth study, the fifth study also incorporated a manipulation that decreased the self-regulatory demands on participants. Once again, white participants talked either to a black or a white confederate before engaging in an ostensibly unrelated Stroop task (Richeson & Trawalter, 2005, Study 3). In this study, half of the participants were given the opportunity to misattribute any anxiety they might experience during the interaction to aspects of the testing room rather than to the interaction itself. Specifically, participants in the misattribution condition were told, "Several previous participants have found that this room makes them anxious because of the one-way mirror and the confined feel of the room," whereas participants in the control condition received no information about previous participants' experiences. In a replica-

tion of previous findings, results revealed that participants in the control condition exhibited greater Stroop interference after interracial interactions than after same-race interactions. Consistent with hypotheses, this effect failed to emerge in the misattribution condition. Another way of thinking about these results is that participants in the misattribution condition exhibited less Stroop interference relative to those in the control condition for interracial interactions, but the misattribution manipulation failed to influence Stroop interference for same-race interactions. These results further bolster the assertion that minimizing the self-regulatory demands of interracial interaction can diminish the impairment in subsequent executive control that would otherwise emerge.

Taken together, these five studies provide strong support for the hypothesis that interracial interaction can impair performance on subsequent executive control tasks when concerns with appearing prejudiced are elevated. Evidence suggests that this effect is due to depleted self-regulatory strength.

SURFING TOWARD A MODEL OF SELF-REGULATION AND RELATIONSHIP FUNCTIONING

Our principal goal in this chapter has been to present evidence from a slew of recent studies for the hypothesis that high-maintenance interaction impairs self-regulation. In the present section, we strive to expand our thinking about high-maintenance interaction by situating it in a broader model examining the interplay between self-regulation and relationship functioning. Toward this goal, we introduce and briefly discuss a preliminary model called the *self-regulation and relationship functioning model*, abbreviated as the SRRF model (pronounced "surf model").

The SRRF model, as depicted in Figure 15.1, consists of three interrelated constructs: (1) high-maintenance interaction, (2) self-regulatory failure, and (3) interpersonal conflict. A central tenet of the SRRF model is that each of these three constructs influences—and is influenced by—the other two. The research on high-maintenance interaction reviewed above is represented by the directional component of arrow "A" that goes from high-maintenance interaction to self-regulatory failure. We propose, however, that the causal direction also goes in the reverse direction, from self-regulatory failure to high-maintenance interaction. The logic here builds on the idea that it requires psychological exertion to avoid high-maintenance interaction and engender efficient social coordination. For example, coordinating with an unknown cook to prepare a meal for 50 people requires that one attend closely to the other's approach to cooking and modify one's own behavior accordingly. Individuals experiencing impaired self-regulation are likely to lack the requisite ability and/or motivation to get in sync with another person on a dyadic task.

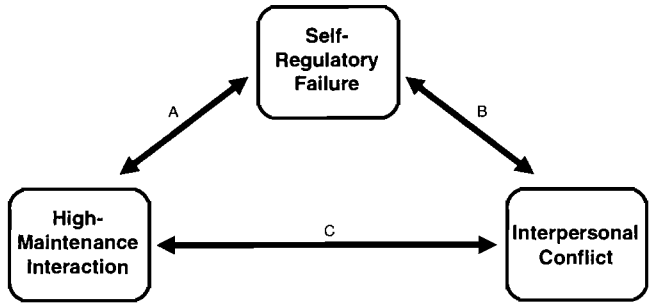

FIGURE 15.1. The self-regulation and relationship functioning (SRRF, or "surf") model.

Other research provides support for the directional component of arrow "B" that goes from self-regulatory failure to interpersonal conflict. This research suggests that diminished self-regulatory ability (both high self-regulatory strength depletion and low dispositional self-control) is associated with less constructive behavior toward a romantic partner in conflictual situations (Finkel & Campbell, 2001; Rawn & Vohs, Chapter 2, this volume). What about the directional component of arrow "B" that goes from interpersonal conflict to self-regulatory failure? Although we are not aware of research directly addressing this question, evidence suggests that interpersonal conflict is associated with, for example, poor mental health (Vinokur & van Ryn, 1993) and immunological down-regulation (Kiecolt-Glaser et al., 1993). It is plausible that interpersonal conflict also impairs the interactants' subsequent self-regulation, as assessed by poor health behaviors (e.g., smoking, unhealthy eating), impaired concentration, and so forth. Future research could fruitfully explore the effects of interpersonal conflict on self-regulation.

Both directional components of arrow "C" are heretofore unexplored empirically. Given that research on high-maintenance interactions is so new, it is perhaps not surprising that none has yet examined the interplay between such interaction and interpersonal conflict. There is, however, reason to believe that these constructs are tightly connected. Consider, for example, the directional component of arrow "C" that goes from high-maintenance interaction to interpersonal conflict. High-maintenance interaction may well engender conflict because people frequently experience frustration and anger when interpersonal coordination is inefficient. In addition, a large fraction of the topics about which people have serious conflict emerges from poor coordination. Imagine a married couple in which the husband, David, is driving the car late at night in search of a campsite. His wife, Delores, reads the map. The map is poor and Delores is not a superb map reader, so she is not 100% certain

of where the turnoff is. David suggests that they take the next left, and although Delores has reservations about whether this is the correct turnoff, she does not have any better ideas, so they take a chance. Twenty minutes later they are lost; bickering soon follows. This example illustrates that although David and Delores share the goal of getting to the campsite as efficiently as possible, their coordination is impaired by her map-reading limitations and his faulty intuition. What starts as a coordination problem grows into interpersonal conflict.

What about the directional component of arrow "C" that goes from interpersonal conflict to high-maintenance interaction? A commonly reported aftereffect of interpersonal conflict is the feeling experienced by one or both partners that one must now "walk on eggshells," that is, one must carefully monitor one's words and behaviors to avoid upsetting the partner and rekindling the conflict. The experience of walking on eggshells may well represent a prototypical case of high-maintenance interaction, as it requires that the individual exert effort to get in sync with the partner. What starts as a conflict grows into a coordination problem.

IMPLICATIONS

In addition to advancing the SRRF model as a preliminary model of the interplay between self-regulation and relationship functioning, we also briefly discuss two implications of the high-maintenance interaction research reviewed above (see also Finkel et al., 2005).

Why Does High-Maintenance Interaction Impair Self-Regulation?

The experimental studies in the first line of research summarized above included rigorous attempts to identify aspects of subjective experience that could mediate the effect of experiencing a high-maintenance interaction on subsequent self-regulatory failure (Finkel et al., 2005). These studies revealed a striking lack of support for mediation by subjectively experienced depletion, mood, or self-efficacy. Some evidence emerged from the mimicry study to suggest that this effect may even emerge without the individual's conscious awareness. The research on interracial interactions provided preliminary support for the possibility that brain activity in the DLPFC mediates the effect of interracial versus same-race interaction on subsequent impairment in Stroop performance (Richeson et al., 2003). It also presented evidence that increasing the self-regulatory demands associated with interracial interactions results in greater impairment in subsequent Stroop performance, whereas decreasing such demands reduces it (Richeson & Trawalter, 2005). Taken together, this

body of research suggests that (1) the driving mechanism behind the destructive self-regulatory effects of high-maintenance interaction is self-regulatory strength depletion, but (2) individuals may not be consciously aware that the interactions have affected them. We speculate that individuals eventually become aware that they are experiencing depletion as a result of high-maintenance interactions, but that this subjective experience occurs only after cognitive resources are freed up for reflection. We leave this idea as a topic for future research.

Do high-maintenance interactions impair subsequent self-regulation because they render the interactants incapable of performing self-regulatory tasks or because they result in diminished motivation to do so? Two findings provide preliminary evidence to support the motivational explanation. The first is that high-maintenance interaction causes people to prefer to engage in simple tasks that are unlikely to require much effort but also are unlikely to be rewarding (Finkel et al., 2005, Study 1). The second is that high-maintenance interaction causes people to perform subsequent tasks without the care and attention to detail that they would typically apply—that is, they perform the tasks sloppily (Finkel et al., 2005, Study 4).

Emotionally Energizing Interactions?

Although we have focused on interactions that impair self-regulation, we are confident that future research will also identify interpersonal processes that *enhance* self-regulation. We suggest that just as interaction partners can deplete us, they can also replenish us. For example, perhaps a laughter-filled 10-minute conversation with a loved one can replenish depleted self-regulatory resources. Recent evidence suggests that simply thinking about a person with whom one has a close positive relationship increases one's willingness to learn threatening but valuable information about the self (Kumashiro & Sedikides, 2005). Future research could explore when, how, and why close positive relationships can be replenishing or bolstering.

CONCLUSION

Coordinating interaction with others can be challenging, even when the interactants share compatible goals. Emerging evidence suggests that high-maintenance interaction is associated with impaired personal self-regulation on subsequent unrelated tasks. This work (1) serves as one example highlighting the importance of considering the effects of interpersonal processes in understanding self-regulation and (2) advances a preliminary model for investigating the dynamic interplay between high-maintenance interaction, self-regulation, and interpersonal conflict.

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CHAPTER 16

The Michelangelo Phenomenon

Partner Affirmation and Self-Movement toward One's Ideal

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SCOTT T. WOLF
MARIE-JOELLE ESTRADA

> I love you for what you are, but I love you yet more for what you are going to be. . . . You are going forward toward something great. I am on the way with you and therefore I love you.
>
> —CARL SANDBURG

> I love you not only for what you are, but for what I am when I am with you . . . for what you are making of me. I love you for the part of me that you bring out.
>
> —ELIZABETH BARRETT BROWNING

The love expressed by the poet Carl Sandburg is based partly on the potential that he sees in his partner. The love expressed by the poet Elizabeth Browning is based partly on the potential that her partner sees in her. For a moment, imagine that these poets were lovers, declaring their feelings for one another: Because Carl perceives and celebrates the person Elizabeth aspires to be, she moves ever closer to achieving her ideals. Elizabeth loves Carl in part because she loves herself when she is with him. As Elizabeth moves closer to her ideals, Carl continues to cherish both her actual self and her emerging self.[1] The two continually strengthen one another, thereby enhancing their mutual feelings of love.