

The Fleeting Gleam of Praise: Cognitive Processes Underlying Behavioral Reactions to Self-Relevant Feedback

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We propose that a preference for favorable social feedback (i.e., self-enhancement) requires only that feedback be characterized as favorable or unfavorable but that a preference for self-confirming feedback (i.e., self-verification) is based on a more elaborate set of cognitive operations that requires both the characterization of feedback and a subsequent comparison of that feedback to a representation of self stored in memory. Study 1 set the stage for testing this hypothesis by showing that depriving people of processing resources interfered with their tendency to access their self-conceptions. In Studies 2 and 3, participants who were deprived of resources preferred the favorable, self-enhancing evaluator, whereas control participants displayed a preference for the self-verifying evaluator, even if that evaluator was relatively unfavorable.

How do people want others to think of them? Through the centuries, poets, philosophers, and grandmothers have generally agreed that people crave the admiration and praise of their peers. "Some indeed there are who profess to despise all flattery," wrote the Reverend Colton (1820/1958, p. 210), "but even these are nevertheless to be flattered by being told they despise it." The assumption that everyone prefers favorable to unfavorable appraisals is not only a pearl of cultural wisdom; it is among the bedrock assumptions of virtually every major theoretical approach to social and personality psychology. Nevertheless, the obviousness of this assumption has not stopped some theorists from questioning it. Whereas self-enhancement theorists (e.g., Baumeister, 1982; E. E. Jones & Pittman, 1982; S. C. Jones, 1973; Tesser, 1986) have argued that people wish to be viewed favorably, self-verification (Swann, 1983) and self-consistency (Andrews, 1988; Aronson, 1968; Lecky, 1945; Secord & Backman, 1965) theorists have argued that people prefer to be viewed in a manner that confirms their self-views, even when those self-views happen to be negative.

Who is right? Curiously, it seems that both parties are. Researchers have demonstrated that people strive to satisfy both motives and that this can sometimes be accomplished through

the same action. When people think well of themselves (and most people do), the favorable appraisals of others should prove to be both enhancing and verifying. Moreover, even people who think ill of themselves in general may admit to possessing a redeeming feature, and may seek others' favorable and subjectively accurate appraisals of them with regard to this attribute (Swann, Pelham, & Krull, 1989).

Although people may wish to self-enhance and self-verify simultaneously, it may sometimes be impossible for them to do so. People with low global self-esteem, for example, possess a wealth of negative self-views (Pelham & Swann, 1989), and they may sometimes (e.g., during courtship and job interviews) feel compelled to bring others to recognize one or more important flaws. Moreover, halo biases (e.g., Chapman & Chapman, 1967; Hamilton, 1979; Hamilton & Gifford, 1976) may homogenize the appraisals that people's relationship partners form of them, forcing people with negative self-views to choose between partners who see them in generally favorable or generally unfavorable terms.

In short, under some conditions people must reconcile their conflicting desires for self-enhancement and self-verification. How do they do it? Although efforts to resolve this question inductively have borne some fruit (for reviews, see Shrauger, 1975; Swann, 1987), we believe that the boundary conditions of the two theories can best be identified by specifying the cognitive operations that underlie reactions to self-relevant feedback.

We begin by asking what cognitive operations should be necessary to the production of self-enhancing and self-verifying behaviors. Obviously, one cannot decide whether to approach a self-relevant stimulus (e.g., feedback from a potential interaction partner) without knowing something about that stimulus. Both self-verifying and self-enhancing behaviors should therefore require that the individual initially characterize the self-relevant stimulus. Interestingly, self-enhancing behavior should require nothing more than such a characterization. That is, simply identifying a stimulus as favorable or unfavorable should enable people to self-enhance by approaching the former and avoiding the latter.

Order of authorship was determined by a flip of what William B. Swann, Jr., claimed was a fair coin.

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Self-verifying behavior, on the other hand, should require additional cognitive work. If people are to approach a stimulus only when it confirms or matches their self-view, then (a) the stimulus must be characterized as favorable or unfavorable, (b) the relevant self-view must be accessed, and (c) the two must be compared. In short, self-verification should, like self-enhancement, require the initial characterization of self-relevant stimuli; however, only self-verification should require the additional accessing of self and comparison between the stimulus and relevant self-concept.

The logic of this claim is quite easy to see if one expresses these processes as implementation rules for a logical processor (e.g., Smith, 1984). In the case of self-enhancement, the implementation rule could be written as a simple conditional with two logical operators: "IF the feedback is unfavorable, THEN avoid it." Two such rules (one for favorable feedback and one for unfavorable feedback) are all that would be needed to build a self-enhancing device. A self-verifying device, however, would require implementation rules of the form, "IF the feedback is unfavorable AND the particular self-conception is favorable, THEN avoid it." Not only is this rule itself more complex (because it requires the additional logical operator *AND*), but also, four such rules are required to build a self-verifying device, rather than the two that are required to build a self-enhancing device.

One important premise underlying this argument is that people's specific self-conceptions (rather than their global self-conceptions) underlie their reactions to self-relevant stimuli. Higgins, Van Hook, and Dorfman (1988), for example, have shown that individual self-conceptions are activated independently of one another. Moreover, Swann, Pelham, and Krull (1989) have shown that people seek evidence that confirms their particular positive or negative self-conceptions regardless of their general self-conception. That is, when people solicit feedback pertaining to their specific strengths, even people with low global self-esteem seek favorable feedback; when people solicit feedback pertaining to their weaknesses, even people with high global self-esteem seek specifically unfavorable feedback. This means that self-verifiers with negative global self-views should not be able to operate with a rule as general as "IF the feedback is favorable, THEN avoid it"; rather, the multifarious nature of the self mandates that they check their specific self-view to determine how well the feedback fits with it. The self-enhancement rule, in contrast, can be quite general because it requires only the classification of the feedback's evaluative tone; the fit between the feedback and the person's self-conceptions is irrelevant.

In short, self-verification is logically predicated on a more lengthy and complex set of computational procedures than is self-enhancement. One consequence of this contention is that self-verification should require more processing resources (cf. Baddeley & Hitch, 1974) than should self-enhancement. As such, the experimental depletion of a person's processing resources should interfere with self-verification before it should interfere with self-enhancement. This should happen because resource depletion during the execution of sequential operations tends to truncate the normal information-processing sequence, thereby forcing behavior to be based on the output of early operations (see Gilbert's, 1989a, principle of premature

output; Norman & Bobrow's, 1975, principle of graceful degradation; or Tversky & Kahneman's, 1974, anchor/adjust heuristic).

All of this leads to a somewhat unusual set of predictions. If self-verification is a sequential operation of the form we have described, then resource-deprived people who encounter self-relevant feedback may be able to characterize that feedback as favorable or unfavorable, but may be unable to compare that characterization with a relevant representation of self stored in memory. As a result, the person's behavior may be guided solely by that portion of the operation that they were able to complete, namely, the characterization of the feedback. Depriving people of processing resources should therefore leave them able to perform the operations involved in self-enhancement, but not those involved in self-verification. As such, resource-depleted people should act like self-enhancers, whereas those who are not so deprived should act like self-verifiers.

Our major hypothesis, then, is based on the assumption that depriving people of cognitive resources interferes with their ability to access representations of self stored in memory and to compare those representations with a self-relevant stimulus. Experiment 1 was designed to test this assumption. Experiments 2 and 3 tested the notion that depriving people of cognitive resources will promote self-enhancement strivings and impair their ability to self-verify.

Experiment 1

To determine if depriving people of cognitive resources prevents them from accessing their self-conceptions, we first deprived some people of cognitive resources. We then asked them to make some decisions about feedback related to sociability (we decided to focus the feedback manipulations on sociability in all of our studies because pilot testing showed that this was an exceptionally important dimension to our participants). Following the feedback manipulation, we assessed self-conception activation by measuring how long it took participants to rate the self-descriptiveness of several adjectives. We expected that participants who were under cognitive load would not access their sociability-related self-conceptions, and thus would respond more slowly to the sociability-related adjectives. In contrast, we expected that participants who were not under load would access their self-conceptions in reviewing the feedback and thus would respond quickly to the sociability-related adjectives.

Method

Participants

Twenty-two men enrolled in introductory psychology took part in this experiment for course credit. All participants were right-handed (handedness can influence reaction times in this paradigm) and native English speakers. The data from one participant were deleted because his reaction times were more than four standard deviations above the relevant mean for that condition.

Procedure

The experimenter ushered each participant to an experimental cubicle, seated him in front of a microcomputer, and introduced the study

as an investigation of impression formation. Specifically, the experimenter indicated he was contrasting two distinct strategies through which personality psychologists get to know others: responses to personality questionnaires versus live interactions. To this end, the experimenter continued, he had had two graduate students in personality psychology read the participant's responses to an extensive pretest completed earlier in the semester and then evaluate the participant. The evaluations were now stored on the microcomputer. The participant's task would be to read the graduate students' evaluations and choose one of the two students as an interaction partner. In addition, after seeing the evaluations written by the graduate students, the participant would complete a brief self-description task on the microcomputer.

Manipulation of cognitive load. The manipulation of cognitive load was embedded in the procedure leading up to participant's scrutiny of the feedback and the self-description task. That is, soon after each participant's arrival, the experimenter asked him to leave his belongings (e.g., backpacks) in the waiting room. In so doing, most participants unwittingly relinquished their writing implements. After ushering the participant to the experimental cubicle, the experimenter asked him to sign a consent form. If the participant produced a pen to sign the form, the experimenter "inadvertently" took the pen with him when he collected the consent form. This ensured that participants lacked writing implements, as required by the load manipulation.

When the participant was ready to see the graduate students' evaluations, the experimenter indicated that to protect the confidentiality of participants, he had assigned each an access code. In the no-load condition, the experimenter provided participants with an eight-digit code number on a piece of paper; in the cognitive-load condition, he gave the code to participants verbally and instructed them to keep the code number in memory until prompted to enter it into the computer. Previous research (e.g., Gilbert & Osborne, 1989) has shown that such digit-rehearsal tasks create cognitive load.

Having communicated the code number to the participant, the experimenter started the computer program and left the room. The computer presented the two evaluations that the graduate student evaluators had ostensibly written about the participant. Order of presentation of the evaluations was randomized (order had no effect on the dependent measures and is not discussed further). Both evaluations had been prepared in advance and focused on the participant's social competence. One evaluation was quite positive; the other, only moderately so. Participants were permitted to spend as long as they liked viewing each evaluation but were not allowed to review the first after seeing the second. After the participant had read both evaluations, the computer prompted him to enter his access code. This terminated the load manipulation.

Reaction time task. After entering their access codes, participants were instructed to assess the self-descriptiveness of a series of adjectives by pressing keys labeled *ME* and *NOT ME*. The *ME* key was always on the left, and the *NOT ME* key was always on the right. The instructions stated that the participant's reaction times were being recorded by the computer and he should respond as rapidly as possible.

A visual prompt instructed the participant to put his left and right index fingers on the *ME* and *NOT ME* keys, respectively, and to get ready for the first word to appear. After 7 s, the computer began presenting items. The computer presented nine items (either adjectives or roles) to each participant. The first five items were practice items (e.g., *itchy* and *doctor*). The final four consisted of two feedback-related items (*sociable* and *friendly*) and two items that were related to the self in general but not to the feedback in particular (*artistic* and *creative*). These final four items were presented in two different orders: (a) related-unrelated and unrelated-related or (b) unrelated-related and related-unrelated (order had no effect on the dependent measures and is not discussed further). *Sociable* was the first feedback-related word

that the participants saw, and *artistic* was the first feedback-unrelated word that the participants saw.

The words were all presented in the center of the screen and remained on the screen until the participant pressed either the *ME* or *NOT ME* key. A total of 3 s elapsed between the participant's response and the appearance of the next word. When the reaction time task was finished, the experimenter returned to the cubicle, announced that the study was over, probed the participant for suspicion, and thanked and debriefed him.

Results

We anticipated that in the no-load condition, presenting participants with feedback regarding their sociability would activate the associated self-conception and cause them to display especially fast reaction times to the feedback-related adjectives versus the feedback-unrelated adjectives. In contrast, we expected that cognitive load would block activation of self-conceptions related to the feedback and that loaded participants would not respond especially quickly to the feedback-related adjectives as compared with the feedback-unrelated adjectives.

We tested these hypotheses by entering reaction times into a 2×2 (Cognitive Load: load or no-load \times Adjective: feedback-relevant or feedback-irrelevant, a within-subjects variable) analysis of variance (ANOVA).¹ There was a main effect of adjective type, $F(1, 19) = 8.05, p < .05$, such that participants responded more quickly to feedback-relevant items than to feedback-irrelevant items. More important, this main effect was qualified by an interaction between cognitive load and adjective type, $F(1, 19) = 5.44, p < .05$. Simple effects analyses indicated that participants who were not under load responded more quickly to feedback-related items than to feedback-unrelated items, $F(1, 19) = 13.98, p < .01$, $M_s = 1,764$ versus $2,374$ ms, respectively. In contrast, participants who were under cognitive load responded no more quickly to feedback-related items as compared with feedback-unrelated items, $F < 1$, $M_s = 2,061$ versus $2,121$ ms. These findings support the notion that depriving people of cognitive resources interferes with their ability to access their self-conceptions.

Experiment 2

If depriving people of cognitive resources interferes with their ability to access self-conceptions, then so depriving people (by, e.g., encouraging them to make quick decisions; see Ben Zur & Breznitz, 1981) should make them less inclined to choose self-verifying interaction partners. To test this hypothesis, we had participants with positive and negative self-views indicate how much they wanted to interact with people who had evaluated them in a relatively favorable or unfavorable manner. We encouraged participants in the load condition to make their decision hurriedly and allowed people in the no-load condition to take their time. We anticipated that loaded participants would self-enhance (because they lacked the cognitive resources to complete the operations required for self-verification) but that

¹ Analysis on the filler items revealed no differences between no-load and load participants, $F(1, 19) < 1$, $M = 1,171$ ms versus $1,234$ ms, respectively.

no-load participants would self-verify. More specifically, we expected that participants in the load condition would prefer the favorable to the unfavorable evaluator, regardless of their self-views. In the no-load condition, however, we expected that participants with positive self-views would display a greater preference for the favorable evaluator than would participants with negative self-views.

We should note that the important prediction is that, relative to people with positive self-views, those with negative self-views should be more inclined to prefer the unfavorable evaluator in the no-load condition as compared with the load condition. To be sure, past research on self-verification (e.g., Swann, in press) has shown that people with negative self-views actually choose unfavorable over favorable appraisals under some conditions (e.g., Swann & Pelham, 1990; Swann, Pelham, & Krull, 1989; Swann & Read, 1981; Swann, Wenzlaff, Krull, & Pelham, 1989). Nevertheless, research has also shown that the strength of such self-verification effects is influenced by the nature of the self-conception (e.g., its certainty, concreteness, etc.) as well as characteristics of the response (e.g., its logical relation to the veracity of the self-conception). Our objectives here did not prompt us to control for or measure these factors (for a detailed discussion, see Swann, in press; Swann & Pelham, 1990).

Method

Participants

A total of 36 female undergraduates at the University of Texas at Austin participated in this study for credit in their introductory psychology course. All participants were drawn from a large sample of people who took part in a pretest at the beginning of the semester in which they completed numerous questionnaires, including Helmreich, Spence and Stapp's (1974) Texas Social Behavior Inventory (TSBI). We classified those participants who scored below the 20th percentile as negative self-concept people, and those who scored above the 80th percentile as positive self-concept people. Note that the TSBI is a measure of a specific (not global) self-conception, namely, self-perceived sociability or social competence. Also, in this experiment and the following one, the experimenter was blind to the participant's TSBI score. Data for one participant were deleted because she had difficulty comprehending English and from two others because they were suspicious of the procedure. This left 33 participants in the final analyses.

Procedure

A male experimenter ushered each participant to a private cubicle and asked her to complete a series of background questionnaires.² He then told her that the experiment concerned the relative efficacy of two distinct modes of impression formation: personality profiles and actual face-to-face meetings. To that end, he explained, each participant would first evaluate, or be evaluated by, the other participants in the experiment. After this, she would (ostensibly) have an opportunity to interact with one or more of the other participants.

After consulting his notes, the experimenter announced that the participant had been assigned to the condition in which she would be evaluated by the other participants. He explained that (with the participant's permission) he would show the other participants a personality profile based on the participant's responses to items on a pretest collected earlier in the semester. When the participant consented (as everyone did), the experimenter departed.

After 15 min, the experimenter returned with three evaluation

sheets that had ostensibly been completed by the other three participants. Before presenting the evaluation sheets to the participant, the experimenter explained that in a moment the participant would indicate how much she wanted to interact with each evaluator in the next phase of the experiment. To encourage the participant to take her choice of interaction partner seriously, the experimenter explained that the interaction could last as long as 3 hr.

The experimenter warned participants that due to time constraints, they would need to identify their preferred interaction partner within either 15 s (load condition) or 1 min (no-load condition). He then presented participants with the three evaluation sheets. On each sheet, one of the three potential interaction partners had ostensibly rated the participant's sociability, likability, and interestingness on 11-point scales. One set of ratings was quite favorable ($M = 9.5$), one was moderate ($M = 7.0$), and the third was slightly unfavorable ($M = 4.5$). We chose levels of favorability with an eye to approximating the TSBI scores of participants in the upper, middle, and lower portion of the distribution. In addition, a certainty scale that followed each rating indicated that all raters were highly certain of their evaluations ($M = 9$).

The experimenter placed all three evaluation sheets on a table in front of the participant. The spatial position of favorable, moderate, and unfavorable sheets was randomized. After either 15 s or 1 min elapsed, the experimenter asked the participant to indicate, on three 10-point scales, how much she wanted to interact with each of the three evaluators in the next phase of the experiment.

Results

We predicted that both load and no-load participants with positive self-views, as well as load participants with negative self-views, would display a clear preference for the favorable evaluator over the unfavorable evaluator. In contrast, we expected that no-load participants with negative self-views would not.

The means displayed in Table 1 confirm this prediction. The discrepancy scores displayed in rows 1 and 4 show that all participants clearly preferred the favorable over the unfavorable evaluator, except for no-load participants with negative self-views. A planned comparison of the discrepancy scores based on the contrast between no-load participants with negative self-concepts and participants in the other three groups was highly reliable, $F(1, 29) = 13.45, p < .001$.³ Furthermore, pairwise comparisons indicated that no-load participants with negative self-concepts were different from participants in each of the other three conditions, $F_s(1, 29) > 7.24, p_s < .02$.

² These questionnaires included items from Cacioppo, Petty, and Kao's (1984) Need for Cognition (NFC) Scale, the short form of the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), and the Rosenberg (1965) Self-Esteem Scale. The effects of the BDI and the Self-Esteem Scale on choice of interaction partner paralleled those of the Texas Social Behavior Inventory; the NFC had no impact on choice of interaction partner. The relevant analyses are available from the authors.

³ We performed planned comparisons because we wished to test a series of specific, theoretically derived hypotheses simply and directly (e.g., see Hays, 1973, p. 582; Keppel, 1973, p. 90; Rosenthal & Rosnow, 1985; Winer, 1971, p. 384). Also, we did not expect, nor did we find, any reliable effects of the self-conception or timing variables on participants' ratings of the moderate evaluator, all $F_s(1, 29) < 1.15, ns$ and accordingly excluded this evaluator from the analyses.

Table 1
*Impact of Cognitive Load and Self-Conception on
 Desire to Interact With Favorable and
 Unfavorable Evaluators: Experiment 2*

Self-conception	Timing	
	Load	No load
Negative		
Favorable-unfavorable ^a	5.000 ^a	0.500
Favorable	8.714	6.375
Unfavorable	3.714	5.875
Contrast weights	+1	-3
<i>n</i>	7	8
Positive		
Favorable-unfavorable ^a	4.556	4.000
Favorable	8.887	8.889
Unfavorable	4.222	4.889
Contrast weights	+1	+1
<i>n</i>	9	9

^a Difference between ratings of desire to interact with the favorable-unfavorable evaluator.

Further analyses allowed us to determine whether the results of the discrepancy score analysis reflected participants' reactions to the favorable versus unfavorable evaluator. The relevant means are displayed in rows 2, 3, 5, and 6 of Table 1. A planned comparison revealed that no-load participants with negative self-views were less interested in interacting with the favorable evaluator than were participants in the other three groups, $F(1, 29) = 12.53, p < .001$. A second planned comparison revealed that although no-load participants with negative self-views were more interested in interacting with the unfavorable evaluator than were participants in the other three groups, this trend was not reliable, $F(1, 29) = 2.79, p < .12$. Thus, when participants with negative self-views had the opportunity to reflect on their choice of interaction partner, they were more likely to avoid evaluators who thought well of them and seek evaluators who thought poorly of them than were other participants, although the former tendency was somewhat more reliable than the latter.

Subsidiary analyses also revealed that there were no main or interactive effects of the self-view and timing variables on preferences for the moderate evaluator, $F_s < 1.09, ns$. As might be expected, participants were neither warm nor cold toward the moderate evaluator; in no instance was the moderate evaluator rated less favorably than the unfavorable evaluator or reliably more favorably than the favorable evaluator, all $p_s = ns$.

Experiment 3

The results of Experiment 2 suggest that depleting people's processing resources by decreasing the amount of time they have to contemplate their choice of interaction partners inhibited their ability to self-verify. Of course, time pressure is just one of many ways of impairing people's ability to perform complex mental operations such as self-verification. A second method of impairing mental operations is to deplete the individ-

ual's general processing resources through simultaneous task performance (Baddeley & Hitch, 1974; Gilbert, 1989b; Jamieson & Zanna, 1989; Kahneman, 1973). Such manipulations are based on the assumption that the more resource-consuming tasks an individual performs, the fewer resources he or she can allocate to any one of them. Dual-task performance, like time pressure, should leave people able to characterize self-relevant feedback but unable to compare that characterization with their specific self-conceptions. As a result, the behavior of people who perform two tasks at once should be guided solely by that portion of the information-processing sequence that they were able to complete, namely, the characterization of the feedback as favorable or unfavorable. The first issue addressed in Experiment 3, then, was whether people who choose feedback while performing two tasks would be especially inclined to self-enhance rather than self-verify.

Our model makes a second prediction. Although such cognitively loaded people should be unable to perform all of the computations required for self-verification, they should nonetheless possess (i.e., have in memory) all the information required for such computations (i.e., the characterization of the feedback and the relevant self-view). As a result, if processing resources are liberated at some later time, previously loaded people should be able to repudiate their original self-enhancing decisions (see Gilbert & Osborne's, 1989, analysis of recovery from the inferential effects of cognitive load). We tested this proposition by first terminating the manipulation of cognitive load and then asking participants once again to indicate their interest in receiving favorable versus unfavorable feedback. Our second prediction was that all participants—even those who had initially self-enhanced—would self-verify once they were liberated from the load manipulation.

Method

Participants

We recruited 51 men enrolled at the University of Texas at Austin by offering them credit in their introductory psychology course. As in Study 2, we included only those whose pretest scores on the TSBI fell in the upper or lower 20th percentiles.

Procedure

Overview. As in Experiment 1, we led participants to believe that they had been evaluated by others. We then deprived some people of cognitive resources (this time via a digit-rehearsal task) while they chose between a favorable or unfavorable evaluation. Because we were also interested in our participants' preferences for favorable or unfavorable evaluations after they recovered from the effects of cognitive load, we also measured our participants' preferences after the load manipulation was terminated.

The experimenter introduced the study by explaining that he was evaluating two advanced clinical psychology graduate students as part of his work with the clinical psychology training program. Earlier in the semester, he explained, the two graduate students had written an evaluation of the participant, based on the participant's responses during an extensive pretest. The experimenter explained that although there was insufficient time for the participant to examine both of the evaluators' detailed appraisals of him, he would be able to examine

both evaluators' general evaluations and choose which detailed evaluation he wanted to examine.

Once he explained the procedure, the experimenter excused himself to "get the file that contained the graduate students' evaluations." Approximately 15 s later, the experimenter abruptly returned (apparently as an afterthought) and noted that he might be getting a call on the intercom system while he was gone and asked the participant to take a message in that event. All participants agreed. The experimenter then explained how to use the intercom system and departed.

Load manipulation. As the experimenter left the room, he either took all writing implements with him (the load condition) or made sure that there was a pen readily and obviously available for the participant (the no-load condition). Approximately 4 min later, an adult male, claiming to be "Dr. Tillson," called on the intercom and asked for the experimenter. When the participant explained that the experimenter was not there, Dr. Tillson stated that it was very important for the experimenter to return his call later that day. He then quickly gave the participant a seven-digit phone number with a two-digit extension, thanked him, and hung up.

Although no-load participants were able to (and did) write down Dr. Tillson's telephone number, participants in the load condition had no writing implements with which to do so and were thus forced to rehearse the number (e.g., Baddeley & Hitch, 1974; Gilbert, Pelham, & Krull, 1988; Miller, 1956). Twenty seconds after Dr. Tillson hung up, the experimenter returned to the experimental room. After entering the room, the experimenter generally found that participants were quite eager to give him Dr. Tillson's telephone number. The experimenter accepted the message from participants in the no-load condition. In the load condition, however, the experimenter claimed to have left his pen downstairs, and thus asked the participant to keep the number in mind for a minute longer while he ran to get another pen. Just before leaving the room, the experimenter gave the participant the graduate students' evaluations and said, "Look these over while I'm gone and you can let me know which one you want to see in more detail when I come back."

Nine participants (four positive and five negative self-conception) did not complete the experiment because, despite our best efforts to discourage such behavior, they devised ways of undermining the load manipulation. Specifically, nine participants devised ways of remembering the phone number without keeping it in memory. One participant, for example, discovered a screwdriver in the experimental room and carved the number on his desk; another entered the number into his watch-calculator.

Evaluations and during-load choice of evaluator. One of the two student evaluations was relatively favorable and the other was relatively unfavorable. Although we included a moderate evaluator in Experiment 2 to make the discrepancy between the favorable and unfavorable evaluator less glaring, in designing Experiment 3 we accomplished this end by simply minimizing the numerical discrepancy between the two ratings ($M_s = 8.3$ and 5.0 , respectively). In addition, to bolster the generalizability of our design, we used slightly different rating scales on the evaluation sheets: self-confidence, independence, and ability to stand up under pressure (11-point scales). We chose these particular attributes because they are central components of sociability and social competence, as evidenced by their high correlation with total TSBI scores (Spence, Helmreich, & Stapp, 1975).

After allowing the participant 45 s to scan the ratings of the graduate-student evaluators, the experimenter returned, terminated the load manipulation by allowing loaded participants to give him the phone number, and immediately asked them to decide which evaluator's detailed comments they preferred to receive. This dichotomous choice served as the during-load measure of choice of evaluator. Two participants were dropped because they took too much time (more than 3 s) choosing an evaluation. (We assumed that if a participant showed un-

Table 2
Impact of Cognitive Load and Self-Conception on Desire for Favorable Versus Unfavorable Evaluation: Experiment 3

Self-conception	Cognitive load	
	Load	No load
Negative		
During-load frequencies		
Choosing favorable evaluation ^a	8	4
Choosing unfavorable evaluation ^b	2	6
Postload ratings		
Difference (Favorable-Unfavorable) ^c	0.8	0.7
Favorable ^d	7.6	7.4
Unfavorable ^e	6.8	6.7
Contrast weights	+1	-3
<i>n</i>	10	10
Positive		
During-load frequencies		
Choosing favorable evaluation	9	8
Choosing unfavorable evaluation	1	2
Postload ratings		
Difference (Favorable-Unfavorable)	2.8	2.6
Favorable	8.7	8.2
Unfavorable	5.9	5.6
Contrast weights	+1	+1
<i>n</i>	10	10

^a Number of people choosing the favorable evaluation. ^b Number of people choosing the unfavorable evaluation. ^c Difference between ratings of desire to interact with the favorable-unfavorable evaluator. ^d Ratings of desire to interact with the favorable evaluator (Range = 0-10). ^e Ratings of desire to interact with the unfavorable evaluator (Range = 0-10).

due hesitation when asked which evaluation he preferred to read, it was questionable whether he had made his decision while previously under load). This left a total of 40 participants in the sample.

In the interest of creating a relatively pure measure of desire for favorable versus unfavorable feedback, we measured the extent to which participants wanted to read a favorable or unfavorable evaluation rather than their desire to interact with a favorable or unfavorable evaluator.

Postload ratings of the evaluations. To determine if participants would repudiate their choices after being liberated from the load manipulation, the experimenter then encouraged participants to take as much time as they wanted to complete a measure of their perceptions of the two evaluations. To discourage participants from simply recalling their earlier response, we used a different measure. That is, we asked them to respond to the question, "How much do you want to read the detailed evaluation from graduate student #1 (2)," on 11-point scales ranging from *not at all* to *very much*.

Results

During-Load Choice of Evaluator

As in Experiment 2, we expected that no-load participants with negative self-views would be more likely to choose the unfavorable evaluation than would participants in any of the other three conditions. The results, displayed in Table 2, support this prediction. A planned comparison indicated that no-load participants with negative self-views chose the unfavorable

evaluation more often than did participants in the other conditions, $F(1, 36) = 7.78, p < .008$.⁴ Additional paired comparisons demonstrated that no-load participants with negative self-views chose the unfavorable evaluation more than did participants in each of the other three conditions, all $F_s > 4.45, p < .05$.

These data not only support our original hypothesis, they also suggest that people will strive to verify their self-views even when interpersonal considerations are not salient. That is, participants sought self-verifying social feedback rather than a self-verifying interaction partner (as in Experiment 2), suggesting that they were not motivated by strategic considerations (e.g., concern that a favorable evaluation might turn into a negative one). This suggests that their feedback-seeking activities were driven by purely epistemic concerns.

Postload Ratings of the Evaluator

We expected that the impact of the load manipulation on the preferences of participants with negative self-views, which was so apparent in the during-load phase, would disappear in the postload phase. The difference scores reported in rows 3 and 7 of Table 2 indicate that this was the case. Planned comparisons indicated that previously loaded participants with negative self-views no longer preferred the favorable evaluation more than did participants in the other three groups. This was true when we examined difference scores and when we examined ratings of the favorable or unfavorable evaluation alone, $F_s < 1.77, ns$.

To determine if there was any systematic pattern to the postload ratings of participants, we submitted them to a 2×2 (Self-View: positive or negative \times Cognitive Load: load or no load) ANOVA. Only a marginal main effect of self-view emerged, such that participants with positive self-views displayed a greater preference for the favorable evaluation than did participants with negative self-views, $F(1, 36) = 3.50, p < .07$. There were neither main nor interactive effects of cognitive load, all $F_s < 1$. These data suggest that when participants with negative self-views were no longer under the influence of the load manipulation, they were just as inclined to display a preference for the unfavorable evaluation (i.e., to self-verify) as were those who were never subjected to the load manipulation.

The postload ratings diminish the plausibility of an alternative explanation of our effects. The notion that cognitive load drove people to self-enhance by making them feel inadequate has difficulty explaining why people with negative self-views began to display a preference for the unfavorable evaluation after recovering from the load manipulation. In addition, this inadequacy hypothesis cannot explain the results of Experiment 1 and is seemingly refuted by the Paulhus, Graf, and Van Selst (1989) evidence that people are more inclined to endorse the self-descriptiveness of positive adjectives when they are under load.

General Discussion

The Truth has such a face and such a mien,
As to be loved needs only to be seen.
John Dryden (1687/1974, p. 123)

The research reported here suggests that the processes that underlie self-verification are more complex than those that un-

derlie self-enhancement. We proposed that self-enhancement requires only the characterization of a self-relevant stimulus, but that self-verification requires the characterization of the stimulus, the accessing of the relevant self-conception, and subsequent comparison of the two. To test this proposition, we sought to prevent participants from moving beyond the initial characterization stage to the subsequent accessing and comparison stages by depriving them of cognitive resources. Study 1 set the stage for testing this hypothesis by showing that persons who were resource-deprived were unlikely to access their self-conceptions. Two subsequent experiments examined the behavioral consequences of such resource deprivation and showed that resource-deprived persons tend to self-enhance when choosing either interaction partners (Experiment 2) or feedback (Experiment 3). In contrast, participants who were not resource-deprived (and who were theoretically allowed to complete all phases of the information-processing sequence) generally made self-verifying choices. Furthermore, when resource-deprived participants in Experiment 3 were allowed to recover from the cognitive-load manipulation, they repudiated their initial self-enhancing choices. This suggests that those choices were indeed induced by a lack of cognitive resources and were not simply due to a failure to acquire the information necessary for a self-verifying choice.

Given the considerable cognitive demands that everyday social interaction places on people's cognitive resources, one implication of this analysis is that self-enhancement processes may be somewhat more common than self-verification processes. When people make important choices (e.g., choosing a spouse or a career), however, they are more apt to take their time and fully engage their mental resources. Therefore, a tendency for self-verification strivings to channel relatively important decisions may balance the ubiquity of self-enhancement strivings.

Our findings fit nicely with research on developmental shifts in children's reactions to feedback. Whereas a self-enhancing preference for signs of acceptance emerges at the age of 5 months (e.g., Fernald, 1989; Shapiro, Eppler, Haith, & Reis, 1987),⁵ a self-verifying tendency to endorse negative feedback does not appear until many years later (e.g., Benenson & Dweck, 1986; Eshel & Klein, 1981; Nicholls, 1978, 1979; Stipek, 1981; Stipek & Daniels, 1988; Stipek & Tannatt, 1984). This makes sense in light of the fact that children do not acquire the raw materials necessary for self-verification until fairly late in development. For example, even rudimentary self-concepts do not emerge until 18 months (Lewis, 1987), and negative self-views probably do not form until much later. Furthermore, once children form negative self-views, it presumably takes

⁴ Although it is generally not known that dichotomous data can be analyzed by means of analysis of variance, relevant investigations suggest that this procedure does not pose interpretative difficulties (e.g., Cochran, 1947; Hsu & Feldt, 1969; Lunney, 1970; Pearson, 1931; Snedecor & Cochran, 1967, 1980; Winer, 1971). In any event, a chi-square procedure showed that the negative self-conception-nonbusy cell was different from the other three cells, $\chi^2(1, N = 40) = 7.06, p < .05, r = .42$.

⁵ Although there is some debate about the precise mediators of these effects, this research shows that children display a preference for smiling faces and voices having the melodic contour of acceptance.

time for them to develop the ability to compare these self-views with their characterization of social feedback. In short, young children may be self-enhancers for precisely the same reason that our loaded participants were: They may lack the resources to perform the computations that self-verification requires. From this perspective, what happens in early childhood may be viewed as a temporally extended version of the timing manipulation in Experiment 2: Whereas people may initially be attracted to those who accept them, the initial gleam of praise may ultimately give way to more considered judgments based on the subjective accuracy of feedback.

Our proposal that self-enhancement is based on relatively simple computations may also help to illuminate several related phenomena. For example, Paulhus and his colleagues have reported that cognitive load (Paulhus et al., 1989) and affective arousal (Paulhus & Levitt, 1987) made participants more inclined to endorse positive trait adjectives as self-descriptive. Apparently, depriving people of cognitive resources by placing them under cognitive load or by introducing affective arousal (which seems to deplete cognitive resources; see Easterbrook, 1959; Kahneman, 1973) prevents them from completing the comparison process that ordinarily allows them to reject overly positive descriptions.

Our formulation may also be relevant to Shrauger's (1975) and Zajonc's (1980) distinction between affective and cognitive responses. Zajonc (1980), for example, has suggested that when people encounter a stimulus, they experience an immediate affective reaction that occurs before any higher order cognitive analysis. He has argued that such affective reactions are propelled by a relatively primitive neurological system that enables organisms to perform rudimentary analyses of their worlds and to take rapid action to avoid threats to their well-being (also, see Epstein, in press; Gazzaniga, 1985; Greenwald, 1989; Tomkins, 1981; Zajonc, 1984). When organisms apprehend stimuli, for example, they make an initial favorable-unfavorable discrimination and use output from this computation to guide action while more complex analyses continue. In a somewhat related vein, Lazarus (1966; Lazarus & Folkman, 1984) has posited that two independent appraisals occur when people encounter stressors: a primary appraisal of the stressor (e.g., "How dangerous is this thing?") followed by a secondary appraisal of one's ability to cope with the stressor (e.g., "How capable am I of dealing with something this dangerous?").

Our data suggest that when participants are forced to act quickly or while experiencing concurrent task demands, they had no recourse but to act on the basis of their immediate, self-enhancing reactions, which may be akin to Zajonc and Shrauger's affective reactions and Lazarus's primary appraisal process. In contrast, when allotted sufficient time and energy, our participants presumably pondered their choices and sought to self-verify, akin to Zajonc's (1980) and Shrauger's (1975) cognitive reactions and Lazarus's (1966) secondary appraisal process.

Although we are suggesting that self-verifying behavior is predicated on a relatively complex set of cognitive computations, we do not wish to claim that all reasoned action will therefore be self-verifying. Indeed, after much reflection a rational person may well decide that a self-enhancing behavior will have fewer costs and more benefits than a self-verifying behav-

ior. For example, an unathletic professor may encourage his distant relatives to believe he is a jock simply because, after considerable thought, he realizes that such a masquerade will have no undesirable epistemic consequences (e.g., he regards their appraisals as having little credibility) or undesirable pragmatic consequences (e.g., he knows that they will never discover that he can barely remain upright on his bicycle). Thus, although depriving people of cognitive resources will make them more likely to behave in a self-enhancing manner, allowing them to cognize will promote self-verification only if the epistemic and pragmatic considerations that promote self-verification are present (e.g., Swann, in press; Swann & Pelham, 1990). If, on reflection, people decide that they can acquire unrealistically favorable feedback without suffering the consequences that usually accompany such failures to self-verify, they may well do so.

These observations suggest that the interplay between reasoned decisions and unreasoned preferences may best be conceptualized in terms of a three-step process: an initial, minimally cognitive stage, followed by a reflective stage that sometimes countermands the initial stage, and finally a third stage during which the initial affective preference may or may not resurface (see Swann, in press). Evidence of such a three-step process is offered in research by Wilson and his colleagues (e.g., Wilson, in press; Wilson & Dunn, 1986; Wilson, Dunn, Draft, & Lisle, 1989; Wilson & Lisle, 1988). These investigators have shown that although people initially form preferences for stimuli (e.g., pens) based on superficial qualities (e.g., color), when encouraged to reflect on their decision they will focus on objective attributes of the stimuli that seem plausible (e.g., durability) and thus revise their initial judgments. Later, however, they may experience a resurgence of the initial preference and may regret the reasoned decision. The analog in our paradigm would be a person with a negative self-conception who, after some reflection, chooses a contemptuous but self-verifying relationship partner. After somewhat more reflection, however, the person may have second thoughts because he or she finds the partner's feedback to be so depressing. This example suggests that although impulsive or thoughtless decisions may sometimes be a source of difficulty (e.g., Koriat, Lichtenstein, & Fischhoff, 1980; Janis & Mann, 1977; Langer, 1978, 1989), thought is by no means an antidote to unhappiness in social relations.

Summary and Conclusions

Three decades after Deutsch and Solomon's (1959) pioneering investigation set the stage for the self-enhancement versus self-consistency debate, the conditions under which each motive will guide behavior are still largely unknown. The failure of researchers to resolve the debate cannot be attributed to lack of effort; scores of researchers have conducted investigations in an attempt to chart the boundary conditions of the two motives.

In this report, we suggest that it may be useful to take a more deductive approach to understanding the interplay of the self-enhancement and self-verification motives. To this end, we proposed and tested a theoretical model of the psychological processes that underlie expressions of each motive. Our findings

supported the notion that self-enhancement strivings are propelled by a computationally simple preference for favorable social feedback that requires little more than characterization of a stimulus. Self-verification strivings, in contrast, seem to emanate from a more complex matching process in which people compare social feedback with representations of self stored in memory and act on the basis of the outcome of this comparison process. Our hope is that specifying the hows of each motive may eventually allow us to identify the whys and whens.

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