

Motivational Factors Related to Differences in Self-Schemas¹

Sharon Bober and Wendy Grolnick²

Clark University

This research attempts to integrate self-determination theory with the construct of self-schema. Forty-nine schematic subjects (i.e., extreme on a personality dimension) received counterschematic feedback in either an ego-involving or non-ego-involving condition. Subjects' autonomy versus control orientations were assessed. Results indicated that subjects with higher autonomy orientations changed less in response to counterschematic feedback than those with lower autonomy orientations. As well, subjects in the ego-involving condition changed more in the direction of the counterschematic feedback than those in the non-ego-involving condition. Findings suggest that both dispositional and situational factors account for differences in the degree to which individuals display consistency and self-awareness in processing information about themselves. Results are interpreted as support for the notion that greater autonomy is associated with a higher degree of self-knowledge and self-concept stability.

A hallmark of self-determination theory is the differentiation between behavior which is regulated autonomously and that which is regulated in a controlled manner (Deci & Ryan, 1985a, 1987, 1991). Autonomously initiated and regulated behavior is experienced as choiceful and spontaneous; it emanates as an authentic expression of the self. This behavior emerges out of an awareness of one's personal needs, thoughts, and feelings. For example, when an individual engages in activity that he or she considers

¹This research was supported in part by the Frances L. Hiatt School of Psychology, Clark University.

²Address all correspondence to Wendy Grolnick, Department of Psychology, Clark University, 950 Main Street, Worcester, Massachusetts 01610.

interesting or important, the behavior is congruent with one's predilections and the accompanying experience is one of choicefulness. Because needs, feelings, and behavior are consonant with each other, autonomous functioning is also characterized by an absence of internal conflict.

Conversely, behavior that is regulated in a controlled manner emerges out of intrapsychic pressure or controls in the environment. For example, when one is working to meet a deadline, one experiences his or her behavior as regulated by a source outside of oneself, that is, as stemming from externally imposed contingencies. In this sense, attention is directed towards external cues rather than internal states. Moreover, internal needs, feelings, or desires may be ignored or neglected in the context of trying to meet such controlling imperatives.

It has been suggested that individuals develop general orientations which influence what they attend to and how they initiate and regulate their behavior (Deci & Ryan, 1985b). These orientations affect how individuals perceive the contextual or environmental cues that surround them. An autonomous orientation involves a high degree of experienced choice with regard to the initiation and regulation of behavior as well as the tendency to interpret events as affording opportunities to be autonomous. Conversely, a control orientation involves individuals organizing behavior with respect to controls either in the environment, such as social pressure, or intrapsychically, such as internal contingencies which compel one to act as they "should" or "must."

Thus, one of the central features of an autonomous orientation is the initiation and regulation of behavior in accordance with internal cues. In other words, autonomous individuals exhibit a greater awareness of personal needs, thoughts, and feelings and therefore tend to make judgments based on their own internal perceptions. Supporting this parallel between autonomy and self-awareness, autonomous functioning has been shown to be positively associated with higher levels of ego development and self-knowledge (Deci & Ryan, 1985a; Loevinger, 1976) as well as with greater acceptance of one's feelings (Shostrom, 1966). Because such individuals have a greater internal awareness, there also tends to be greater concordance between their needs, thoughts, and feelings. In accord with this perspective, Koestner, Bernieri, and Zuckerman (1992) demonstrated that more autonomous individuals showed greater consistency between attitudes and behavior, and more consistency between self-descriptions and a behavioral criteria than more control-oriented subjects. Although autonomous individuals, like all people, may hold two or more beliefs, feelings, or values which at first glance may seem to contradict each other, it is notable that various aspects of the autonomous self are not experienced as a source of

intrapsychic conflict or psychological stress but instead coexist in a more congruent or unified fashion (Rigby, Deci, Patrick & Ryan, 1992).

In contrast, because individuals who tend to regulate behavior in a controlled manner pay greater attention towards either internal or external imperatives than to inner needs and feelings, controlled functioning may be associated with more limited self-awareness and consistency. In other words, the controlled individual is less able to behave and make judgments in accordance with internal cues because of the significant effort placed on acting as he or she is "supposed to." Such individuals are unwilling to explore feelings (Koestner & Zuckerman, 1994) and show a low level of self-awareness, a greater sense of pressure and tension (Ryan, 1982), and a higher degree of public self-consciousness, that is, a tendency to monitor their behavior according to external social demands (Plant & Ryan, 1985).

We suggest that because of their greater self-awareness and tendency toward internal consistency, more autonomous individuals will hold ideas about themselves in a different manner than those who are more controlled. In particular, we suggest that the more controlled individual will display a more "chameleon-like" self-concept, given that such an individual has less knowledge of the self and is more focused on how he or she is "supposed to look." In this sense, a controlled individual may be more easily swayed or influenced by controlling contingencies that dictate how one should be. Conversely, it is suggested that a more autonomous individual will exhibit greater self-concept stability because their self-relevant information is likely to emerge out of genuine self-awareness and knowledge.

THE PRESENT STUDY

Although self-determination theory sets forth a view of the self based on motivational and regulatory processes (Deci & Ryan, 1985a), other perspectives have also promoted a greater understanding of the self by emphasizing a view of the self based primarily on cognitive and social functioning (Pratkanis & Greenwald, 1985). In particular, this research has significantly impacted our knowledge of how one processes socially relevant information (Markus, 1977; Swann, 1983). As of yet, motivational and social-cognitive paradigms of the self have remained, for the most part, independent of one another. Borrowing a well-known research paradigm, which has been used to explore the self-concept from a social-cognitive perspective (Markus, 1977), we have attempted to broaden the current understanding of the self by applying self-determination theory to a social-cognitive understanding of the self-concept.

This paradigm, developed by Markus (1977, 1983), focuses on self-schema and also addresses the constructs of consistency and self-awareness. Defining self-schemas as the salient, central generalizations which are used to guide identity and self-definition (Markus & Wurf, 1987), self-schemas have been likened to the important building blocks of the more general self-concept (Greenwald & Pratkanis, 1984; Nurius & Majerus, 1987). Although the self-concept has been conceptualized as being both stable and malleable (Markus & Kunda, 1986), the construct of self-schema has enabled Markus to define those "core" aspects of the self-concept that are least likely to change and most likely to endure over time. Discussing self-schemas, Markus and Kunda (1986) suggested that "some self-conceptions, because of their importance in defining the self and their extensive elaborations, are probably constantly available for characterizing the self" (p. 859). Thus, core self-conceptions, or self-schemas, may be thought of as being "chronically accessible" in that they are the defining generalizations about the self that are not situation-specific compared to other less important self-conceptions in an individual's total repertoire.

Although in this study we are using Markus's self-schema paradigm, it is important to note that other researchers such as Swan (1983) and Swann, Stein-Seroussi, and Giesler (1992) have also contributed to our understanding of the self in terms of explicating the cognitive and social components of the self-concept. For example, Swann conducted various experiments which suggest the tendency of individuals to verify and confirm defining aspects of the self-concept. Swann has shown that, despite the fact that particular self-views may be negative, individuals nevertheless strive to validate these aspects of the self-concept which they take to be central. Therefore, from both the perspectives of Markus and Swann, it has been shown that the self-concept comprises core elements that are consistently salient and not particularly vulnerable to negotiation.

The self-schema research paradigm borrowed in this study involves various components. First, schematic individuals, that is, individuals who have a self-schema in a particular domain, are identified through the use of a self-rating adjective checklist. Individuals are asked to rate each adjective on two dimensions: self-descriptiveness and degree of importance to how he or she sees him or herself. Individuals who rate a majority of adjectives from the same domain, such as "extroverted" and "outgoing," as extremely self-descriptive and important to how they see themselves are considered to be "schematic," in other words, they are said to maintain a self-schema in a particular domain. Similarly, individuals are considered to be "aschematic," that is, without a self-schema in a particular domain, if they do not rate a majority of adjectives in the same domain as both descriptive of and important to how they see themselves. The next step in-

volves giving both schematic and aschematic individuals fictitious feedback about themselves. For the schematics, the feedback is counterschematic or incongruent, as in telling an individual with an extroverted self-schema that he or she is shy and introverted. Similarly, aschematics also receive feedback about themselves, however it is not considered counterschematic because these individuals do not have central, guiding generalizations about themselves in the domain of interest to begin with. The final step in this paradigm involves measuring the degree to which schematic individuals accept the feedback in comparison to aschematics. Markus (1977) found that schematic individuals, when confronted with information running counter to their self-schema, were resistant to accepting or believing the feedback, whereas aschematics felt that the feedback described them more accurately. After receiving the feedback, subjects were asked to complete a second rating of the adjective checklist where it was found that aschematics gave higher "like me" ratings on those traits paralleling the feedback than did the schematics.

While the self-schema research has been important in that it has allowed for a clear differentiation of those aspects of the self that are core from those that are not, as yet unexplored is the idea that individuals may vary in the ways in which they hold and retain these schemas. For example, two individuals might both consider themselves assertive, but one may be more aware of and behave in a more consistent manner with this core aspect of self than the other. As well, individuals who exhibit more consistency between thoughts, feelings, and behaviors may be less likely to compromise these aspects of the self under external pressure. Therefore, in this study we have proposed that there may be qualitative differences between self-schemas depending on the degree to which individuals tend toward more autonomous versus controlled orientations. Individual orientation toward autonomous versus controlled functioning was determined using the General Causality Orientations Scale (Deci & Ryan, 1985b).

Extending Markus' original self-schema paradigm in this study, we proposed, consistent with a motivational perspective, that autonomous individuals would have self-schemas that are less likely to be influenced by environmental factors. Looking only at schematic subjects, we hypothesized that this would be apparent in the degree to which they resisted counterschematic feedback. More specifically, we hypothesized that autonomous schematic individuals would be less likely to change their self-descriptions in response to incongruent or counterschematic feedback than other schematic individuals who are less autonomous. As well, we hypothesized that controlled schematic individuals would be more likely to change their self-descriptions in response to such counterschematic feedback than those individuals who are less control-oriented. Furthermore, it was hypothesized

that autonomous individuals would report experiencing less pressure and tension in the context of receiving counterschematic feedback.

One reason we chose to utilize Markus' original self-schema paradigm is that it lends itself methodologically to the exploration of processing counterschematic information and avoids the inherent problems in relying on individual self-report of this process. For example, if relying on subjects to report how this information is processed, (e.g., their acceptance or rejection of the feedback) it would be unclear what to expect. On one hand, it might be expected that highly autonomous individuals, who have a heightened sense of self-awareness and tend to act consistently with this self-understanding, would most likely reject the feedback. On the other hand, since autonomy involves a greater sense of openness and flexibility, it would also be expected that these individuals would make every effort to consider the feedback and perhaps find ways in which it might fit. However, by assessing the degree to which individuals change in the direction of counterschematic feedback as measured by pre- and postmanipulation adjective checklists, we could operationalize this process and simultaneously circumvent the difficulty of using subjects' reports of their processing of this information.

Because we separated the initial session in which the adjective checklist was originally administered from the counterschematic feedback session, which included the second administration of the adjective checklist, by several weeks and because we did not explain how these sessions were connected ahead of time, it is assumed that differences between Times 1 and 2 on the checklists were not due to any kind of strategic decisions on the part of the subjects.

Ego-Involvement

A second factor related to autonomy which was examined for its effect on reactions to counterschematic feedback was what has been called ego involvement (de Charms, 1968; Ryan, 1982). deCharms used the term "ego-involvement" to describe the state in which one's self-esteem or ego is "on the line" and contingent on the achievement of a particular outcome. Deci and Ryan (1991) have suggested that control-oriented individuals see their self-worth or "esteemability" as contingent on attaining certain standards or outcomes. For example, the corporate executive who believes that he "must" operate in an aggressive and competitive manner, may also feel that his sense of self-worth depends on being this way. Similarly, it has been posited that in the same way that internally controlled individuals live with these kinds of private contingencies, the external environment may be filled with controlling contingencies that compel the individual to act as if

his or her sense of self-worth is on the line or contingent on a stipulated outcome (Deci & Ryan, 1991). These kinds of environments, which are characterized by events intended to pressure people into performing in specific ways, have been termed "ego-involving" (Ryan, 1982).

An ego-involving situation may be experimentally created in order to parallel the disposition of a controlled individual. In the present study, the ego-involving situation which we manipulated served to operationalize situationally what the control-oriented person may experience dispositionally. To assess the effects of ego involvement, subjects were given counterschematic feedback in one of two conditions. In the non-ego-involving condition, subjects were told that they would be receiving some feedback about their personalities based upon their responses to the inkblots. In contrast, subjects in the ego-involved condition were told that if they know themselves well, they should agree with the feedback, and that people who have a higher level of self-understanding tend to be more creative and intelligent than those who do not. It was predicted that subjects in the ego-involving condition would experience more pressure and tension than those in the non-ego-involving condition. It was also predicted that ego-involved subjects would be more likely to change their self-description in response to counterschematic feedback because they would feel as though they must or should (i.e., their self-esteem was on the line). Because individual orientations tend to influence one's perception of his or her context, it was additionally hypothesized that control-oriented individuals would be more influenced by an ego-involving context than would autonomy-oriented individuals.

METHOD

Design Overview

Groups of undergraduate students completed adjective checklists which were used to identify schematic and nonschematic individuals. Schematic individuals were contacted by a different experimenter and asked to participate further in an individual session scheduled approximately 2 weeks later. In these sessions, subjects initially completed a questionnaire assessing autonomy and control orientations. After completing this measure, subjects were given a fictitious "personality technique" which consisted of five Holtzmann inkblots. They were then given counterschematic feedback in an either ego-involving or non-ego-involving condition. As a manipulation check, subjects completed a Mood Questionnaire to assess their mood after the manipulation. Finally, subjects were asked to fill out a second adjective

checklist identical to the original they had completed 2 weeks earlier. Subjects were fully debriefed after the session.

Subjects

To identify schematic subjects, adjective checklists were administered to 141 college undergraduate volunteers of which 50 met the criteria for being schematic on one of three possible dimensions: dominant/passive, outgoing/private, or conventional/spontaneous. One subject was eliminated because she was not a native English speaker and had difficulty with language comprehension. Of the 49 individuals who participated (40 female, 9 male), each was randomly assigned to either the ego-involved or non-ego-involved condition.

Procedures

All subjects who were found to have a self-schema on one of the three dimensions assessed on the adjective checklist were scheduled to participate further. Initial administration of the adjective checklist was separated in time by several weeks from each subject's second participation in the study and different examiners were used in administration. Subjects were not initially told how the first checklist was related to the second session. Each individual was then randomly assigned to either the ego-involved or non-ego-involved condition. Upon reporting to the experiment, they were asked to complete the General Causality Orientations Scale (Decci & Ryan, 1985b). Following completion of the questionnaire, subjects in both conditions were told: "I am now going to show you a series of inkblots and I want you to tell me what they look like to you."

Subjects were given a series of five Holtzmann inkblots which were administered according to standard procedures outlined by Exner (1990). The experimenter then told each subject: "This personality technique takes about five minutes to score. I will be back in approximately five minutes to give you some feedback about yourself."

The experimenter then left the room for 5 minutes while the subjects waited in the experimental room. When the experimenter returned, subjects in the non-ego-involved condition were told: "You will now receive some feedback about your personality based on your responses to the inkblots." Subjects in the ego-involved condition were given the same instruction, but were told in addition:

One of the things that will make this interesting for you is that the feedback will tell you about your underlying personality. Thus, if you are a person who knows yourself well, you should agree with the feedback. And as we know, people who have higher levels of self-understanding tend to be more creative and intelligent than those who don't. Self-understanding is often used to judge creativity and intelligence.

Following this, subjects were asked to complete a brief mood questionnaire which also served as a manipulation check.

Upon completion of the mood questionnaire, subjects were given counterschematic feedback about themselves corresponding to the dimension on which they were schematic. For example, individuals with outgoing self-schemas received feedback to the effect that they were private and reserved. None of the words in the experimenter's feedback were contained in the adjective checklists used to assess self-schemas. In addition, none of the feedback was negative. All of the adjectives used in the feedback were checked against Anderson's "likeableness" ratings of 555 personality-trait words (Anderson, 1968). None of the adjectives used were in the lower third of Anderson's ordered list (positive to negative). After subjects received the feedback, all were asked to complete a second adjective checklist which was identical to the checklist originally completed. Following the experiment, subjects were fully debriefed and their questions were addressed.

Measures

Mood Questionnaire. To determine their moods following the manipulation, subjects completed a 5 item questionnaire immediately after receiving the ego-involving or non-ego-involving manipulation. The items, based on pressure-tension items from the Intrinsic Motivation Inventory (Ryan, 1982; Ryan, Mims, & Koestner, 1983), assessed subjects' feelings of pressure and tension and included questions such as "I feel strained," "I feel tense," and "I feel relaxed" (reverse scored). For each item, the subjects rated how characteristic the mood statement was on a 7-point scale. McAuley, Duncan, and Tammen (1989) found that these items constituted one factor, and a principal components factor analysis conducted for this sample indicated a one-factor solution with an eigenvalue of 3.46. All factor loadings were above .65.

Adjective Checklist. Subjects were asked to rate themselves on this 30-item adjective checklist. The 30 adjectives were divided into three groups of 10 adjectives, each reflecting one of the following self-schemas: Dominant/Passive, Outgoing/Introverted, and Rational/Spontaneous. Of the 10 adjectives reflecting the Dominant/Passive schema, 5 adjectives reflected dominance such as "assertive" and "opinionated" and 5 adjectives reflected

passivity, such as "yielding" and "accommodating." Similarly, the Outgoing/Introverted schema was measured by adjectives such as "extroverted" and "talkative" versus "shy" and "reserved," and the Rational/Spontaneous schema was measured by adjectives such as "methodical" and "organized" versus "impulsive" and "carefree." Subjects were asked to make two ratings for each adjective, one in reference to how much the adjective described them on a 7-point scale and one in reference to how important the trait is to how one sees oneself, also on a scale from 1-7. Consistent with Markus (1977), individuals who rated at least four adjectives in a domain on the extreme end (6-7) of both scales were considered to have a self-schema in this particular domain. The reliability coefficients of the Dominant, Outgoing, and Rational self-schema scales were, respectively, .75, .90, and .78 (Cronbach's alpha).

General Causality Orientations Scale (Deci & Ryan, 1985b). This 36-item questionnaire (see Appendix) assesses the degree to which an individual is oriented toward each of three causality orientations: Autonomy, Control, and Impersonal, of which we were interested in the first two. The scale includes vignettes that extend across a variety of achievement and interpersonal situations such as applying for a new job and relating to a friend. Each vignette is followed by three descriptions of how one might respond to the particular event, with each response representing either an autonomy, control, or impersonal causality orientation. Using a 7-point scale, subjects are asked to consider the extent to which each response might be characteristic of him or herself in the stated situation. Deci and Ryan reported reliability coefficients (Cronbach's alpha) of .74 for the autonomy subscale and .69 for the control subscale and these subscales have been found to be relatively independent. In this study, alphas for the autonomy and control subscales were .71 and .81, respectively.

RESULTS

Preliminary Analyses

Before examining the primary hypotheses regarding relations between autonomy and control orientations and ego involvement and affect and responses to counterschematic feedback, we conducted descriptive analyses addressing mean levels of change in response to the counterschematic feedback and whether change varied as a function of the schema on which subjects were schematic.

Across schema type, the mean amount of change on the adjective checklist was 5.3 ($SD = 2.26$). Forty-four subjects moved in the direction

of the feedback while 5 moved in the direction opposite to the feedback. However, of those who moved opposite to the feedback, all but one moved either 1 or 2 points (a minimal change). With the exception of one group, change did not appear to vary according to schema type. Mean levels of change were: dominant = 4.67, passive = 5.30, outgoing = 5.80, private = 3.67, and organized = 4.20. The one exception was the spontaneous group in which the mean change was 9.5. However, this score can be accounted for by 1 extreme subject who moved 17 points.

The sample was imbalanced on the gender variable with a higher number of females. Because of the small number of males, it was not possible to check for gender differences or interactions between independent variables and gender. However, to address whether gender may have impacted the overall results, all analyses were conducted for the sample of women only and for the full sample. All results were consistent and, thus the results are presented for the full sample throughout.

Relations Among Variables

Table I presents relations among the independent variables (autonomy and control orientations) as well as the following dependent variables: schema scores (as assessed by the adjective checklist), difference scores (Time 2 schema score minus Time 1 schema score), and pressure/tension scores (as determined by the mood scale). Consistent with Deci and Ryan's findings (1985b), the autonomy and control orientations were unrelated. The autonomy orientation was significantly negatively correlated with the pressure/tension variable and with schema change. Pressure tension was also correlated with schema change, with subjects reporting more pressure in the session tending toward greater change.

Table I. Intercorrelations Among Variables

| | Autonomy | Control | Difference | Schema-1 | Schema-2 |
|---------------------|-------------------|---------|------------------|------------------|----------|
| Control orientation | -.01 | — | | | |
| Difference score | -.28 ^a | -.22 | — | | |
| Schema- time 1 | .05 | -.22 | -.01 | — | |
| Schema- time 2 | .04 | -.03 | -.37 | .85 ^c | — |
| Pressure-tension | -.41 ^b | -.15 | .30 ^a | .05 | -.01 |

^a $p < .05$.

^b $p < .01$.

^c $p < .001$.

Primary Analyses

The primary hypotheses of this study concern the effects of both a situational variable (ego-involvement vs. non-ego-involvement) and dispositional or individual difference variables (autonomy and control causality orientations) on the behavior and affect of schematic individuals when given counterschematic information about themselves. Ego-involved subjects and high scorers on the control causality orientation were expected to be most likely to change in relation to counterschematic feedback, while high autonomy-oriented subjects were expected to be less likely to change in response to counterschematic feedback. Subjects' causality orientation was expected to interact with condition such that high control subjects were expected to be most affected by the ego-involving manipulation.

Both of these situational and dispositional variables were also expected to affect the degree of pressure and tension experienced by these individuals. It was predicted that both subjects in the ego-involving condition as well as high control-oriented subjects would report greater levels of pressure and tension, whereas high autonomy-oriented subjects were expected to be less pressured and tense. Here as well, it was expected that there would be an interaction of situational and dispositional factors such that high control-oriented subjects would experience more pressure and tension in the ego-involved condition than would high autonomy subjects.

To test these hypotheses, hierarchical multiple regression analyses were performed. Regressions were chosen because autonomy and control orientations are both continuous variables. Three variables were entered into the regressions. The first variable was the dummy coded ego-involved or non-ego-involved condition. In a second step, one of the individual difference variables (i.e., autonomy or control orientation) was entered. Next, the interaction between condition and the individual difference variable was entered. If the interaction was significant, results were interpreted using a median split for the individual difference variable to form high and low groups. Differences between the four cell means were tested with Fisher's protected *t* tests which account for experimenter error. Uneven cell means were corrected for using Tukey-Kramer Modified HSD. To facilitate interpretation of the interactions, cell means (see Table IV) are presented along with results of ANOVAs, with high and low autonomy (control) groups created using a median split and condition as independent variables. In most cases, ANOVA results were consistent with the results from the multiple regressions. Differences between ANOVA and multiple regression results may be explained by the fact that when conducting the ANOVAs, discrete groups (high and low) were formed out of continuous variables (autonomy

and control orientation), thus resulting in a truncation of the variance captured by the multiple regression analysis.

Analyses for Mood

To determine whether subjects in the ego-involving and non-ego-involving conditions differed in pressure and tension, they were given the Mood Questionnaire described above. The regression analyses (Table II) revealed a significant effect for condition on pressure/tension scores. As predicted, ego-involved subjects reported feeling more tense and pressured ($M = 20.30$, $SD = 7.2$) than did the non-ego-involved subjects ($M = 15.14$, $SD = 5.6$), $F(1, 47) = 5.30$, $p < .05$. This finding supports the effectiveness of the manipulation which was intended to create situationally what certain individuals may experience dispositionally.

There was also a significant effect for autonomy orientation on affect (Table II). As predicted, subjects with higher autonomy scores were less pressured and tense than were subjects with lower autonomy scores, $F(2, 46) = 7.19$, $p < .01$.

Analyses for Difference Scores

The regression analyses (Table III for *F* values) revealed a significant effect for condition on difference scores. As predicted, ego-involved subjects ($M = 7.92$) changed in the direction of counterschematic feedback

Table II. Hierarchical Regression Analyses Regressing Pressure/Tension onto Condition (Dummy Coded), the Individual Difference Variable (Autonomy or Control), and the Interaction Between Condition and Individual Differences

| | <i>F</i> | <i>df</i> | β^a | ΔR^2 |
|----------------------------------|-------------------|-----------|-----------|--------------|
| Condition | 5.30 ^b | 1, 47 | -.32 | .10 |
| Autonomy orientation | 7.19 ^c | 2, 46 | -.37 | .13 |
| Condition × Autonomy interaction | 4.29 | 3, 45 | -.27 | .01 |
| Total $R^2 = .24$ | | | | |
| Condition | 5.30 ^b | 1, 47 | -.32 | .10 |
| Control Orientation | 2.88 | 2, 46 | -.10 | .01 |
| Condition × Control interaction | 2.59 | 3, 45 | -.40 | .00 |
| Total $R^2 = .11$ | | | | |

^aBetas are standardized values for variables at entry into the equation.

^b $p < .05$.

^c $p < .01$.

more than did the non-ego-involved subjects ($M = 3.08$), $F(1, 47) = 4.25$, $p < .05$.

There was also a significant effect for autonomy orientation on change (Table III). As predicted, subjects with higher autonomy scores were less likely to change in the direction of counterschematic feedback than were subjects with lower autonomy score, $F(2, 46) = 3.85$, $p < .05$.

The results also revealed a significant effect (Table III) for the Condition \times Control Orientation interaction, $F(3, 45) = 3.59$, $p < .05$. Pairwise comparisons indicated that subjects low in control orientation changed in the direction of counterschematic information more in the ego-involved condition than in the non-ego-involved condition, whereas highly control-oriented subjects in the ego and non-ego-involving conditions did not differ in how much they changed (Table IV). That is, in contrast to our prediction, the ego-involving condition had a stronger effect on low control-oriented individuals relative to high control-oriented individuals.

DISCUSSION

The purpose of this study was to bring together a self-determination perspective with current cognitive research involving the processing of counterschematic information about oneself. The present study attempts to extend the currently used self-schema paradigm proposed by Markus (1977), by suggesting that individuals may hold self schemas in different

Table III. Hierarchical Regression Analyses Regressing Difference Scores (Change on Adjective Checklist) onto Condition (Dummy Coded), the Individual Difference Variable (Autonomy and Control), and the Interaction Between Condition and Individual Differences

| | <i>F</i> | <i>df</i> | β^a | ΔR^2 |
|---|-------------------|-----------|-----------|--------------|
| Condition | 4.25 ^b | 1, 47 | -.29 | .08 |
| Autonomy orientation | 3.85 ^c | 2, 46 | -.25 | .08 |
| Condition \times Autonomy interaction | 2.59 | 3, 45 | -.22 | .01 |
| Total $R^2 = .17$ | | | | |
| Condition | 4.25 ^b | 1, 47 | -.28 | .08 |
| Control orientation | 2.96 | 2, 46 | -.18 | .03 |
| Condition \times Control interaction | 3.59 ^b | 3, 45 | .22 | .08 |
| Total $R^2 = .19$ | | | | |

^aBetas are standardized values for variables at entry into the equation.

^b $p < .05$.

Table IV. Mean Change Scores and Standard Deviations for ANOVA Examining Effects of Ego Involvement and Motivational Orientation on Change in Schema Scores for High and Low Autonomy and for High and Low Control

| | Ego | | | Non-ego | | |
|---|----------|----------|-----------|----------|----------|-----------|
| | <i>n</i> | <i>M</i> | <i>SD</i> | <i>n</i> | <i>M</i> | <i>SD</i> |
| Autonomy | | | | | | |
| High | 10 | 5.10 | 3.45 | 14 | 1.50 | 3.08 |
| Low | 14 | 9.93 | 8.94 | 11 | 5.09 | 4.78 |
| Condition (Ego vs. Non-ego): $F(1, 45) = 3.79$, $p < .05$ | | | | | | |
| Autonomy orientation $F(1, 45) = 3.22$, $p < .08$ | | | | | | |
| Condition \times Autonomy interaction $F(1, 45) = 0.07$, $p < .79$ | | | | | | |
| Control | | | | | | |
| High | 9 | 2.89 | 4.26 | — | 3.00 | 4.89 |
| Low | 15 | 10.93 | 8.19 | 10 | 3.20 | 3.67 |
| Condition (Ego vs. Non-ego): $F(1, 45) = 3.79$, $p < .05$ | | | | | | |
| Control orientation: $F(1, 45) = 2.98$, $p < .09$ | | | | | | |

ways depending on the degree to which they tend to regulate their behavior in a more autonomous or more controlled manner. We maintain that in addition to evaluating whether a self-schema is either present or absent in an individual, it may also be informative to assess the degree to which a self-schema is amenable to change based on contextual and personality variables. Findings from this study suggest that both dispositional and situational factors account for differences in the degree to which self-schemas are maintained when individuals are presented with counterschematic research.

Consistent with the results of Koestner et al. (1992), who found that autonomous individuals have a higher degree of consistency between self-description and behavior than control-oriented subjects, findings from this study also indicate a higher degree of consistency within high autonomy-oriented individuals in terms of their concepts of themselves. More specifically, individuals with higher autonomy orientations changed in the direction of the feedback less than individuals with lower autonomy orientations. This higher degree of consistency in the face of counterschematic information also supports the idea that an autonomy orientation is associated with higher levels of self-awareness (Deci & Ryan, 1985b). In contrast to individuals who experience themselves as disconnected from or simply unaware of their inner needs, thoughts, and feelings, autonomy-oriented individuals are better able to distinguish between personal feedback that

is consistent with the self and that which is not. In addition, the lower degree of pressure and tension experienced by autonomous individuals lends support to the notion that autonomous individuals are able to be more flexible and self-aware in part because they are not caught in the middle of an intrapsychic conflict around how they should or must be.

It was also expected that individuals in the ego-involved condition, that is, individuals who are made to feel that their egos are on the line, would experience greater pressure and tension and be more likely to endorse counterschematic information than non-ego-involved individuals. As predicted, ego-involved subjects did feel more pressured and they changed in the direction of counterschematic information more than non-ego-involved individuals. This finding supports the hypothesis that when one feels that his or her self-esteem is contingent on the outcome of an expected performance, one may be more willing to make certain compromises in order to achieve the desired outcome, including endorsing feedback about oneself that is contrary to how one typically thinks of oneself.

Initially, this result seems to contradict an earlier finding that when people receive information which threatens a certain core self-conception, they will "make every effort to reaffirm that aspect of their selves" (Markus & Kunda, 1986). Why is it that in the ego-involved condition schematic subjects did not try to reaffirm their core self-conception, but rather altered their self-descriptions in light of counterschematic information? To unravel this seeming inconsistency it is worthwhile reviewing the meaning of ego involvement. This notion, as discussed by Ryan (1993), is meant to represent an internal form of heteronomy such that an individual sees his or her own worth as "contingent on attaining certain standards or outcomes." When ego involved, individuals tend to evaluate their self-esteem in terms of the outcomes they attain. Thus, the finding that ego-involved subjects endorsed the feedback more than non-ego-involved subjects suggests that when *both* self-esteem and core self-conceptions are threatened, individuals will, first and foremost, do what is necessary to rescue their self-esteem which is on the line. In other words, an individual may indeed endeavor to reaffirm a threatened core self-conception, but not when this action is at the expense of self-esteem. This was exemplified in the ego-involving condition where subjects who rejected the feedback would have had to deal with the specter of not being creative and intelligent. One might say that the ego-involved subjects who changed in relation to counterschematic feedback did so even though it meant overriding a core self-conception, at least for the duration of the experiment. Further, the effects of ego involvement were expected to be either magnified or diminished depending on the degree to which an individual was oriented toward autonomy and/or control.

Moreover, individual differences may also interact with different contexts. In our results there was a somewhat unexpected finding that in the ego-involved condition low control-oriented subjects moved in response to the feedback significantly more than high control-oriented subjects. At first glance it seems puzzling that the ego-involving condition did not have the greatest effect on the high control-oriented subjects. We have thus far posited that when highly autonomy-oriented individuals reject counterschematic feedback even in an ego-involving condition, it is because they have a high degree of self-awareness. However, when high control-oriented individuals are presented with counterschematic feedback in an ego-involving condition, even though they too resist moving in the direction of the feedback, we suggest that this resistance may be rooted in rigidity and anxiety rather than the flexibility and self-awareness that characterizes an autonomy orientation. In fact, it is possible that the anxiety-provoking ego-involving condition for the high control-oriented individual served to actually reinforce their own sense of internal control and thus kept them from even considering the feedback.

This argument, though speculative, is supported by our post hoc analysis which compared the degree to which high autonomy-oriented versus high control-oriented individuals felt strained or pressured as a function of the ego-involving manipulation. Looking again at the Mood Questionnaire, we compared mean scores between these two groups. Although both high control- and high autonomy-oriented subjects in the ego-involved condition changed to a similar degree, high control-oriented subjects in the ego-involved condition reported feeling almost twice as pressured ($M = 8.92$, $SD = 2.7$) as their high autonomy-oriented counterparts ($M = 5.33$, $SD = 4.8$). Thus we speculate that although both high control-oriented and high autonomy-oriented individuals in the ego-involving condition rejected the feedback to relatively comparable degrees, there may have been a qualitative difference in the processing of this counterschematic information. Again, this interpretation is highly speculative and should be evaluated cautiously.

In general, the results of this study underscore the idea that the processing of counterschematic feedback is a multi-dimensional process, with both cognitive and motivational components. To better understand qualitative differences within the category of schematic individuals, one must consider individual differences as well as specific environmental contexts. In addition, it is important to acknowledge certain limitations of this study. First, gender effects could not be explored in this study and it is important to conduct the study with a sample of male subjects. Second, although results did not reveal notable differences between schema types in terms of change, it may still be valuable to look more closely at particular schema types in terms of how counterschematic feedback is processed. However,

it is important to have used schemas in more than one domain because the motivational effects examined in this study were expected to apply to schemas generally, rather than to those in a specific domain. Nevertheless, results of this study clearly support the notion that by bridging both cognitive and motivational perspectives, one gains a richer and more comprehensive picture of how individuals process information about themselves.

APPENDIX

Individual Styles Questionnaire

1. You have been offered a new position in a company where you have worked for some time. The first question that is likely to come to mind is:

(I) What if I can't live up to the new responsibilities?

1 2 3 4 5 6 7
very unlikely moderately unlikely very likely

(C) Will I make more at this position?

1 2 3 4 5 6 7
very unlikely moderately unlikely very likely

(A) I wonder if the new work will be interesting?

1 2 3 4 5 6 7
very unlikely moderately unlikely very likely

2. You have a school age daughter. On parents' night the teacher tells you that your daughter is doing poorly and doesn't seem involved in the work. You are likely to:

(A) Talk it over with your daughter to understand further what the problem is.

(I) Scold her and hope she does better.

(C) Make sure she does the assignments, because she should be working harder.

3. You had a job interview several weeks ago. In the mail you received a form letter which states that the position has been filled. It's likely that you might think:

(C) It's not what you know but who you know.

(I) I'm probably not good enough for the job.

(A) Somehow they didn't see my qualifications as matching their needs.

4. You are a plant supervisor and have been charged with the task of allotting coffee breaks to three workers who can not all break at once. You would likely handle this by:

(A) Telling the three workers the situation and having them work with you on the schedule.

(C) Simply assign the times that each can break to avoid any problems.

(I) Find out from someone in authority what to do and what was done in the past.

5. A close friend of yours has been moody lately, and a couple of times has become very angry with you over "nothing." You might:

(A) Share your observations with him and try to find out what is going on for him.

(I) Ignore it because there's not much you can do about it anyway.

(C) Tell him that you're willing to spend time together if and only if he makes more effort to control himself.

6. You have just received the results of a test you took, and you discovered that you did very poorly. Your initial reaction is likely to be:

(I) "I can't do anything right", and feel sad.

(A) "I wonder how it is I did so poorly", and feel disappointed.

(C) "That stupid test doesn't show anything", and feel angry.

7. You have been invited to a large party where you know very few people. As you look forward to the evening you would likely expect that:

(C) You'll try to fit in with whatever is happening in order to have a good time and not look bad.

(A) You'll find some people with whom you can relate.

(I) You'll probably feel somewhat isolated and unnoticed.

8. You are asked to plan a picnic for yourself and your fellow employees. Your style for approaching this project could most likely be characterized as:

(C) Take charge: that is, you would make most of the major decisions yourself.

(I) Follow precedent: you're not really up to the task so you'd do it the way it's been done before.

(A) Seek participation: get inputs from others who want to make them before you make the final plans.

9. Recently a position opened up at your place of work that could have meant a promotion for you. However, a person you work with was offered the job rather than you. In evaluating the situation, you are likely to think:

(I) You didn't really expect the job; you frequently get passed over.

(C) The other person probably "did the right things" politically to get the job.

(A) You would probably take a look at factors in your own performance that lead you to be passed over.

10. You are embarking on a new career. The most important consideration is likely to be:

(I) Whether you can do the work without getting in over your head.

(A) How interested you are in that kind of work.

(C) Whether there are good possibilities for advancement.

11. A woman who works for you has generally done an adequate job. However, for the past two weeks her work has not been up to par and she appears to be less actively interested in her work. Your reaction is likely to be:

(C) Tell her that her work is below what is expected and that she should start working harder.

(A) Ask her about the problem and let her know you are available to help work it out.

(I) It's hard to know what to do to get her straightened out.

12. Your company has promoted you to a position in a city far from your present location. As you think about the move you would probably:

(A) Feel interested in the new challenge and a little nervous at the same time.

(C) Feel excited about the higher status and salary that is involved.

(I) Feel stressed and anxious about the upcoming changes.

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