Self-Regulation and Consistency Between Attitudes, Traits, and Behaviors

Richard Koestner McGill University Frank Bernieri Oregon State University Miron Zuckerman University of Rochester

This research examined the impact of self-regulatory styles on the degree of consistency between behaviors and self-reported attitudes and traits. It was predicted that individuals who regulate their behavior in an autonomous manner would be more likely to display behavior consistent with their self-reported attitudes and traits than individuals who regulate their behavior in accordance with external or introjected controls. In two intrinsic motivation laboratory experiments, subjects who were classified as autonomy oriented on the basis of their responses to the General Causality Orientations Scale were shown to display significantly higher attitude-behavior correlations than subjects classified as control oriented. In another experiment, autonomy-oriented subjects showed greater consistency between self-descriptions of conscientiousness and a behavioral criterion than control-oriented subjects. Together, these findings support Deci and Ryan's hypothesis that individual differences in selfregulation will influence indexes of personality integration.

Self-determination theory (Deci & Ryan, 1985b, 1987, 1991) emphasizes the distinction between intentional behaviors that are autonomous and those that are control determined. Autonomous behaviors are said to be initiated and regulated by controls in the environment, such as reward structures, or by internally controlling imperatives that dictate how one "should" or "must" behave in a given situation. Phenomenologically, autonomous and controlled behaviors are quite different: Autonomous behaviors are experienced as flowing forth spontaneously with feelings of interest and enjoyment as their guide, whereas behaviors that are controlled tend to be associated with feelings of pressure and tension

related to a concern about attaining some specified outcome (Ryan, 1982).

Whether an individual relies on external social cues rather than internal cues to regulate behavior is likely to influence that person's level of personality consistency. Deci and Ryan (1985a, 1985b) proposed that because autonomous individuals pay greater attention to their needs and feelings than to controlling contingencies, they are able to maintain a high degree of consistency among behaviors, thoughts, feelings, and needs. By contrast, people who are ever alert to external controls or whose behavior is impelled by powerful internal imperatives are expected to achieve only a limited awareness of their needs and feeling, the consequence being a lack of congruence among their behaviors, thoughts, and feelings. The clinical literature has long identified integration among various aspects of the self as a hallmark of autonomous functioning (e.g., Gruen, 1988).

Empirical support for the hypothesized relation between self-regulatory style and integration of behavior can be gleaned from studies that have employed Deci

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and Ryan's (1985b) General Causality Orientations Scale (GCOS), which yields separate estimates of an individual's general tendencies to regulate behavior in an autonomous and a control-determined manner. The scale has shown excellent test-retest and internal reliability as well as adequate construct validity (Deci & Ryan, 1985a; Vallerand, Blais, Lacouture, & Deci, 1987).

Research with the GCOS indicates that the autonomy orientation is associated with higher levels of self-awareness as reflected in positive correlations with scales measuring self-actualization, ego development, private self-consciousness, openness to experience, and acceptance of one's feelings (Deci & Ryan, 1985b; Koestner & Blais, 1991; Scherhorn & Grunert, 1988; Vallerand et al., 1987). However, the autonomy-oriented person shows no relation to measures reflecting an excessive concern with social contingencies in the regulation of behavior (e.g., self-monitoring and public self-consciousness) and is relatively unaffected by attempts at social persuasion (Deci & Ryan, 1985b; Vallerand et al., 1987; Zuckerman, Gioioso, & Tellini, 1988).

The control orientation appears to be related to a low level of self-awareness as reflected in a lack of openness to experience, especially in terms of being unwilling to explore feelings (Koestner & Blais, 1991). However, the control orientation is predictive of heightened sensitivity to contingencies in the social environment. This is reflected in a high degree of public self-consciousness and a strong tendency to monitor one's expressive behavior (Deci & Ryan, 1985b; Vallerand et al., 1987; Zuckerman, Gioioso, & Tellini, 1988). Two studies have also shown that the control orientation influences one's susceptibility to different kinds of social persuasion (Scherhorn & Grunert, 1988; Zuckerman, Gioioso, & Tellini, 1988).

The distinction between the autonomy orientation and the control orientation would appear to have theoretical implications for the validity of self-report data. In particular, it may be suggested that self-regulatory styles will influence the relationships between self-reported attitudes and behavior and between self-reported traits and behavior. We propose that the consistency between self-reported attitudes or traits and behavior will depend primarily on two factors: (a) the extent to which people are aware of their attitudes and traits and (b) the extent to which a person's behavior flows from these attitudes and traits rather than being controlled by social contingencies. In the present study, we predicted that autonomous styles of self-regulation would promote both attitudebehavior and trait-behavior consistency because this regulatory style is associated with (a) access to and awareness of one's inner personality and (b) decreased sensitivity to external social influences. More control-oriented styles

of self-regulation are expected to be associated with low levels of consistency because they have been associated with (a) a lack of self-awareness and (b) a hypersensitivity to social contingencies in the environment.

In two studies we examined whether subjects' causality orientations moderated the degree of consistency between their behavior and their self-reported attitudes and traits. In each study we classified subjects as either autonomy or control oriented depending on their responses to the GCOS. In the first study, behavioral and attitudinal measures of intrinsic motivation were collected from subjects after they performed an interesting hidden-figures task. In the second study, self-ratings, peer ratings, and a behavioral measure of conscientiousness were collected. Conscientiousness was chosen as the trait dimension of interest because it has been identified as one of the five central dimensions of personality and has been frequently examined in the trait-behavior consistency literature.

STUDY 1: SELF-REGULATORY STYLE AND ATTITUDE-BEHAVIOR CONSISTENCY

The free choice paradigm that has traditionally been used to examine intrinsic motivational processes typically employs both attitudinal and behavioral dependent measures and therefore provides an estimate of attitudebehavior consistency. To date, researchers have offered divergent opinions about the comparability of these qualitatively different measures of intrinsic motivation. Although some authors have remarked on their consistency (e.g., Harackiewicz, 1979; Ryan, Mims, & Koestner, 1983), a larger number have commented on their lack of correspondence (e.g., Koestner, Zuckerman, & Koestner, 1987; Luyten & Lens, 1981; McMullin & Steffen, 1982; Smith & Pittman, 1978). Our own review of 104 experiments revealed that the median correlation between attitudinal and behavioral measures of intrinsic motivation was .29 and the range was -.20 to .51. This figure approximates the r = .30 ceiling proposed by Wicker (1969) in his review of attitude-behavior consistency in the more general social psychology literature. (For an extensive theoretical discussion of the lack of congruity between behavioral and self-report measures in dissonance and motivation experiments, see Quattrone, 1985.)

We predicted that a person's self-regulatory style would moderate the degree of consistency between attitudinal and behavioral measures of intrinsic motivation such that subjects classified as autonomy oriented would display higher attitude-behavior correlations than those who were control oriented. It is important to make clear that we are not predicting that autonomy-oriented subjects will display greater behavioral or attitudinal intrinsic motivation than control-oriented subjects. It would be unlikely that a main effect related to causality orientations would emerge, as the nature of these experiments is to create and measure *situational* effects on behavior that overpower any *person* effects that might exist.¹

Why should control-oriented people, who depend on external contingencies to regulate their behavior, display lower consistency between attitudes and behaviors? In and of itself, a reliance on external contingencies should not necessarily reduce the relation between attitudes and behavior. It could be argued that both the attitudes and the behavior should show the effects of such contingency and therefore covary. However, it is important to note that the contingencies for attitudes and behavior are rarely the same. For example, someone may work more if paid more, but this will not necessarily mean that the person will enjoy his or her work more. Thus, in many cases a reliance on external contingencies may cause attitude/behavior divergence.

We tested the hypothesis that an autonomy orientation would be associated with higher attitude-behavior correlations in two sets of data originally collected for other purposes (Koestner et al., 1987; Koestner, Zuckerman, & Olsson, 1990). Short descriptions of the studies that gave rise to these data and the results of the present reanalyses are provided.

Method

Subjects. Subjects were undergraduates participating in partial fulfillment of a course requirement. There were 24 men and 31 women in Experiment 1a and 25 men and 30 women in Experiment 1b.

Assessment of causality orientations. Subjects in both experiments completed the General Causality Orientations Scale (Deci & Ryan, 1985a) in a large group setting before participating in the experiment. The GCOS consists of 12 brief vignettes, each presenting a situation followed by three possible responses to that situation: one that is autonomy oriented, one control oriented, and one impersonally oriented. (Impersonal orientation is essentially a measure of nonmotivation; it is not relevant to the present article and will not be discussed further.) Each response is followed by a 7-point scale on which the respondent rates the extent to which that response—whether a behavior, thought, or feeling would be characteristic of him or her in that situation. For example, subjects are given the scenario "You are embarking on a new career. The most important consideration is likely to be ... "An autonomy orientation is measured by the response "How interested you are in that kind of work." A control orientation is measured by

the response "Whether there are good possibilities for advancement." Subscale scores are created by averaging respondents' 12 ratings for that subscale. Higher scores on each subscale indicate that the person has more of that particular orientation. The autonomy and control scales are typically uncorrelated (Deci & Ryan, 1985b). In the present study, the correlation was not significant, r = .06.

Procedure for Experiment 1a. Koestner et al. (1987) examined the relation among type of involvement, attributional focus of praise, and intrinsic motivation. Subjects were introduced to a hidden-figures task in either an ego-involving or a task-involving manner. After working at each of three puzzles, subjects received either no praise, ability-focused praise, or effort-focused praise. Subjects' level of intrinsic motivation was then assessed behaviorally by a 6-min free choice period and attitudinally by a postexperimental questionnaire that included seven items tapping feelings of interest, fun, and enjoyment. The mean of these items served as the attitudinal measure of intrinsic motivation (effective reliability using the Spearman-Brown formula = .94). (Further details of the procedure can be obtained in Koestner et al., 1987.)

Procedure for Experiment 1b. In a study similar to Experiment 1a, Koestner et al. (1990) examined the relation among individual differences in attributional style, comparison focus of praise, and intrinsic motivation. Subjects were introduced to a hidden-figures task in either an ego-involving or a task-involving manner. After working at each of three puzzles, subjects received either mastery-focused praise or social comparison praise. Subjects' level of intrinsic motivation was then assessed by a 6-min free choice period as well as by a postexperimental questionnaire that included the same seven items tapping feelings of interest, fun, and enjoyment (effective reliability using the Spearman-Brown formula = .95). (Further details of the procedure can be obtained in Koestner et al., 1990.)

Results for Experiments 1a and 1b

After standardization of their scores on the autonomy and control scales, subjects were classified as either autonomy oriented or control oriented, depending on which of their z scores was higher. This classification strategy was chosen because (a) Deci and Ryan (1991) suggest that it may be useful to combine scales to test specific hypotheses and (b) previous researchers who have examined different motivational orientations within a given individual have found it useful to classify people by the relative strengths of particular motives (McClelland, 1986). Within each experiment we examined the attitude-behavior consistency correlation separately for those

TABLE 1: Attitude-Behavior Correlations by Autonomy Versus Control Orientation

	Autonomy Orientation	Control Orientation	z of Difference
Experiment la	.37* n = 24	24 n = 31	2.21, p <.01
Experiment 1b	.63* n = 23	07 n = 32	2.78, <i>p</i> <.01

NOTE: All correlations were calculated between reports of interestenjoyment on a seven-item scale and free choice intrinsic motivation during a 360-s free choice period. z of difference was computed using Fischer's z transformation of r.

*p<.01.

subjects who were classified as autonomy oriented and those who were classified as control oriented. Table 1 shows that, in each experiment, autonomy-oriented subjects exhibited greater consistency between their attitudinal and behavioral levels of intrinsic motivation than control-oriented subjects. The difference between the attitude-behavior correlations for autonomy and control subjects proved to be statistically significant in both studies, zs = 2.21 and 2.78, ps < .01.2

An alternative explanation related to rating bias would be that the difference in attitude-behavior correlations for autonomy-oriented and control-oriented subjects may be accounted for by differences in the variance of the variables in question for these two groups of subjects. Thus, if control-oriented subjects had less variable attitudinal scores or less variable free choice scores, they would be less likely to show high attitude-behavior correlations. In Experiments 1a and 1b the standard deviations for the attitudinal measure of intrinsic motivation were 0.96 and 0.98 for autonomy-oriented subjects and 0.94 and 1.18 for control-oriented subjects. For the free choice measure the corresponding standard deviations for autonomy- oriented subjects were 154 and 156, whereas for control-oriented subjects they were 150 and 149. Clearly, these results argue against the notion that control-oriented subjects might have used a restricted range of responses and thus undermined the level of consistency they might display. It should also be noted that there were no mean differences between autonomyand control-oriented subjects for either dependent measure in the two studies. (Details of the results related to praise and involvement can be found in the cited articles.)

STUDY 2: SELF-REGULATION AND TRAIT-BEHAVIOR CONSISTENCY

The second experiment examined whether the greater attitude-behavior consistency displayed by autonomy-

oriented individuals relative to control-oriented individuals would generalize to other indexes of personality consistency. Specifically, we were interested in using consistency indices derived from the literature on personality moderators of behavioral consistency (Bem & Allen, 1974; Zuckerman, Koestner, et al., 1988). In this literature, consistency has generally been operationalized in two ways: (a) by examining the correlation between self-ratings on dimensions such as conscientiousness and behavior on a criterion reflective of this particular trait (e.g., tardiness in arriving at class) and (b) by examining the correlation between self-ratings and peer ratings on a given trait dimension.

We decided to examine whether people's autonomy versus control orientation would moderate the degree of consistency they displayed between self-ratings of conscientiousness and (a) a behavioral criterion believed to be reflective of conscientiousness and (b) peer ratings on the same dimension. Conscientiousness has been identified as one of the five central dimensions of personality by McCrae and Costa (1988) and is used as a summary term to describe a variety of traitlike characteristics that tend to be interrelated. These characteristics include dependability, organization, carefulness, perseverance, and striving to achieve valued goals. Conscientiousness was chosen as the trait dimension of interest for two reasons: (a) It was examined in the original Bem and Allen (1974) article that spawned the extensive body of research on moderators of behavioral consistency; (b) many of the scenarios presented on the General Causality Orientations Scale revolve around work-related concerns (e.g., "You are a supervisor and have been charged with the task of allotting coffee breaks to three workers who cannot all break at once") and therefore may be especially relevant to issues related to conscientiousness.

We expected autonomy-oriented subjects to display greater consistency between their self-ratings of conscientiousness and both their behavior and peer ratings on this dimension than control-oriented subjects. It should also be noted that the direct relation between causality orientations and level of conscientiousness is of some theoretical interest because conscientiousness is the dimension of personality most likely to reflect a person's capacity for self-regulation. In fact, McCrae and Costa (1988) note that traits related to their conscientiousness dimension have been grouped together by other researchers in factors labeled self-control, impulse control, and superego strength. Recent elaborations of self-determination theory highlight the role played by feelings of autonomy in facilitating the process by which extrinsic regulation of behavior is gradually transformed into internalized forms of self-regulation (Ryan, Connell, & Deci, 1985). This suggests that individuals with a stronger orientation

toward autonomy may be more likely to regulate their behavior effectively and thus to behave in what would generally be viewed as a more conscientious manner.

Method

Subjects. One hundred and forty-nine undergraduates (66 men and 83 women) and their same-sex roommates completed questionnaires in their university dormitory. Assignment to the role of subject versus the role of roommate was random. Participation did not entail any form of compensation. The investigation was conducted in the spring semester, and subjects and their roommates had lived together at least since the beginning of the academic year.

Procedure. Subjects completed the General Causality Orientations Scale and rated themselves on three trait dimensions related to conscientiousness—conscientious versus disregarding of duties, organized versus disorderly, and driven versus relaxed. Each pair of anchor adjectives was accompanied by a brief description of the behavior associated with the trait dimension. Ratings were made on 1-to-9 scales. The effective reliability of the three-item index of self-rated conscientiousness was .51.3

Subjects were rated by their roommates on the same scales. Except for instructions identifying the target of the rating task, the form administered to the roommate was identical to the self-rating form. The effective reliability of the peer rating of conscientiousness was .68.

An independent assessment of a behavior related to conscientiousness was collected by asking subjects whether a questionnaire could be left with them to be filled out and returned sometime in the next week or two. All subjects agreed to complete the questionnaire (the Bem Sex Role Inventory) and return it to a secretary in the psychology building. Whether or not they returned the questionnaire (coded as 0 vs. 1) served as a reflection of conscientious behavior. (All subjects lived on campus within a 10-min walk of the psychology building.)⁴

Results

After standardization of their scores on the autonomy and control scales, subjects were classified as either autonomy oriented or control oriented, depending on which of their z scores was higher. We examined the correlations between self-ratings of conscientiousness and two criteria: (a) whether subjects returned the questionnaire left with them and (b) the ratings made by their peers regarding their level of conscientiousness. These correlations were computed separately for autonomy-oriented and control-oriented subjects; the effects of subject's sex were partialed out.

TABLE 2: Trait-Behavior and Self-Peer Correlations by Autonomy Versus Control Orientation

Type of Consistency	Autonomy Orientation (N = 76)	Control Orientation (N = 73)	z of Difference
Self-rating and peer rating Self-rating and returning	.59***	.41**	1.50, p = .07
questionnaire	.22*	10	1.98, p = .02
Mean	.42**	.17	1.68, p = .05

NOTE: z of difference was computed using Fisher's z transformation of π *p < .10; ***p < .01; ***p < .001.

Consistency as a function of autonomy versus control orientation. Table 2 presents the correlations for the consistency indexes. It can be seen that autonomy-oriented subjects evidenced significantly greater consistency between self-descriptions of conscientiousness and whether or not they behaved in a conscientious manner by returning the questionnaire as promised, z = 1.98, p < .05. It can also be seen that autonomy-oriented subjects attained somewhat higher levels of self-peer consistency on the conscientiousness ratings than control-oriented subjects, z = 1.50, p = .14.

When the mean consistency correlations are combined across the two indexes, it can be seen that autonomyoriented subjects attained an average consistency correlation coefficient of .42 (p<.001) whereas control-oriented subjects attained an average correlation of .17 (n.s.).⁵

Mean differences in conscientiousness related to autonomy versus control orientation. To examine whether subjects' level of self-determination was directly related to the conscientiousness variables, we conducted 2×2 (Sex \times Causality Orientation) analyses of variance on the selfand peer ratings and a Sex × Causality Orientation chisquare analysis on the questionnaire return index. No main effects or interactions approaching significance for sex were found (ps > .20), and sex was dropped as a factor in subsequent analyses. We conducted t tests on the self-and peer ratings and performed a chi-square test on the return index with causality orientation (autonomy vs. control) as the independent variable. These analyses revealed that autonomy-oriented subjects scored significantly higher than control-oriented subjects on all three indexes of conscientiousness. Table 3 shows that autonomy-oriented subjects (a) described themselves as more conscientious than control-oriented subjects, (b) were described by their roommates as more conscientious than control-oriented subjects were, and (c) were twice as likely as control-oriented subjects to return the questionnaire (42% to 21%).

	Autonomy Orientation		Control Orientation		
	M	SD	M	SD	
Proportion returning questionnaire	.42	.50	.21	.41	Chi square = 7.05, p < .01
Self-rating	6.44	1.51	5.90	1.58	t(147) = 2.20, p < .05
Peer rating	6.25	1.66	5.57	1.65	t(147) = 2.51, p < .05

TABLE 3: Conscientiousness Indexes by Autonomy Versus Control Orientation

NOTE: Self-ratings and peer ratings could range from 1 to 9, higher numbers indicating greater conscientiousness.

As in the first study, it might be argued that the lower consistency correlations for control-oriented subjects can perhaps be attributed to lower variability in their responses on the various dependent measures. An examination of the standard deviations argues against such an explanation. The standard deviations for autonomy-oriented (A) and control-oriented (C) subjects were as follows: self-rating of conscientiousness, A = 1.51, C = 1.48; peer rating of conscientiousness, A = 1.66, C = 1.65; and return of questionnaire index, A = .50, C = .41.

GENERAL DISCUSSION

The results from Study 1 provide support for the prediction that an individual's level of self-determination moderates the consistency between attitudinal and behavioral indexes of intrinsic motivation. In two separate experiments, subjects who were classified as autonomy oriented showed significantly greater attitude-behavior correlations than those who were classified as control oriented. Stated differently, the results suggest that individuals who customarily regulate their behavior in a self-determined manner are likely to report thoughts and feelings that reflect their behavior, whereas people who function in a control-determined fashion are more likely to report thoughts and feelings that are at odds with their behavior.

Study 2 provided somewhat weaker support for the hypothesis that individual differences in self-regulation moderate the level of consistency people display between various aspects of their personality. Autonomy-oriented subjects were shown to display significantly greater correspondence than control-oriented subjects between self-ratings of conscientiousness and whether or not they behaved in a conscientious manner by returning a questionnaire that they had agreed to return. Autonomy-oriented subjects also tended to display somewhat higher consistency between self-ratings of conscientiousness and ratings made about them by their roommates.

The relative weakness of the moderator effects in Study 2 may be attributed to our use of conscientiousness as the trait dimension of interest. This particular trait dimension has failed to show moderator effects in previous studies (e.g., Bem & Allen, 1974). Furthermore, the reliability of the self-rated conscientiousness was low, and to get results that approach significance in light of this is fairly impressive.

Study 2 revealed a direct relation between level of selfdetermination and a person's degree of conscientiousness. Autonomy-oriented subjects appear to be more conscientious than control-oriented subjects regardless of whether conscientiousness is measured by self-report, peer report, or observation of behavior. The robustness of these findings is rather striking and suggests that the relation of self-determination to conscientious behavior merits further research attention. It is interesting to note that, at one level, conscientiousness can be viewed as a trait that reflects the degree to which a person's behavior corresponds to his or her intentions and goals. Costa and McCrae (1985) refer to conscientiousness as involving "an active form of self discipline" and offer the following description of a conscientious person: "He or she is purposeful and well-organized, seeing much of life in terms of tasks to be accomplished. Highly conscientious people are strong-willed and determined, and probably few individuals become great musicians or athletes without a reasonably high level of these traits" (p. 12). These authors note that conscientiousness has been related to important real-life outcomes, such as alcoholism and academic achievement (McCrae & Costa, 1988).

Although we pursued this research as a test of self-determination theory, it is important to consider the present findings in relation to earlier research on personality moderators of attitude-behavior and trait-behavior consistency. The possible moderating role of individual differences in self-determination in relation to attitude-behavior and trait-behavior consistency has been only indirectly suggested by previous research. In a review of studies on attitude-behavior consistency, Sherman and Fazio (1983) concluded that the greatest consistency is shown by individuals who are especially tuned in to their feelings and thoughts. Specifically, people classified as low in self-monitoring (Snyder, 1974) were found to be particularly likely to display consistency between their

behaviors and attitudes. Similarly, after reviewing the literature on personality moderators of trait-behavior consistency, Cheek (1982) proposed, and found support for, the prediction that self-knowledge would be an important moderator of trait-behavior consistency. Specifically, persons who were more aware of the private aspects of themselves (i.e., high private self-consciousness) or who placed great importance on their inner self (i.e., high personal identity) were found to display greater consistency than those who were less aware of or less interested in their private self.

We suggest that the construct of self-determination, which is a motivational concept that describes how behavior is initiated and regulated, can serve to integrate the existing literature on personality moderators of attitudebehavior and trait-behavior consistency (see Zuckerman, Bernieri, Koestner, & Rosenthal, 1989, for a recent review). High self-monitors who guide their behavior on the basis of situational factors and publicly self-conscious individuals who focus on themselves as social objects share a common element—the initiation and regulation of their behavior are primarily determined by environmental forces rather than by integrated needs and feelings. By contrast, individuals who are low in self-monitoring and high in private self-consciousness are likely to initiate and regulate behaviors in a way that is more selfdetermined (i.e., these behaviors are endorsed by their inner selves and they accept responsibility for them).

The results of these two studies support the hypothesis drawn from self-determination theory that people's style of self-regulation will influence personality consistency. Subjects who regulate their behavior in an autonomous manner were shown to be significantly more likely to maintain both attitude-behavior and trait-behavior consistency than subjects who regulate their behavior in a controlling manner. The fact that these effects were replicated across three experiments and four indexes of consistency suggests that self-regulatory style may indeed be a powerful moderator of personality consistency.

NOTES

- 1. The GCOS suggests only that people will act in accordance with their level of interest. It is a person's level of interest for the specific task that determines whether the person will pursue it during a free choice period. One cannot expect the scale to determine level of interest, because the scale does not assess this.
- 2. The attitude-behavior correlations were also calculated with the effects of the experimental manipulations and of sex of subject partialed out. The results were nearly identical: Experiment 1a, rs = .67 for autonomy and .05 for control, z = 2.64; Experiment 1b, rs = .61 for autonomy and -.10 for control, z = 2.78.
- 3. Although the effective reliability of this three-item index is rather low, it should be noted that Cheek (1982) obtained an alpha of only .35 for his three-item index of conscientiousness.
- 4. Other ratings were also made (see Zuckerman, Koestner, et al., 1988, for details) but are not relevant to the present article.

5. We should note that in this study eight other individual trait dimensions were also rated by the subjects and their roommates (e.g. emotional vs. calm). The median self-peer correlations were .39 for autonomy subjects and .30 for control-oriented subjects.

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