To "Do the Right Thing" or to "Just Do It": Locomotion and Assessment as Distinct Self-Regulatory Imperatives

Arie W. Kruglanski
University of Maryland, College Park

Erik P. Thompson
Washington University

E. Tory Higgins
Columbia University

M. Nadir Atash
Parsa, Inc.

Antonio Pierro
University of Rome "La Sapienza"

James Y. Shah
University of Wisconsin—Madison

Scott Spiegel
University of Maryland, College Park

An integrated series of studies investigated 2 functional dimensions of self-regulation referred to as assessment and locomotion (E. T. Higgins and A. W. Kruglanski, 1995). Assessment constitutes the comparative aspect of self-regulation that critically evaluates alternative goals or means to decide which are best to pursue and appraises performance. Locomotion constitutes the aspect of self-regulation concerned with movement from state to state, including commitment of psychological resources to initiate and maintain such movement. Two separate scales were developed to measure individual differences in these tendencies. Psychometric work attested to the scales' unidimensionality, internal consistency, and temporal stability. The authors found that (a) locomotion and assessment are relatively independent of each other, (b) both are needed for self-regulatory success, and (c) each relates to distinct task orientations and motivational emphases.

Imagine yourself and your spouse on a holiday eve, at the eleventh hour sally to the local mall to get those missing items on your shopping list. You drive into the parking lot, which brims with hundreds of vehicles, and you look intently for a free spot. By an amazing stroke of luck, a car is about to pull out of a far row. Seizing the moment, you quickly move to fill the space the very millisecond it is vacated. One look at your spouse, however, conveys that all is not well. For, better than a thousand words, your spouse's countenance betrays deep disappointment with your chosen spot. After all, it is quite far from the mall entrance, requiring a considerable hike in chilly weather and under a mountain of packages to boot. Instead of taking it, your spouse would prefer to continue exploring until the perfect spot is found, even if this means cruising through hundreds of occupied spaces. To you, quite frankly, this quest seems frustrating, if not futile. You are simply itching to get on with it, to park the car wherever possible so you can proceed with the shopping task ahead. To be fair and impartial, we leave the saga before finding out whether a perfect spot was ever found. Regardless of whether it was, such differences in viewpoint may not appear to be the stuff of which marital bliss is made. A surprising perspective on this issue is offered in the concluding section of this article. That, however, is not the main point of our story.

Our interest lies instead in the psychological bases of tension between the spouses in the foregoing example. Hardly unique to

Arie W. Kruglanski and Scott Spiegel, Department of Psychology, University of Maryland, College Park; Erik P. Thompson, Department of Psychology, Washington University; E. Tory Higgins, Department of Psychology, Columbia University; M. Nadir Atash, Parsa, Inc., Arlington, Virginia; Antonio Pierro, Department of Psychology, University of Rome "La Sapienza"; James Y. Shah, Department of Psychology, University of Wisconsin—Madison.

This research was supported by National Science Foundation (NSF) Grant SBR-9417422, National Institute of Mental Health (NIMH) Grant RO1-MH52578, and NIMH Research Scientist Award KO5/MH01213. This article was written while Arie W. Kruglanski was Fellow at the Center for Advanced Studies in the Behavioral Sciences, Stanford, California, supported in part by NSF Grant SBR-9022192.

Correspondence concerning this article should be addressed to Arie W. Kruglanski, Department of Psychology, University of Maryland, College Park, Maryland 20742-4411. Electronic mail may be sent to arie@psyc.umd.edu.

Journal of Personality and Social Psychology, 2000, Vol. 79, No. 5, 793–815
 0022-3514/00/$5.00 DOI: 10.1037//0022-3514.79.5.793

any specific couple, or even to the interpersonal realm as a whole, such tension may reflect instead the contrasting pull of two basic self-regulatory functions. We call these functions *assessment* and *locomotion* (Higgins & Kruglanski, 1995). Assessment constitutes the comparative aspect of self-regulation concerned with critically evaluating entities or states, such as goals or means, in relation to alternatives in order to judge relative quality (i.e., judging the quality of something by considering both its merits and demerits in comparison with an alternative). It is exemplified in our example by one spouse's insistence on finding the perfect parking spot before stopping to shop (i.e., on finding or doing just the "right thing"). Locomotion, in contrast, constitutes the aspect of self-regulation concerned with movement from state to state and with committing the psychological resources that will initiate and maintain goal-related movement in a straightforward and direct manner, without undue distractions or delays. In our initial example, it is represented by the other spouse's impatience to get a move on and, in the felicitous words of the Nike commercial, to "just do it."

Assessment and locomotion together form part and parcel of any self-regulatory activity. According to classic theories (see Carver & Scheier, 1990; Gollwitzer, 1990; Higgins, 1989; Kuhl, 1985; Miller, Galanter, & Pribram, 1960; Mischel, 1974, 1981), self-regulation involves comparing and selecting among alternative desired end-states, comparing and selecting among alternative means to attain the selected desired end-state, and initiating and maintaining movement from some current state toward the desired end-state until the desired end-state is attained. However, assessment in and of itself is not enough. One needs to leap after one has looked, that is, commit the mental and physical resources required to initiate and maintain action that will reduce the discrepancy between one's current state and the desired end-state.

Control theories generally treat the functions of assessment and locomotion as inseparable parts of the whole of self-regulation and, hence, as functionally interdependent. Presumably, from this perspective, the intensity of both should covary with the degree to which a given self-regulatory activity mattered to the individual, and hence they should be positively correlated. In contrast, our present focus is on the degree to which each of these functions receives an independent emphasis. The notion that distinct self-regulatory functions can receive differential emphasis is found in other models as well.

Specifically, the rubicon model of action phases in goal-oriented behavior (see, e.g., Gollwitzer, 1990; Gollwitzer, Heckhausen, & Stellar, 1990; Heckhausen & Gollwitzer, 1987), inspired by Lewin's distinction between goal setting and goal striving (e.g., Lewin, Dembo, Festinger, & Sears, 1944), takes a temporal perspective on the course of action and proposes that different self-regulatory phenomena are associated with each phase. A distinction is made between the *deliberative* function of establishing and committing to fulfilling a preference or wish, which forms a *goal intention,* and the *implemental* function of planning and committing oneself to a particular course of action to fulfill the wish, which forms *behavioral intentions.* Mind-sets can emphasize either the deliberative or implemental functions. It should be noted that locomotion or assessment concerns can play a role in both deliberation and implementation. Indeed, deliberation and implemental processes could vary depending on the extent to which assessment or locomotion is emphasized. When deliberating, for example, one could be concerned with critically comparing alternative goals to select the best one or the right one, or one could be more concerned with completing deliberation promptly in order to move on through implementation to action initiation. The conceptual distinction between deliberative and implemental functions, then, is different from the distinction between assessment and locomotion functions.

The notion that distinct self-regulatory functions can receive differential emphasis is also found in Kuhl's (1985) distinction between action and state orientations. Kuhl (1985) described a fully developed intentional action structure as including a represented relation between a present state and a desired future state and action alternatives that may transform the present state into the future state, as well as the commitment of the actor to perform the intended action under specified situational conditions. When individuals have an action orientation their attention is focused on such a fully developed intentional action structure. In contrast, a state orientation is characterized by perseverating cognitions about some particular state, such as a present state, a past state, or a future state, or even by the absence of any coherent cognition, as in absentmindedness. To the extent that individuals have a state orientation, they are representing only part of the intentional action structure, if that, and in that sense they are absent an action orientation.

The distinction between locomotion and assessment functions does not concern how much of a fully developed intentional action structure is represented. Conceptually, therefore, the distinction between action versus state orientations is quite different from the distinction between locomotion versus assessment functions. The role of commitment in Kuhl's (1985) model does suggest some relation between these distinctions, however. Kuhl (1985) proposed that commitment to taking action is likely to be higher in the action than the state orientation because the latter can fail to represent the relation component that encodes the commitment quality of intention. Actions are expected to be initiated sooner, then, when individuals are in an action versus state orientation (as measured by the Action–Decision subscale of Kuhl's (1985) Action-Control Scale). Because locomotion concerns should increase and assessment concerns decrease, prompt action initiation—action versus state orientation (as measured by the Action–Decision subscale)—would be expected to have a positive association with locomotion and a lower and, if anything, negative association with assessment.

We assume that for various reasons having to do with temperament and socialization, different individuals can develop different degrees of concern for the locomotion and assessment modes. We further assume that the locomotion and assessment modes are relatively orthogonal to each other. After all, the reasons for why an individual may crave movement or progress (i.e., emphasizing locomotion) would seem quite unrelated to reasons for why she or he may develop a concern for standards and for critically evaluating alternatives (i.e., emphasizing assessment). Because of such independence, it is possible for some individuals to be high on both assessment and locomotion, leading to potential conflicts where these tendencies might have opposing action implications, low on both, or high on one and low on the other.

SOCIAL PSYCHOLOGICAL CHARACTERISTICS OF ASSESSMENT AND LOCOMOTION

Our analysis of assessment and locomotion affords the derivation of several specific characteristics that should be associated with each of these self-regulatory dimensions. We briefly describe these in turn.

Focus on Self-Evaluation

High versus low assessors are assumed to focus on evaluations of their actual self in comparison with alternative standards, including those associated with other people (e.g., you comparing yourself with others; others comparing you with who they want or expect you to be). High (vs. low) locomotors, in contrast, should not be as concerned with self-evaluation.

Affectivity

Because high (vs. low) assessors may perennially evaluate themselves, and because evaluations may evoke varying affective reactions, they should exhibit greater emotional instability than high (vs. low) locomotors. A self-evaluative focus may, moreover, highlight the discrepancies between one's actual self as one state and the desired self as an alternative state (Duval & Wicklund, 1972; Higgins, 1987). As a consequence, high (vs. low) assessors may exhibit more pronounced negative affect and lower optimism and self-esteem. Furthermore, because locomotion or forward movement contributes to a sense of progress, high (vs. low) locomotors may be characterized by a greater degree of positive affect and higher optimism and self-esteem.

Decisiveness

Because of its emphasis on engaging in goal-directed action, a quintessential feature of locomotion is shortened preactional decision processes allowing action to proceed. Therefore, high (vs. low) locomotors should exhibit a greater degree of decisiveness. High (vs. low) assessment, on the other hand, should be inversely related to decisiveness because it inherently involves a more extensive consideration of which goal should be pursued at a given time, or which means to a particular goal may best be selected.

Task Orientation

High (vs. low) locomotors should exhibit a stronger task orientation—the tendency to attend to an activity and persist conscientiously until completion. Assessment, on the other hand, is less directly relevant to task orientation. If anything, it should be negatively related to it because high assessors may disrupt smooth task flow by stopping more often to evaluate their selection of means or their choice of goals in the midst of engaging in a particular activity.

Intrinsic Motivation and Autonomy

High (vs. low) locomotors may exhibit higher levels of intrinsic and autonomous motivation because their propensity to remain "in motion" promotes an increased level of experiential involvement in various tasks (e.g., Csikszentmihalyi, 1975). In contrast, high (vs. low) assessors, concerned as they are with evaluation, may care more about the evaluative consequences of their activities or about how their performance is perceived by others or measures up against external criteria. If high (vs. low) assessors then are more likely to experience activities as means toward ends (goals), then their task motivation may often be relatively extrinsic and nonautonomous (Deci & Ryan, 1991).

Self-Regulatory Emphasis

A number of further differences between the locomotion and assessment dimensions may relate to the contrasting ways in which individuals high (vs. low) on either locomotion or assessment may carry out self-regulatory activities, such as the following items.

(1) Emphasis on Expectancy Versus Value

High (vs. low) locomotors may pay particular attention to the attainment expectancy of goals, in that attainable goals promise quick movement, whereas unattainable ones signal possible hindrance or thwarting of movement—an obvious anathema to locomotors. In contrast, high (vs. low) assessors may pay particular attention to a goal's value or importance because of their concern with pursuing the right goals, the best goals at a given time, or those goals that will reflect on them most positively if attained.

(2) Means Generation and Selection

In their attempt to create a large enough selection to afford optimal choice, high (vs. low) assessors may generate a larger number of means per goal. In their impatience to get going, high (vs. low) locomotors may be quick to select a "best" means to a given goal.

(3) Attainment Outcomes

Successful completion of most (at least moderately complex) tasks should require a relatively high degree of both the assessment and the locomotion components. Blind locomotion, lacking adequate prior assessment, and paralyzing assessment, lacking translation into action, may equally court failure.

(4) Discrepancy Spotting

The assessment construct has a direct implication for individuals' sensitivity to various discrepancies (from standards, alternatives, etc.), high (vs. low) assessors being expected to exhibit a higher such sensitivity. By contrast, the locomotion construct as such has no direct implication for discrepancy spotting. Nonetheless, in circumstances where discrepancy spotting may take away from the opportunity for movement, locomotion and discrepancy spotting may be inversely related. Overall, however, assessment should exhibit a stronger relation to discrepancy spotting than locomotion.

(5) Activity Pace

The opposite pattern of relations should be evident in regard to the pace of activities or the speed of task performance. Here, the locomotion construct has a clear and direct implication, high (vs.

low) locomotors being expected to exhibit the quicker pace, whereas the assessment construct does not. Nonetheless, in circumstances where assessment activities are compromised by the pace of performance, assessment should bear an inverse relation to pace. Overall, however, locomotion should exhibit a stronger relation to activity-pace than assessment.

Research reported in the following pages submits the foregoing theoretical ideas to empirical test. We first describe the scale-construction process of two separate instruments designed to tap the assessment and locomotion orientations. We subsequently report the psychometric properties of the two scales, including their factorial structures and their reliabilities, both computed across numerous replication samples. We then describe research designed to assess the discriminant and convergent validities of our assessment and locomotion scales, including their relations with other instruments designed to measure related and unrelated constructs. The validation phase of our research also includes known group studies and laboratory experiments exploring additional psychological differences postulated to distinguish individuals scoring high (vs. low) on our assessment and locomotion instruments.

SCALE CONSTRUCTION

Study 1: Developing the Locomotion and Assessment Scales

Our entire process of scale construction was theoretically driven and went through several screening stages. As a first step, the constructs of assessment and locomotion were defined. As noted earlier, assessment was conceptualized as the comparative aspect of self-regulation concerned with critically evaluating entities or states, such as goals and means, in relation to standards and alternatives in order to judge their relative qualities. That definition entails that individuals high on assessment would evaluate themselves and other persons on various dimensions, including the quality of one's own and others' social interactions, various positive and negative characteristics, outcomes and attainments, and so forth. Locomotion, by contrast, was defined as the aspect of self regulation concerned with movement from state to state, hence, with the initiation and maintenance of goal-directed movement in a straightforward and direct manner, without undue distractions and delays. That definition entails that individuals high on locomotion should be high energy "doers" and "go-getters" who welcome the opportunity to act in relative disregard of the costs and who loathe merely waiting and watching rather than acting.

On the basis of the foregoing characterizations, we proceeded to develop items for the locomotion and assessment scales. We sampled broadly from the conceptual universes assumed to represent the two constructs to generate a pool of opinion statements about the various postulated features of locomotion and assessment. Our assessment items reflected the degree to which respondents were preoccupied with comparisons and evaluations against all kinds of standards and alternatives. Some sample items are "I spend a great deal of time taking inventory of my positive and negative characteristics," "I like evaluating other people's plans," and "I often compare myself with other people." The locomotion items tapped the degree to which respondents felt an urgency to move forward toward their goals and engage in doing. Some sample locomotion items are "When I decide to do something, I can't wait to get started," "I enjoy doing things actively, more than just watching and observing," and "By the time I accomplish a task, I already have the next one in mind." Along these lines, we generated an initial pool of 40 locomotion items and 40 assessment items.

The initial item pool then underwent reviews by two of the present authors (Arie W. Kruglanski and E. Tory Higgins) and several University of Maryland graduate students to whom the concepts of assessment and locomotion were thoroughly explained. Statements judged to be ambiguous, laden with surplus meaning, or lacking in conciseness were revised or eliminated. This reduced our overall pool to 19 locomotion items and 21 assessment items. These were administered to 13 independent samples (shown in Table 1). To obtain samples with sufficient power for appropriate exploratory and confirmatory factor analyses, some related samples were combined to form Aggregate Samples A (Independent Samples 1 and 2), B (Independent Samples 3 and 5), C (Independent Sample 6 only), and D (Independent Samples 9 and 10). The main objective here was to investigate the psychometric structure of the two scales across divergent groups of respondents and at different administration times. To that end, we exploited opportunities for data collection at diverse U.S. locations. An unintended consequence of such methodological opportunism (and the reduced control over the administration of the scales) was an occasional loss of gender information about some of the respondents. By and large, however, our samples afford a relatively complete picture of the scales' essential properties and inspire confidence in their robustness and stability. These samples are described next, followed by our psychometric analyses.

Sample A

This sample consisted of 341 introductory psychology students from the University of Maryland, College Park, and 410 of their counterparts at the University of Arizona. For this sample the locomotion and assessment items were interspersed within the same questionnaire, administered as part of a larger mass testing session in the Spring 1996 semester at both universities. Thus, common to the two subparts of this sample was the time period during which data were collected. Originally, Sample A counted a total of 751 students. After eliminating data for 51 participants who scored at or above the midpoint on the 6-item Lie Scale index (nearly 7% of the original sample), the resultant N was reduced to 701. No gender data were available on the Arizona sample.

The mean locomotion score was 4.14 (SD = 0.69), and the alpha reliability coefficient for the locomotion scale was .80. The mean assessment score was 3.92 (SD = 0.75), and the alpha reliability coefficient was .79. Overall, the locomotion mean score was reliably higher than the mean assessment score, $t(700) = 6.28$, $p < .001$. The locomotion and assessment scores were weakly, but reliably, correlated in this particular sample, $r = .11$, $p < .005$. Sex differences were examined for the Maryland subsample. For locomotion, women scored somewhat higher than men (Ms = 4.24 and 4.03), $t(322) = 2.64$, $p < .01$. However, for assessment, the sex difference was not reliable (Ms = 4.05 and 3.91), $t(322) = 1.61$, $p = .108$.

Table 1
Individual Samples and Scale Descriptives for Locomotion and Assessment Scales

Sample	*N*	*M*	*SD*	α	r_{loco}: assm	*r* with faking	α faking
			Locomotion scale				
1. UMCP students (S96)	324	4.14	0.71	.82	.12*	.06	.62
2. UMCP students (paid S97)	192	4.12	0.75	.84	.11	−.11	.72
3. UMCP students (F96)	453	4.07	0.62	.79	.11*	.12**	.59
4. UMCP students (lab, F96)	306	4.14	0.66	.80	.10	−.09	.48
5. UMCP students (S97)	269	4.28	0.68	.83	.10	.20**	.51
6. UMCP students (S98)	615	4.11	0.68	.79	.13**	.01	.58
7. UMCP students (lab, S98)	131	4.12	0.71	.81	−.07	.02	.54
8. U. Arizona students (S96)	387	4.15	0.67	.78	.09	.05	.55
9. Columbia students (S93)	321	4.13	0.81	.83	.04	.04	.53
10. Columbia students (S94)	177	4.16	0.81	.84	.10	−.03	.66
11. Columbia students (S95)	423	4.14	0.85	.85	.07	.08	.49
12. U.S. Army recruits	146	4.50	0.69	.79	.10	.01	.47
13. Elite army training program	490	4.14	0.61	.81	.20***	.03	.63
			Assessment scale				
1. UMCP students (S96)	324	3.98	0.75	.80		−.14**	
2. UMCP students (paid, S97)	192	4.03	0.71	.79		−.14**	
3. UMCP students (F96)	453	3.90	0.65	.75		−.07	
4. UMCP students (lab, F96)	306	3.90	0.69	.77		−.14*	
5. UMCP students (S97)	269	4.08	0.70	.78		−.11	
6. UMCP students (S98)	615	4.03	0.72	.78		−.17***	
7. UMCP students (lab, S98)	131	3.87	0.71	.76		−.22*	
8. U. Arizona students (S96)	387	3.86	0.73	.78		−.11*	
9. Columbia students (S93)	321	4.09	0.77	.79		−.08	
10. Columbia students (S94)	177	4.07	0.70	.75		−.06	
11. Columbia students (S95)	423	4.01	0.80	.80		−.15**	
12. U.S. Army recruits	146	3.68	0.63	.60		−.20**	
13. Elite army combat training	490	3.43	0.45	.57		.03	

Note. The term *lab* indicates students who participated in the experiment in the lab setting of their class and who, in turn, received course credit. loco = locomotion; assm = assessment; UMCP = University of Maryland, College Park; U. = University of; S = Spring; F = Fall; 93 = 1993; 94 = 1994; and so forth.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Sample B

Sample B consisted of introductory psychology students from the University of Maryland, College Park, who completed the locomotion and assessment items dispersed within the same questionnaire in the Fall, 1996 and Spring, 1997 semesters. Thus, common to the two subparts of this sample was the location at which the research was administered. Originally, this sample consisted of 757 cases. After eliminating 35 cases on the basis of the Lie scale criterion (3% of the original sample), *N* was reduced to 722. The resultant sample consisted of 338 men (47%) and 384 women (53%).

The mean locomotion score was 4.14 ($SD = 0.65$), $\alpha = .81$. The mean assessment score was 3.97 ($SD = 0.67$), $\alpha = .76$. Overall, the mean locomotion score in this sample was reliably higher than the mean assessment score, $t(721) = 5.43$, $p < .001$. Locomotion and assessment scores were correlated weakly, but reliably, $r = .13$, $p < .005$. As in Sample A, women scored higher than men on locomotion (Ms = 4.22 and 4.06), $t(720) = 3.12$, $p < .005$, whereas the sex difference for assessment was not reliable, $t < 1$.

Sample C

Sample C consisted of introductory psychology students at the University of Maryland, College Park, who completed the locomotion and assessment items (again dispersed within the same questionnaire) in Spring, 1998. Originally there were 654 cases. After eliminating 45 cases on the basis of the Lie Scale criterion (4% of the original cases), the resultant *N* was 609, consisting of 271 men (45%) and 333 women (55%). (Gender information was unavailable for 5 participants.)

The mean locomotion score was 4.12 ($SD = 0.67$), $\alpha = .79$. The mean assessment score was 4.04 ($SD = 0.72$), $\alpha = .78$. Overall, the locomotion mean was reliably higher than the assessment mean, $t(608) = 2.20$, $p < .05$. As in Samples A and B, the locomotion and assessment scores were weakly, but reliably, correlated, $r = .13$, $p < .005$. No reliable sex differences were found in this sample either for locomotion, $t(602) = 1.41$, $p = .16$, or for assessment, $t < 1$.

Sample D

Sample D consisted of Columbia University undergraduates (of various majors) paid to complete the locomotion and assessment measures either in Spring, 1993 or in Spring, 1994. As in Sample B, common to these two subsamples was the location at which the research was administered. Unlike the other three samples, these students completed the locomotion and assessment scales as separate questionnaires. Originally, there were 531 cases. After elim-

inating 33 cases on the basis of the lie scale criterion (4% of the original cases), the resultant N was 498. Information about gender was unavailable for this sample.

The mean locomotion score was 4.14 (SD = 0.81), α = .84. The mean assessment score was 4.08 (SD = 0.74), α = .77. Overall, locomotion and assessment means did not significantly differ, $t(497) = 1.20$, $p = .23$. Finally, in this sample, locomotion and assessment scores were not reliably correlated, $r = .06$, $p = .20$.

Exploratory Factor Analysis

Even though our items were generated and screened in accordance with theoretical considerations, the narrowed item pool we came up with (19 and 21 for locomotion and assessment, respectively) was still deemed excessively large for practical purposes. We thus conducted exploratory factor analyses on our four aggregated samples to afford the choice of the optimal items on the basis of theoretical considerations and recursive psychometric feedback from the data (Muliak, 1987). Replication across diverse samples, rather than a combined omnibus analysis, constituted an important part of our scale development strategy. Its major purpose was to ensure that we did not capitalize on chance or on sample-specific variation.

On the basis of scree plot analyses, a two-factor solution was retained for each scale. As shown in Table 2, for both locomotion and assessment, the second factors were relatively weak, explaining about 10% or less of the variance, and theoretically uninterpretable. We deleted some of the items with high loadings on these factors, and whose specific wording may have been problematic and subject to different interpretations. Thus, the criteria for deletion were theoretical; the exploratory psychometric analysis merely helped to "raise the flag" and occasioned a reconsideration of some of our items.

These procedures resulted in a 12-item assessment scale and a 12-item locomotion scale, whose items were highly relevant theoretically as well as endowed with desirable psychometric properties. The items comprising the two scales are shown in Table 3.

Table 2
Exploratory Factor Analysis of Locomotion and Assessment Items: Eigenvalue and Percentage Variance Explained for Each of the Two Retained Factors

	Eigenvalue		% variance	
Sample	Factor 1	Factor 2	Factor 1	Factor 2
	Locomotion scale			
A	4.37	1.80	23.01	9.52
B	4.58	1.90	24.13	10.03
C	4.30	1.94	23.88	8.79
D	5.36	1.81	28.21	9.52
	Assessment scale			
A	4.82	2.22	21.92	10.13
B	4.54	2.14	20.63	5.51
C	4.73	1.77	22.52	8.44
D	4.93	2.34	22.39	10.63

Note. Sample A combines Individual Samples 1 and 2, Sample B combines Individual Samples 3 and 5, Sample C is the same as Individual Sample 6, and Sample D combines Individual Samples 9 and 10.

Table 3
Items That Make Up the Locomotion and Assessment Scales

Item
Locomotion items
1. I don't mind doing things even if they involve extra effort.
2. I am a "workaholic."
3. I feel excited just before I am about to reach a goal.
4. I enjoy actively doing things, more than just watching and observing.
5. I am a "doer."
6. When I finish one project, I often wait awhile before getting started on a new one. (reverse-scored)
7. When I decide to do something, I can't wait to get started.
8. By the time I accomplish a task, I already have the next one in mind.
9. I am a "low energy" person. (reverse-scored)
10. Most of the time my thoughts are occupied with the task I wish to accomplish.
11. When I get started on something, I usually persevere until I finish it.
12. I am a "go-getter."
Assessment items
1. I never evaluate my social interactions with others after they occur. (reverse-scored)
2. I spend a great deal of time taking inventory of my positive and negative characteristics.
3. I like evaluating other people's plans.
4. I often compare myself with other people.
5. I don't spend much time thinking about ways others could improve themselves. (reverse-scored)
6. I often critique work done by myself or others.
7. I often feel that I am being evaluated by others.
8. I am a critical person.
9. I am very self-critical and self-conscious about what I am saying.
10. I often think that other people's choices and decisions are wrong.
11. I rarely analyze the conversations I have had with others after they occur. (reverse-scored)
12. When I meet a new person I usually evaluate how well he or she is doing on various dimensions (e.g., looks, achievements, social status, clothes).

Note. In our validation research, the locomotion and assessment items were interspersed in a single questionnaire along with six faking items, not presented as separate sets. This ordering may be obtained by request from the authors.

For both, respondents indicate the extent to which they endorse each item by responding to a 6-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*).

Study 2: Evaluating the Structural Validity of the Locomotion and Assessment Scales

The theory behind both the locomotion and the assessment constructs assumes that both are unidimensional. Accordingly, we applied a hierarchical confirmatory factor analysis (HCFA) to test one first-order factor model for each scale. All of the HCFA analyses were conducted using LISREL 8 (Jöreskog & Sörbom, 1993), with the sample covariance matrix as input and maximum likelihood for parameter estimation. Each item was constrained to load on only one factor, and a metric was set for each factor by arbitrarily constraining one loading to unity. Because the chi-

square goodness-of-fit is sensitive to sample size and violation of the assumption of multivariate normality, we included five other fit indexes: chi-square (with degree of freedom), the goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI), the comparative fit index (CFI), and root-mean-square residual (RMR). These indexes are recommended by various sources (Bollen, 1989; Muliak, 1987; Tanaka, 1993).

Results

The means and standard deviations for each of the 12 locomotion and 12 assessment items are given in Table 4. These results indicate a considerable consistency in item means and standard deviations across our four data sources.

Hierarchical Confirmatory Factor Analysis

Table 5 presents a summary of the fit indexes for each model tested for all four data sources. As can be seen, the fit of the one-factor model for both the locomotion and assessment scales was adequate (i.e., the GFIs were higher than .90, the AGFIs and CFIs were larger than .80, and the RMRs were in the neighborhood of .10).

We used several additional methods to assess the unidimensionality of our scales, including reliability indexes (Green, Lissitz, & Muliak, 1977); interitem correlations and item–scale correlations (Hattie, 1985); principal-components analysis, for which we additionally computed the Lumsden (1961) index (ratio of the first and second eigenvalues—i.e., variance explained by the first principal component relative to variance explained by the second principal component); the Divgi (1980) index (difference between the first and second eigenvalues divided by the second and third eigenvalues); and the Atash (1994) index expressed as

$$\mathrm{AI} = [(r_{kk}/p_1) + (p_2/p_1) + (p_3/p_1)]/3,$$

where r_{kk} is the reliability coefficient, p_1 is the proportion of variance explained by the first principal component, p_2 is the proportion of variance explained by the second principal component, and p_3 is the proportion of variance explained by the third principal component.

All these analyses yielded strong evidence for unidimensionality. As shown in Tables 6, 7, and 8, the coefficient alphas for our scales were relatively high (higher than .80 for the Locomotion Scale and close to .80 for the Assessment Scale), as were the mean item–item intercorrelations (higher than .20) and mean item–scale correlations.

Table 9 presents the proportion of variance explained by the first principal component (PC), the Lumsden Index, the Divgi Index, and the Atash Index for each of the scales for the four data sources under consideration. Because there is no consensus among researchers as to the criteria to be used for the various indexes, we use stringent standards—values of .30 for the proportion variance, 3.00 for Lumsden Index, and 1.00 for the Atash Index. On the basis of these criteria as well as the previously presented tests, it can be concluded that both the Assessment and Locomotion Scales meet the assumptions of unidimensionality.

Table 4
Means (and Standard Deviations) for Locomotion and Assessment Items in Samples A–D

Item	Sample A (n = 702)	Sample B (n = 722)	Sample C (n = 609)	Sample D (n = 498)
		Locomotion scale		
1	4.45 (1.14)	4.40 (1.05)	4.51 (1.14)	4.35 (1.29)
2	2.70 (1.47)	2.68 (1.41)	2.78 (1.44)	3.08 (1.56)
3	5.16 (0.99)	5.21 (0.87)	5.22 (0.92)	4.98 (1.10)
4	4.79 (1.17)	4.91 (1.06)	4.72 (1.21)	4.73 (1.15)
5	4.43 (1.14)	4.40 (1.06)	4.35 (1.15)	4.41 (1.28)
6	3.24 (1.42)	3.19 (1.26)	3.33 (1.10)	3.41 (1.47)
7	4.59 (1.15)	4.62 (1.06)	4.48 (1.28)	4.39 (1.36)
8	3.66 (1.32)	3.62 (1.18)	3.68 (1.38)	3.75 (1.40)
9	4.42 (1.41)	4.48 (1.32)	4.34 (1.21)	4.44 (1.45)
10	4.00 (1.19)	3.98 (1.12)	3.93 (1.19)	3.83 (1.37)
11	4.18 (1.19)	4.11 (1.14)	4.13 (1.41)	4.42 (1.36)
12	4.18 (1.25)	3.13 (1.16)	4.40 (1.23)	4.09 (1.38)
		Assessment scale		
1	4.50 (1.281)	4.71 (1.13)	4.67 (1.27)	5.07 (1.12)
2	3.30 (1.51)	3.37 (1.48)	3.33 (1.57)	3.37 (1.53)
3	3.61 (1.37)	3.63 (1.23)	3.76 (1.33)	3.64 (1.46)
4	4.25 (1.39)	4.19 (1.35)	4.30 (1.36)	4.12 (1.51)
5	3.22 (1.39)	3.20 (1.33)	3.46 (1.41)	3.32 (1.49)
6	4.40 (1.10)	4.41 (1.06)	4.49 (1.01)	4.47 (1.22)
7	4.21 (1.30)	4.33 (1.25)	4.31 (1.26)	4.33 (1.33)
8	3.97 (1.41)	4.13 (1.34)	4.08 (1.39)	4.43 (1.40)
9	4.12 (1.43)	4.21 (1.38)	4.37 (1.37)	4.34 (1.37)
10	3.09 (1.25)	3.03 (1.20)	3.09 (1.23)	3.27 (1.32)
11	4.36 (1.41)	4.48 (1.24)	4.61 (1.31)	4.76 (1.28)
12	3.93 (1.39)	3.93 (1.32)	4.05 (1.37)	3.75 (1.55)

Note. Sample A combines Individual Samples 1 and 2, Sample B combines Individual Samples 3 and 5, Sample C is the same as Individual Sample 6, and Sample D combines Individual Samples 9 and 10.

Further Data Collection

Because only 7 of the 13 independent samples mentioned earlier were used for the confirmatory factor analyses, we have reported supplementary evidence for scale unidimensionality (Cronbach's alpha) as well as other individual-level sample data of interest in Table 1.

Internal consistency. As can be seen, for the Locomotion Scale, Cronbach's alpha ranged from .78 to .85. Collapsing across the 13 samples, the overall alpha for locomotion was .82. In the omnibus sample (N = 4,256), all 12 locomotion items produced item–total correlations greater than .34 (average item–total r = .47), and elimination of any one of them reduced the alpha.

For the Assessment Scale, alpha ranged from .57 to .80. Collapsing across the 13 samples, the overall alpha for assessment was .78. In the omnibus sample, all 12 assessment items produced item–total correlations greater than .28 (average item–total r = .41), and elimination of any one of them reduced the alpha. With the exception of the alphas for the Assessment Scale in the two military samples, those obtained for both locomotion and assessment across the many samples indicate levels of internal consistency that are considered good (Nunnaly, 1978).

Temporal stability. Information about the temporal stability of the 12-item Locomotion and Assessment Scales was available from three different undergraduate samples from the University of Maryland, College Park. In each sample, most participants were

Table 5
Model Fit for the Locomotion and Assessment Scales

Data set	*n*	χ^2	*df*	χ^2 per *df*	GFI	AGFI	CFI	RMR
				Locomotion scale				
Null model								
Sample A	701	2,693.80	136	19.81	.55	.50	.00	.35
Sample B	722	3,252.16	136	23.91	.50	.43	.00	.35
Sample C	609	2,366.98	136	17.40	.55	.50	.00	.34
Sample D	498	2,576.28	136	18.94	.45	.39	.00	.49
One-factor model								
Sample A	701	370.14	54	6.85	.92	.88	.82	.11
Sample B	722	390.90	54	7.24	.91	.87	.83	.09
Sample C	609	326.88	54	6.05	.91	.87	.82	.11
Sample D	498	316.02	54	5.85	.90	.85	.85	.12
				Assessment scale				
Null model								
Sample A	701	2,659.79	153	17.38	.55	.50	.00	.36
Sample B	722	2,566.09	153	16.77	.58	.53	.00	.31
Sample C	609	2,245.86	153	14.68	.56	.50	.00	.34
Sample D	498	2,101.34	153	13.73	.54	.49	.00	.40
One-factor model								
Sample A	701	325.00	54	6.02	.93	.89	.83	.11
Sample B	722	304.13	54	5.63	.93	.90	.81	.10
Sample C	609	267.32	54	4.95	.93	.90	.83	.10
Sample D	498	281.72	54	5.22	.91	.87	.78	.13

Note. Sample A combines Individual Samples 1 and 2, Sample B combines Individual Samples 3 and 5, Sample C is the same as Individual Sample 6, and Sample D combines Individual Samples 9 and 10. GFI = goodness-of-fit index; AGFI = adjusted goodness-of-fit index; CFI = comparative fit index, RMR = root-mean-square residual.

introductory psychology students who completed the Locomotion and Assessment Scales once in a mass testing session at the beginning of the semester and then again as part of a laboratory session approximately 4–8 weeks later. In the first such sample ($N = 100$), the cross-temporal correlations for the Locomotion and Assessment Scales were .76 and .77, respectively. In a second sample ($N = 72$), the correlations were .74 and .79, respectively. In a third sample ($N = 79$), the correlations were .81 and .57. All of the correlations were significant at $p < .001$. Weighted average correlations were computed across the three samples, using the r to z' transformation and the formula described by McNemar (1969). For locomotion, average $r = .77$; for assessment, average $r = .73$. Thus, participants' responses to both scales appear to be substantially consistent over time.

Table 6
Coefficient Alpha for Locomotion and Assessment Scales in Samples A–D

Sample	Items	Coefficient α
	Locomotion scale	
A	12	.82
B	12	.81
C	12	.81
D	12	.86
	Assessment scale	
A	12	.79
B	12	.76
C	12	.78
D	12	.77

Note. Sample A combines Individual Samples 1 and 2, Sample B combines Individual Samples 3 and 5, Sample C is the same as Individual Sample 6, and Sample D combines Individual Samples 9 and 10.

Table 7
Mean, Lowest, and Highest Correlation Between Pairs of Scale Items in Samples A–D, by Scale

		Item–pair correlations		
Sample	Item pairs	*M*	Lowest	Highest
	Locomotion scale			
A	66	.25	.04	.61
B	66	.26	.01	.64
C	66	.24	.01	.55
D	66	.30	.11	.67
	Assessment scale			
A	66	.24	.08	.54
B	66	.21	.06	.46
C	66	.23	.06	.51
D	66	.22	−.01	.49

Note. Sample A combines Individual Samples 1 and 2, Sample B combines Individual Samples 3 and 5, Sample C is the same as Individual Sample 6, and Sample D combines Individual Samples 9 and 10.

Table 8
Mean, Lowest, and Highest Item–Scale Total Correlations, by Scale

Sample	Items	Item–total correlations		
		M	Lowest	Highest
		Locomotion scale		
A	12	.55	.44	.75
B	12	.57	.38	.75
C	12	.55	.38	.72
D	12	.60	.41	.74
		Assessment scale		
A	12	.55	.46	.65
B	12	.53	.42	.62
C	12	.54	.35	.64
D	12	.54	.39	.63

Note. Sample A combines Individual Samples 1 and 2, Sample B combines Individual Samples 3 and 5, Sample C is the same as Individual Sample 6, and Sample D combines Individual Samples 9 and 10.

Study 3: Cross-Cultural Validation of the Scales' Structure

We translated the two scales into Italian (appropriately back-translating them into English), and administered them to a sample of students at the University of Rome "La Sapienza." The scales this time were presented in the same 24-item questionnaire with the 12 locomotion items being followed by the 12 assessment items. Our Italian sample consisted of 419 undergraduates, 103 men and 316 women, who participated in the study on a voluntary basis. Their mean age was 21.21 years (SD = 2.72).

The mean locomotion score for this sample was 4.54, and the alpha reliability coefficient for the locomotion scale was .73. The mean assessment score was 3.59, and the alpha reliability coefficient for the assessment scale was also .73. The difference between the locomotion and assessment means in this sample was statistically significant, $F(1, 417) = 423.26, p < .000$, but there were no significant sex differences among our participants on either locomotion or assessment. Also, the correlation between locomotion and assessment in our sample (.04) was not significantly different from zero.

To analyze the structure of the Italian version of the locomotion and assessment scales, we looked at the degree to which our data could be fitted by one first-order factor model for each scale using LISREL 8 (Jöreskog & Sörbom, 1993). Our results indicated that the fit of the one-factor model for both the locomotion and assessment scales was adequate and highly similar to that obtained with the American samples. The relevant fit indexes for the locomotion and assessment models and the pertinent null models are summarized in Table 10.

SCALE VALIDATION

Construct Validity

Study 4: Known-Groups Analyses

A version of the known-groups technique was used to assess construct validity. We expected that military personnel, compared with college students, would place a relatively greater psychological emphasis on action initiation and maintenance than on comparing alternatives and standards. Data from participants in the two military samples were combined into one group, and the data from the 11 college samples were combined into another (see Table 11). Participants' locomotion and assessment scores were then submitted to a mixed-model (Group × Scale) analysis of variance (ANOVA). A main effect for group, $F(1, 4254) = 11.85, p < .005$, indicated that collapsing across scale, college students tended to score slightly higher than did the military participants, Ms = 4.06 and 3.98, respectively. The main effect for scale was also reliable, $F(1, 4254) = 856.53, p < .001$. Overall, participants tended to score higher on locomotion (M = 4.19) than on assessment (M = 3.91). Most importantly, the predicted Group × Scale interaction was highly reliable, $F(1, 4254) = 474.92, p < .001$. As expected, participants from the military scored higher (M = 4.50) than college participants (M = 4.14) in locomotion, $t(4254) = 12.16, p < .001$. Conversely, military participants scored lower (M = 3.46) than college participants (M = 3.98) on assessment, $t(4254) = 17.09, p < .001$.

We also examined expected differences as a function of undergraduates' college majors, anticipating that students pursuing such applied, action-oriented majors as business, physical therapy, physical education, kinesiology, and so on would tend to emphasize locomotion more (and assessment less) than students majoring in more analytic areas such as history, physics, and computer science. Locomotion and assessment scores of students from the former constellation of majors (Group 1; N = 95) were compared with those of students from the latter group (Group 2; N = 80) in a mixed-model (Major Group × Scale) ANOVA. A main effect of scale, $F(1, 173) = 11.00, p < .01$, revealed that students in this sample scored higher on the locomotion index (M = 4.45) than on the assessment index (M = 3.95). The expected Major Group × Scale interaction also was reliable, $F(1, 173) = 17.41, p < .001$. Because the locomo-

Table 9
Percentage of Variance Explained by First Principal Component (PC) and the Lumsden (1961), Divgi (1980), and Atash (1994) Indexes, by Scale

Sample	Index of Unidimensionality			
	First PC	Lumsden	Divgi	Atash
		Locomotion scale		
A	.32	2.98	16.41	1.07
B	.34	3.24	17.52	0.99
C	.31	2.81	15.19	1.10
D	.37	2.54	10.85	0.94
		Assessment scale		
A	.31	3.18	45.84	1.06
B	.28	2.60	93.05	1.13
C	.30	3.05	18.87	1.07
D	.29	2.68	11.06	1.11

Note. The First PC Index can range from 0 to 1. The remaining indexes have a lower boundary of 0, but no absolute upper boundary. Sample A combines Individual Samples 1 and 2, Sample B combines Individual Samples 3 and 5, Sample C is the same as Individual Sample 6, and Sample D combines Individual Samples 9 and 10.

Table 10
Model Fit for the Locomotion and Assessment Scales in the Italian Sample

Scale/model	*n*	χ^2	*df*	χ^2 per *df*	GFI	AGFI	CFI	RMR
Locomotion								
Null model	419	890.60	66	13.49	.65	.58	—	.20
One-factor model	419	183.48	54	3.40	.93	.89	.84	.07
Assessment								
Null model	419	774.22	66	11.73	.68	.62	—	.19
One-factor model	419	213.18	54	3.95	.92	.88	.78	.07
Locomotion, Assessment, and Big Five								
Null model	419	2,854.11	91	31.36	.48	.40	—	.27
Seven-factor model	419	200.32	56	3.58	.94	.88	.95	.04

Note. Dash indicates that data were not observed for this index. GFI = goodness-of-fit index; AGFI = adjusted goodness-of-fit index; CFI = comparative fit index; RMR = root-mean-square residual.

tion and assessment indexes were reliably correlated in this sample ($r = .23, p < .01$), the interaction was decomposed via two analyses of covariance (ANCOVAs). In each the effect of major group was computed on one index, controlling for the effect of the other index. Although students in Group 1 scored higher in locomotion (adjusted $M = 4.34$) than did students in Group 2 (adjusted $M = 3.96$), $F(1, 172) = 20.14$, $p < .001$, they also scored lower in assessment (adjusted $M = 3.83$) than did students in Group 2 (adjusted $M = 4.09$), $F(1, 172) = 5.57$, $p < .05$. Thus, students whose majors would be expected to emphasize action over analysis indeed scored higher in locomotion and lower in assessment than did students whose majors would be expected to emphasize analysis over action.

Study 5: Convergent–Discriminant Validity

Correlation Between Indexes

The correlation between the Locomotion and Assessment Indexes was computed in each of the samples and is displayed in Table 1. This correlation was consistently low and typically slightly positive across the samples, ranging from −.07 to .20. Overall, the correlation between the two indexes was quite small, but it was reliable in the large omnibus sample, $r(4256) = .11, p < .001$. The very small amount of overlapping variance (about 1%) is consistent with the proposition that the locomotion and assessment scales are measuring distinct psychological dimensions.

Correlations With Socially Desirable Responding

The samples reported in this article were initially trimmed on the basis of participants' responses to a set of six "faking" items embedded among the locomotion and assessment items. These items (e.g., "I have never been late for work or for an appointment") were designed to tap self-promotional or socially desirable tendencies in participants' responding, and they were averaged to form an index. In the pretrimmed omnibus sample ($N = 4528$) a principal-components analysis conducted on the six items produced a single-factor solution ($\alpha = .58$). The average item–total correlation was .31, and elimination of any of the items reduced the alpha coefficient. Across the 13 individual samples, the correlation between locomotion and faking scores ranged from −.11 to .20, with an overall $r = .06$. The correlation between assessment and faking scores ranged from −.22 to .03, with an overall $r = -.13$. Thus, there was little evidence of a self-promotion bias in participants' responses to the locomotion and assessment items. Trimming the samples for participants scoring over the midpoint on the faking index typically eliminated about 6% of the respondents from each sample.

Correlations With Other Individual Difference Measures

We have administered the Locomotion and Assessment Scales to participants completing a variety of other individual difference measures. These have included the Action–Decision Scale (Kuhl, 1985), the Personal Fear of Invalidity Scale (M. M. Thompson, Naccarato, & Parker, 1989), the Attentional Control subscale of the Short Imaginal Processes Inventory (Huba, Aneshensel, & Singer, 1981), the Need for Cognitive Closure Scale (Webster & Kruglanski, 1994), the Life Orientation Test–Revised (Scheier, Carver, & Bridges, 1994), the Self-Consciousness Scale (Fenigstein, Scheier, & Buss, 1975), the Interaction Anxiety Scale (Leary, 1983), the Center for Epidemiological Studies—Depression (CES-D) Scale (Radloff, 1977), the Psychological Vitality Scale (Ryan & Frederick, 1997), the Functional Impulsivity Scale (Dickman, 1990), Rosenberg's (1965) Self-Esteem Scale, the Need to Evaluate Scale (Jarvis & Petty, 1996), the Jenkins Activity Survey (Jenkins, Zyzanski, & Roseman, 1979), the Interpersonal Orientation Scale (Hill, 1987), the Fear of Failure Scale (Herman, 1990), the Achievement Motivation subscale of Jackson's (1974) Personality Research Form, the NEO-Five Factor Inventory (Costa & McCrae, 1992), the Sixteen Personality Factor Questionnaire (Cattell, Cattell, & Cattell, 1993), and the Social Dominance Orientation Scale (Pratto, Sidanius, Stallworth, & Malle, 1994). The correlations between the locomotion and assessment indices and these measures are displayed in Table 11. As indicated there, not all measures were administered in each sample.

Eyeballing the correlations in Table 11, it is apparent that consistent with our definition of the two constructs, locomotion was most strongly associated with a commitment to prompt action (Action–Decision Scale; weighted average $r = .42, p < .001$); the ability to stay focused on a task (Attentional Control; $r = .43, p < .001$); psychological vitality or energy ($r = .46$, $p < .001$); and measures of achievement striving (or task orientation) such as Type A behavior pattern ($r = .56, p < .001$), personality research form (PRF) achievement orientation ($r = .45$, $p < .001$), as well as NEO conscientiousness ($r = .56, p < .001$). Consistent with our definition of the assessment construct, assessment scores were most strongly associated with fear of invalidity (weighted average $r = .43, p < .001$), discomfort with ambiguity (weighted average

$r = .39, p < .001$), public and private self-consciousness ($r = .54$, $p < .001$ and $r = .50$, $p < .001$, respectively), need for social comparison ($r = .39$, $p < .001$), and neuroticism ($r = .41$, $p < .001$). Later we discuss more specifically the relations of locomotion and assessment with several psychologically meaningful groupings of variables.

Focus on standards of comparison and evaluation. As discussed earlier, we expected assessment to be more strongly related than locomotion to focus on the self and standards of social comparison. We had no particular reason to suspect that they would relate to such factors in opposite ways. Self-focus was measured with Fenigstein et al.'s (1975) scales of public and private self-consciousness. According to these authors, the former refers to a "general awareness of self as a social object," whereas the latter involves "attending to one's inner thoughts and feelings" (p. 523). Comparison with standards was measured with the need for social comparison subscale of Hill's (1987) Interpersonal Orientation Scale. In all these cases, we expected assessment versus locomotion to exhibit a stronger relation to the phenomenon being measured.

Consistent with our predictions, assessment was strongly and positively associated with both public ($r = .54$, $p < .001$) and private self-consciousness ($r = .50$, $p < .001$) and with the measure of need for social comparison ($r = .39$, $p < .001$). Locomotion, on the other hand, was quite weakly associated with private self-consciousness ($r = .17$, $p < .05$) and was largely unrelated to public self-consciousness ($r = .04$, *ns*) and to social comparison motivation ($r = -.04$, *ns*). In all cases, assessment was more strongly positively associated with these variables than was locomotion, Zs = 7.75, 5.18, and 7.45, all ps $< .001$, for public and private self-consciousness and need for social comparison, respectively.

The achievement motivation literature distinguishes between *performance goals,* which involve proving one's competence at an activity, and *mastery goals,* which involve the development of proficiency at the activity (Dweck, 1991). Performance goals involve proving that one can meet some tangible standard for success and, especially, proving that one can do well compared with others. Given that assessment is concerned with self-evaluative comparison processes, we expected assessment to be positively related to performance orientation. Mastery goals involve continually learning and making progress. Given that locomotion is concerned with maintaining movement despite obstacles and setbacks, we expected it to be positively related to mastery orientation. Goal orientations were measured with the Goal Orientation Scale (GOS; Button, Mathieu, & Zajac, 1996). This 16-item scale includes items tapping both *performance orientation* (e.g., "I prefer to do things that I can do well rather than things that I do poorly") and *mastery orientation* (e.g., "The opportunity to do challenging work is important to me").

Although locomotion and assessment were both positively correlated with performance and mastery orientations from the GOS (Sample 13 only; see Table 11), locomotion, as predicted, was more strongly associated with mastery orientation ($r = .50$) than with performance orientation ($r = .24$; $Z = 6.71$, $p < .001$), and assessment, as predicted, was more strongly associated with performance orientation ($r = .41$) than with mastery orientation ($r = .12$; $Z = 6.95$, $p < .001$). In addition, performance orientation was more strongly associated with assessment than with locomotion ($Z = 4.21$, $p < .001$), and mastery orientation was more strongly associated with locomotion than with assessment ($Z = 9.44$, $p < .001$). Because mastery and performance orientations were positively correlated in this sample ($r = .30$, $p < .001$), multiple regression analysis was used to gauge the unique relations between these and the locomotion and assessment variables. Mastery orientation, but not performance orientation, was uniquely related to locomotion ($\beta = .47$, $p < .001$; and .05, $p = .21$). Performance orientation, but not mastery orientation, was uniquely related to assessment ($\beta = .40$, $p < .001$; and $-.08$, $p = .10$).

Finally, a propensity for evaluation was measured with Jarvis and Petty's (1996) Need to Evaluate Scale. Although the need to evaluate was positively and reliably associated with both assessment (weighted average $r = .28$, $p < .001$) and locomotion (weighted average $r = .17$, $p < .01$) in the two samples where all those variables were measured, the weighted average correlation was, as expected, reliably stronger for assessment, $Z = 3.23$, $p < .005$.[1]

Measures of positive and negative affect, self-esteem, and outlook. We expected assessment to predict more negative (less positive) affect and lower self-esteem and future outlook, because the comparison processes inherent to assessment would draw attention to discrepancies between actual and desired end-states and discrepancies between self versus others' more positive attributes, and past research has found that such discrepancies are related to a preponderance of negative affect, low self-esteem, and discouragement about the future (Duval & Wicklund, 1972; Higgins, Shah, & Friedman, 1997; Moretti & Higgins, 1990; Pyszczynski & Greenberg, 1987; Ruble, 1983). The locomotion tendency, on the other hand, might show a positive relation to measures of positive affect, self-esteem, and future outlook because positive affect, self-esteem, and optimism can be resources that support persistence at goal-directed activities and, hence, staying on track and advancing toward one's objectives (Aspinwall, 1998; Taylor & Brown, 1988; Trope & Neter, 1994).

An examination of the correlations reported in Table 11 shows that our predictions regarding affect, self-esteem, and outlook were largely supported. Assessment yielded reliably positive correlations with two measures of social anxiety (rs = .30 and .25, ps $<$ .001; see Fenigstein et al., 1975; Leary, 1983) and a measure of depression (Radloff, 1977; $r = .28$, $p < .001$), and reliably negative correlations with self-esteem (weighted average r =

[1] One explanation for the high correlation between locomotion and the need to evaluate may be that appraisals of objects in the environment also serve as a basis for action by organizing one's responses in terms of objects and entities to approach versus objects and entities to avoid (see Eagly & Chaiken, 1998; Maio & Olson, 1999, for reviews of such basic functions). Jarvis and Petty (1996) originally identified two (highly correlated) factors in their instrument—one set of items measuring a need to evaluate, and another set of (mostly reverse-scored) items measuring a preference for neutrality. For exploratory purposes, we calculated separate indexes corresponding to both factors and used them as simultaneous predictors of locomotion and assessment in separate multiple regression analyses. The data set involved responses from both independent samples where the Need to Evaluate (NEV) Scale was administered (combined $N = 777$), and each analysis also controlled for the other self-regulation variable (locomotion or assessment). The results indicated that although both NEV indexes had small but reliable unique relations with locomotion (βs = .13 and .09, ps $<$ .05, for the need to evaluate and preference for neutrality indices, respectively), only the need to evaluate index was uniquely and reliably associated with assessment ($\beta = .37$, $p < .001$; preference for neutrality index, $\beta = -.05$, *ns*). Thus, assessment was particularly strongly associated with those NEV items that most directly expressed a need for strong opinions and extreme evaluations.

Table 11
Correlations of the Locomotion and Assessment Scales With Other Individual Difference Measures

Scale	Correlation(s)	Weighted average	Sample
	Locomotion scale		
Action–Decision	.35*** to .45***	.42	1, 2, 7
Fear of Invalidity	.26** to .06	−.10	1, 2, 7
Attentional Control	−.43***	—	1
Functional Impulsivity	.32***	—	1
Vitality	.46***	—	2
Need for Cognitive Closure	.14* to .26***	.22	1–6
Preference for Order	.22*** to .41***	.33	1–6
Preference for Predictability	−.09 to .13*	.02	1–6
Decisiveness	.28*** to .35***	.30	1–6
Discomfort With Ambiguity	.01 to .12*	.09	1–6
Closed-Mindedness	−.26*** to −.06	−.17	1–6
Self-Esteem (Rosenberg, 1965)	.28*** to .33***	.30	2, 4, 5, 6
Optimism	.38***	—	2
Interaction Anxiety (Leary, 1983)	−.36***	—	1
Social Anxiety (Fenigstein, Scheier, & Buss, 1975)	−.28***	—	2
Depression (CES–D)	−.18***	—	6
Public Self-Consciousness	.04	—	2
Private Self-Consciousness	.17*	—	2
Need to Evaluate	.21***, .14**	.17	1, 3
Need for Social Comparison	−.04	—	2
Performance Goal Orientation	.24***	—	13
Mastery Goal Orientation	.50***	—	13
Fear of Failure	−.25***	—	2
Achievement Orientation	.45***	—	4
Type A	.56***	—	2
NEO Neuroticism	−.20***	—	6
NEO Extraversion	.38***	—	6
NEO Openness	.05	—	6
NEO Agreeableness	.11**	—	6
NEO Conscientiousness	.56***	—	6
16PF Emotional Stability	.09*	—	13
16PF Extraversion	.17***	—	13
16PF Openness	.04	—	13
16PF Agreeableness	−.03	—	13
16PF Conscientiousness	.25***	—	13
Intrinsic Motivational Orientation	.36***, .47***	.43	2, 4
Extrinsic Motivational Orientation	.36***, .25***	.29	2, 4
Relative Autonomy Index	.38***	—	4
Amotivated	−.24***	—	4
External	.01	—	4
Introjected	.17**	—	4
Identified	.22***	—	4
Intrinsic	.34***	—	4
Social Dominance Orientation	−.08 to −.06	−.07	2, 5, 6
Ingroup Favoritism	−.05 to .02	.01	3, 6
Conservatism (self-report)	.01 to .14**	.06	1, 2, 3, 6
Age	−.03 to .14*	.06	1–3, 5–7, 13
Gender	.05 to .14**	.09	1–7
	Assessment scale		
Action–Decision	−.42*** to −.18***	−.26	1, 2, 7
Fear of Invalidity	.36*** to .56***	.43	1, 2, 7
Attentional Control	−.18**	—	1
Functional Impulsivity	−.17**	—	1
Vitality	−.17*	—	2
Need for Cognitive Closure	.08 to .20*	.12	1–6
Preference for Order	.07 to .20***	.10	1–6
Preference for Predictability	.11** to .22***	.15	1–6
Decisiveness	−.33*** to −.17	−.24	1–6
Discomfort With Ambiguity	.34*** to .49***	.39	1–6
Closed-Mindedness	−.14* to .03	−.08	1–6
Self-Esteem (Rosenberg, 1965)	−.32*** to −.22**	−.26	2, 4, 5, 6
Optimism	−.21**	—	2

Table 11 (*continued*)

Scale	Correlation(s)	Weighted average	Sample
Interaction Anxiety (Leary, 1983)	.25***	—	1
Social Anxiety (Fenigstein et al., 1975)	.30***	—	2
Depression (CES–D)	.28***	—	6
Public Self-Consciousness	.54***	—	2
Private Self-Consciousness	.50***	—	2
Need to Evaluate	.19***, .39***	.28	1, 3
Need for Social Comparison	.39***	—	2
Performance Goal Orientation	.41***	—	13
Mastery Goal Orientation	.12*	—	13
Fear of Failure	.24***	—	2
Achievement Orientation	−.01	—	4
Type A	.25***	—	2
Hard Driving	.19**	—	2
Speed/Impatience	.41***	—	2
NEO Neuroticism	.41***	—	6
NEO Extraversion	−.03	—	6
NEO Openness	.16***	—	6
NEO Agreeableness	−.25***	—	6
NEO Conscientiousness	−.04	—	6
16PF Emotional Stability	−.32***	—	13
16PF Extraversion	−.08	—	13
16PF Openness	.16***	—	13
16PF Agreeableness	.08	—	13
16PF Conscientiousness	−.01	—	13
Intrinsic Motivational Orientation	−.07, .01	−.02	2, 4
Extrinsic Motivational Orientation	.40***, .33***	.36	2, 4
Relative Autonomy Index	.02	—	4
Amotivated	.04	—	4
External	.18*	—	4
Introjected	.13*	—	4
Identified	.11	—	4
Intrinsic	.11	—	4
Social Dominance Orientation	.04 to .12*	.08	2, 5, 6
In-Group Favoritism	.03 to .16*	.09	3, 6
Conservatism (self-report)	−.11 to .03	−.04	1, 2, 3, 6
Age	−.10 to .01	−.06	1–3, 5–7, 13
Gender	.05 to .14**	.03	1–7

Note. Dash indicates that data were not observed for this index. CES–D = Center for Epidemiological Studies—Depression Scale; 16PF = 16 Personality Factor Questionnaire.
* $p < .05$. ** $p < .01$. *** $p < .001$.

$-.26$, $p < .001$) and optimism ($r = -.21$, $p < .01$). In contrast, locomotion yielded the opposite pattern of findings, including small but reliably negative correlations with measures of negative affectivity such as social anxiety ($r = -.28$, $p < .001$) and depression ($r = -.18$, $p < .001$), and significant positive correlations with self-esteem (weighted average $r = .30$, $p < .001$) and optimism ($r = .38$, $p < .001$).

Measures of decisiveness and commitment to action. According to our conceptualization, persons high (vs. low) on locomotion should be decisive and dynamic, whereas persons high (vs. low) on assessment should be preoccupied with the evaluative aspect of self-regulation, which may complicate and extend their decision-making process. We used several instruments to test these notions, specifically, the Decision-Related Action Versus State Orientation subscale of Kuhl's (1985) Action–Control Scale (i.e., the Action–Decision subscale), which measures commitment to prompt action; Thompson et al.'s (1989) Personal Fear of Invalidity Scale, which measures individual differences in indecisiveness associated with evaluation apprehension; Dickman's (1990) Functional Impulsivity Scale, which measures the tendency to spend less time on preactional decision processes than others of equal ability before taking action when to do so is functional; and the Decisiveness subscale of Webster and Kruglanski's (1994) Need for Cognitive Closure (NFCC) Scale, which measures the "decisiveness [of respondents'] judgments and choices" (p. 1050) (e.g., "I usually make important decisions quickly and confidently").

Examination of the correlations in Table 11 confirms our expectations for each of these measures. Specifically, assessment exhibited negative relations with Kuhl's Action–Decision subscale (weighted average $r = -.26$, $p < .001$), with Dickman's Functional Impulsivity Scale ($r = -.17$, $p < .01$), and with Webster and Kruglanski's (1994) Decisiveness scale (weighted average $r = -.24$, $p < .01$) and had a strong positive relation with Thompson et al.'s (1989) Personal Fear of Invalidity Scale (weighted average $r = .43$, $p < .001$). Locomotion, however, exhibited the opposite pattern of relations with these measures, namely, positive correlations with the Action–Decision subscale (weighted average $r = .42$, $p < .001$), with the functional impulsivity scale ($r = .32$, $p <$

.001), and with the decisiveness subscale (weighted average r = .30, $p < .001$), and a negative, albeit nonsignificant, correlation with the Personal Fear of Invalidity Scale (weighted average $r = -.10$, *ns*).

Also included among the measures in the study was the Discomfort With Ambiguity subscale of Webster and Kruglanski's (1994) NFCC Scale. To find the right or best alternative, one does not want ambiguity. Assessment, then, should be positively related to discomfort with ambiguity. Given its concern with simply initiating action, locomotion should be less related to discomfort with ambiguity. Consistent with these predictions, assessment was strongly and positively associated with ambiguity discomfort (weighted average r = .39, $p < .001$), whereas locomotion was largely unrelated to ambiguity discomfort (weighted average r = .09, *ns*).

Measures of task orientation. We anticipated that locomotion would be positively associated with measures of vitality, task orientation, and a focus on doing. In contrast, the self-evaluative concerns and the negative affects (e.g., anxiety) associated with assessment could undermine vitality, disrupt task focus, and interfere with unswerving concentration on the activity (i.e., the flow). Thus, we expected that whereas locomotion would be strongly and positively associated with measures of vitality, task orientation, and achievement strivings, assessment would be less positively—and possibly even negatively—related to such measures.

Consistent with these expectations, examination of the correlations in Table 11 confirms this pattern for measures of vitality (Ryan & Frederick, 1997; r = .46, $p < .001$ for locomotion; r = .17, $p < .05$ for assessment), attentional control (Huba et al., 1981; e.g., "I tend to be quite wrapped up and interested in whatever I am doing," "No matter how hard I try to concentrate, thoughts unrelated to my work always creep in" [reverse-scored]; r = .43, $p <$ .001 for locomotion, $r = -.18$; $p < .01$ for assessment), achievement orientation (Jackson, 1974; e.g., "I enjoy difficult work," "I seldom set standards which are difficult for me to reach" [reverse-scored]; r = .45, $p < .001$ for locomotion; $r = -.01$ for assessment), fear-of-failure (Herman, 1990; e.g., "When I start doing poorly on a task, I feel like giving up," "If given a choice, I have a tendency to select a relatively easy task rather than risk failure"; $r = -.25$, $p < .001$ for locomotion; r = .24, $p < .001$ for assessment), and conscientiousness (Costa & McCrae, 1992; e.g., "I'm pretty good about pacing myself so as to get things done on time," "I work hard to accomplish my goals"; r = .56, $p < .001$ for locomotion; $r = -.04$ for assessment).

It is notable that both locomotion and assessment were reliably and positively associated with Type A orientation (r = .56, $p <$ .001 for locomotion; r = .25, $p < .001$ for assessment). As expected, locomotion was significantly more positively associated with Type A than was assessment (Z = 5.20, $p < .001$). It is interesting to consider why, although smaller than the relation of locomotion and Type A, the relation of assessment and Type A was nonetheless significant and positive. There is evidence that Type A individuals are particularly concerned with obtaining social comparison information (Dembroski & MacDougall, 1978) despite the availability of clear personal standards for evaluation (Matthews & Siegel, 1983). Indeed, one current conceptualization of the Type A personality pattern proposes that Type A behaviors are "strategic attempts to render the appraisal of one's abilities less ambiguous" (Strube, 1987). Thus, Type A may correlate especially with locomotion because it involves chronic initiation and maintenance of achievement behavior, but may correlate to some extent with assessment as well because it also involves an emphasis on social comparison processes.

Measures of Big Five personality factors. Relating the locomotion and assessment scales to measures of the Big Five personality traits allows the opportunity to place our constructs within the broader context of personality theory. For example, to the extent that locomotion involves a heightened activity level and greater persistence in goal-directed activity, we would expect it to correlate positively with extroversion and conscientiousness (Cattell et al., 1993; Costa & McCrae, 1992). In addition, to the extent that assessment involves heightened self-consciousness, difficulty in decision making, and inclination to compare alternatives, we might expect it to correlate positively with the neuroticism (or emotional [in]stability) and openness dimensions.

Indeed, an examination of the correlations in Table 11 reveals that across two different measures of the Big Five traits, extroversion and conscientiousness were most strongly positively associated with locomotion, whereas these measures were rather unrelated to assessment. Specifically, the NEO and 16PF measures of extroversion were weakly to moderately positively correlated with locomotion (rs = .38 and .17, respectively, both ps $< .001$), and they were essentially unrelated to assessment (rs = $-.03$ and $-.08$, respectively, both *ns*). Similarly, the NEO and 16PF measures of conscientiousness were moderately to strongly positively correlated with locomotion (rs = .56 and .25, respectively, both ps $< .001$), and they were uncorrelated with assessment (rs = $-.04$ and $-.01$, respectively, both *ns*).

By contrast, neuroticism and openness were most strongly positively associated with assessment and were rather unrelated to locomotion. Specifically, assessment was relatively strongly correlated with NEO neuroticism (r = .41, $p < .001$) and 16PF emotional stability ($r = -.32$, $p < .001$), whereas locomotion showed the opposite pattern of relations (rs = $-.20$ and .09, ps $<$ .001 and .05, respectively). Furthermore, whereas assessment was positively related to the NEO and 16PF measures of openness (both rs = .16, both ps $< .001$), locomotion was essentially uncorrelated with either measure (rs = .05 and .04, respectively).[2] Further work on discriminability of our measures from the Big Five is reported later.

Intrinsic and autonomous self-regulation. Recent literature on task motivation has focused on the role of intrinsic and extrinsic motivation in self-regulation (Amabile & Hennessey, 1992; Amabile, Hill, Hennessy, & Tighe, 1994; Boggiano, 1998; Elliot & Harackiewicz, 1996; Harackiewicz, Manderlink, & Sansone, 1992; Sansone & Harackiewicz, 1996; Thompson, Chaiken, & Hazlewood, 1993). People engage in activities that are intrinsically motivated because of the inherent pleasure they derive from sim-

[2] There was a relatively high negative correlation between assessment and agreeableness as measured by Costa and McCrae's (1992) instrument, but this effect was not replicated with the Cattell et al. (1993) measure. If future studies obtain more consistent evidence of this relation, it might reflect a tendency for critical evaluation among individuals strong in assessment. Consistent with such an interpretation, Costa and McCrae (1992) described low agreeableness as involving "skeptical and critical thinking" (p. 15).

ply performing them. In contrast, activities that are extrinsically motivated are experienced as involving a means–ends function; that is, they are seen as instrumental to achieving specific end states such as compliance with powerful others, behaving in accordance with introjected dictives, or meeting valued life goals (Ryan, 1995). Whereas intrinsic motivation has been described as the purest case of autonomous self-regulation (Deci & Ryan, 1991), forms of extrinsic motivation are said to vary in the extent to which they are experienced as truly self-determined.

We hypothesized that because the assessment tendency involves evaluating how one engages in an activity in relation to discernible alternatives, high assessors would be more likely to experience their engagement in activities as instrumental means to achieving specific goals. Thus, we expected it to be related to extrinsic motivation but not to intrinsic motivation. We expected locomotion to be related to intrinsic motivation because locomotors' tendency to stay in motion naturally promotes a deeper sense of involvement with activities (Csikszentmihalyi, 1975). We also expected locomotion to be related to the more autonomous forms of extrinsic motivation that relate to continually learning and making progress, as described earlier, such as doing boring math problems because this is seen as important for learning needed concepts (Deci & Ryan, 1991; Vallerand et al., 1992).

To measure intrinsic and extrinsic motivational orientation, we administered the Work Preference Inventory (WPI; Amabile, Hill, Hennessy, & Tighe, 1994). The obtained correlations of locomotion and assessment with the measures of intrinsic and extrinsic motivation, need for cognition, relative autonomy, and goal orientations in Samples 2 and 4 are displayed in Table 11. As expected, higher locomotion predicted both more intrinsic motivation (average $r = .43, p < .001$) and more extrinsic motivation ($r = .29, p < .001$), as measured by the WPI. In contrast, assessment predicted only extrinsic motivational orientation (average $r = .36, p < .001$), but was unrelated to intrinsic motivation ($r = -.02$, *ns*).

Table 11 also displays the zero-order correlations between locomotion and assessment and the five subscales of Vallerand et al.'s (1992) Academic Motivation Scale (AMS) (Sample 4 only). Consistent with the prediction that a stronger locomotion tendency would predict more autonomous self-regulation, locomotion scores showed a pattern of correlations suggesting a linear increase in positive covariation from the least autonomous form of self-regulation (amotivated) to the most autonomous form (intrinsic). Furthermore, locomotion was positively related to the weighted Relative Autonomy Index (RAI; $r = .38, p < .001$). In contrast, assessment was positively associated only with the two least autonomous forms of extrinsic self-regulation (for external and introjected: $rs = .18$ and .13, respectively, both $ps < .05$) and was unrelated to the RAI overall ($r = .02$, *ns*). Multiple regression analyses were conducted separately for locomotion and assessment, in which each was predicted from the five AMS scales simultaneously. The most autonomous form of intrinsic self-regulation was positively associated with locomotion ($\beta = .30$, $p < .001$), and the least autonomous form of extrinsic self-regulation (external) was positively related to assessment ($\beta = .17$, $p < .01$).

Discriminant validity. To demonstrate the discriminant validity of a measure, one must show that it is uncorrelated with instruments tapping conceptually unrelated constructs. Across a number of samples, we found that both locomotion and assessment were essentially uncorrelated with participants' self-reported political orientation (1 = *strongly liberal,* to 6 = *strongly conservative*) and with Pratto et al.'s (1994) 16-item measure of social dominance orientation, the tendency to support anti-egalitarianism, and group-based dominance in social relations. Both measures were also uncorrelated with a measure of ingroup favoritism (attitude toward one's own racial–ethnic group minus mean attitude toward other racial–ethnic groups; e.g., "Asians," "Blacks," "Hispanics," "Whites"; see Shah, Kruglanski, & Thompson, 1998). Both locomotion and assessment were also uncorrelated with age and sex. Finally, though we found many correlations and regression coefficients supportive of the convergent validity of our new scales, it is important to note that no other measure accounted for more than 32% of the variance in either locomotion or assessment. Thus, neither appeared to be measuring previously identified individual difference variables, at least none that we have examined thus far.

Study 6: Locomotion, Assessment, and the Big Five

As noted earlier, in view of the breadth of psychological domains covered by the Big Five personality factors (Catell et al., 1993; Costa & McCrae, 1992; Goldberg, 1992), it was important to compellingly establish the discriminability of the Locomotion and Assessment Scales from these generally inclusive constructs. We have already reported the moderate to positive associations between locomotion and the NEO measures of extroversion (.38) and conscientiousness (.56), as well as the positive to moderate associations between NEO measures of assessment and neuroticism (.41) as well as openness to experience (.16). Though these correlations imply that our measures are not redundant with the pertinent Big Five dimensions, it was deemed prudent to conduct a more systematic investigation of their distinctiveness from the Big Five.

To that end, we used the Italian sample described earlier (see Study 3). Recall that participants in this sample ($N = 419$) filled out the Italian version of the Locomotion and Assessment Scales. They also responded to the 100 unipolar markers of the Big Five developed by Goldberg (1992). This is a commonly used measure of the Big Five that is relatively quick and easy to administer and hence is more convenient to use than the NEO-Personality Inventory. As Goldberg has shown, the factor scores based on participants' responses to these scales provide quite unequivocal markers for each of the Big Five domains. Consequently, Goldberg's measure is generally considered a reasonable alternative to the NEO-PI and the Hogan personality inventories.

For purposes of the following analysis, our entire sample of participants was divided into two subsamples. One subsample (hereinafter Sample 1, $N = 216$) completed additionally the Italian versions (Pierro et al., 1995) of the Need for Closure Scale (Webster & Kruglanski, 1994), the Personal Fear of Invalidity Scale (M. M. Thompson et al., 1989), and of the Goal Orientation Scale (Button et al., 1996). The second subsample (hereinafter Sample 2, $N = 203$) completed the Italian versions of the Attentional Control subscale of the Short Imaginal Process Inventory (Huba et al., 1981), the Functional Impulsivity Scale (Dickman, 1990), the Need to Evaluate Scale (Jarvis & Petty, 1996), and the Action–Decision Scale (Kuhl, 1985).

To investigate the discriminant validity of the locomotion and assessment scales with respect to the Big Five factors, we tested a first-order confirmatory factor model with 7 correlated latent variables. This analysis was performed on the entire sample. To carry it out, we combined the items of each scale (Locomotion, Assessment, Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness) using a split-half procedure, forming two indicators for each construct. The rationale for this procedure was as follows: Because the Locomotion, Assessment, and the Big Five Scales together consisted of 124 items (12 + 12 + 100), a model expressing the relations among them would require the estimation of more than 250 parameters.

However, models with numerous parameters to estimate (more than 20) rarely fit the data (Bentler & Chou, 1987). Bagozzi and Heatherton (1994, p. 43) noted further that it is not uncommon to find an unsatisfactory fit when measurement models have more than four or five items for each factor and when sample sizes are large. In such cases, poor fit may be due to high levels of random error found in typical items, as well as to the large number of parameters to be estimated. To address this problem, several authors (cf. Bagozzi & Heatherton, 1994; Brooke, Russell, & Price, 1988) proposed that subsets of items within factors be summed to create aggregate variables. Furthermore, a ratio of at least five participants per parameter has been recommended to derive reliable estimates (Bentler & Chou, 1987). Our procedure reduced the number of indicators (items) from 124 to 14 (7 scales × 2), hence appropriately reducing the number of parameters to be estimated and allowing a reasonable ratio of participants per parameter (around 13).

The results of our analysis indicated that the fit of the overall 7-factor model was adequate. The relevant fit indexes for this model and its null counterpart are displayed in Table 10. Although this result conforms to our expectation, the fit of the overall model is a necessary but insufficient condition for claiming convergent and discriminant validity. In addition, it is necessary to examine the magnitude of the parameter estimates, particularly the factor loadings (the lambda matrix) to assess convergent validity and the matrix of correlations between latent factors (the phi matrix) to assess discriminant validity. The former estimates should be significant and at least .40, whereas correlations between latent factors should be less than 1.00 (Bagozzi, 1993).

The standardized parameter estimates for the confirmatory factor analysis (CFA) are displayed in Table 12. As can be seen, all factor loadings are significant and above .71. As for the intercorrelations among latent factors (see Table 13), the highest disattenuated correlations between the locomotion factor and the Big Five are with the extroversion (.50) and the conscientiousness (.48) factors, whereas the highest disattenuated correlation between the assessment factor and the Big Five is that with neuroticism (.44). Note that these correlations are very close in magnitude to those obtained with the American samples (see Table 11). Also note that although moderately high, these correlations are substantially less than 1.00 and therefore attain the criterion of discriminant validity. In this connection, note that the disattenuated correlations are generally higher than the raw coefficients (see Table 14) and that the test of discriminant validity via the CFA approach is a relatively stringent one.

Perhaps the most compelling evidence for the discriminant validity of the Locomotion and Assessment Scales with respect to the Big Five would be a demonstration that the relations of these scales with other theoretically relevant constructs remain unchanged while controlling for the Big Five factors. The results of these analyses are summarized in Tables 14 and 15. Note that the pattern of correlations between locomotion, assessment, and the several scales included with the Italian sample is remarkably similar to the correspondent correlation pattern obtained with our American samples (see Table 11). These data attest further that our scales and the theory they operationalize are generalizable across cultures (see Study 3). More to the present point, the correlations of locomotion with other pertinent individual difference measures, controlling for the Big Five and assessment, remain significant (compared with the zero-order correlations) and in the predicted direction, as do the correlations between assessment and pertinent individual difference measures again controlling for the Big Five and locomotion. In summary, then, the results of our various analyses support the discriminability of the locomotion and assessment constructs from the Big Five.

Table 12
Parameter Estimates for Confirmatory Factor Analysis of the Seven-Factor Model (Locomotion, Assessment, and the Big Five): Matrix (λx) of Factor Loading

Item and sample	Locomotion	Assessment	Extroversion	Agreeableness	Conscientiousness	Neuroticism	Openness
Locomotion A	.80						
Locomotion B	.71						
Assessment A		.72					
Assessment B		.83					
Extroversion A			.83				
Extroversion B			.99				
Agreeableness A				.78			
Agreeableness B				.93			
Conscientiousness A					.80		
Conscientiousness B					.89		
Neuroticism A						.90	
Neuroticism B						.90	
Openness A							.71
Openness B							.97

Note. Sample A combines Individual Samples 1 and 2, Sample B combines Individual Samples 3 and 5.

Table 13
Parameter Estimates for Confirmatory Factor Analysis of the Seven-Factor Model (Locomotion, Assessment, and the Big Five): Intercorrelation Matrix (Φ) of Latent Variables

Item	α	1	2	3	4	5	6	7
1. Locomotion	.73	—						
2. Assessment	.73	.04 (.03)	—					
3. Extroversion	.88	.50 (.44)	−.13 (−.10)	—				
4. Agreeableness	.81	.39 (.32)	−.25 (−.20)	.33 (.36)	—			
5. Conscientiousness	.91	.48 (.38)	−.05 (−.03)	.03 (.04)	.32 (.24)	—		
6 Neuroticism	.86	−.27 (−.21)	.44 (.36)	−.23 (−.20)	−.39 (−.31)	−.48 (−.40)	—	
7. Openness	.82	.32 (.28)	.36 (.28)	.36 (.28)	.12 (.15)	−.03 (−.03)	.05 (.02)	—

Criterion-Related Validity

Study 7: Predicting Students' Academic Achievement

We predicted that the locomotion and assessment scores would predict undergraduates' grade point averages (GPAs) and specifically that students scoring high on both dimensions would do better than those scoring high on only one or on neither dimension. Keeping blind to individual students' identities, we obtained from university records the GPAs for a sample of 655 University of Maryland, College Park undergraduates (359 women) who had completed the Locomotion and Assessment Scales. The sample was limited to sophomores, juniors, and seniors—that is, students who had, by the end of the Fall 1997 semester, completed either 3, 5, or 7 semesters of course work. Participants had completed the Locomotion and Assessment Scales either in the Spring 1996 semester (23%) or in the Fall 1996 or Spring 1997 semesters (50% and 27%, respectively).

We conducted a multiple regression analysis to predict participants' cumulative GPA scores (M = 2.86) from their locomotion scores, their assessment scores, and the Locomotion × Assessment interaction. From this analysis, which controlled for sex and Scholastic Aptitude Test (SAT) score, emerged significant main effects for sex (β = .21, $p < .001$), SAT score (β = .42, $p < .001$), and locomotion (β = .12, $p < .001$). Although the main effect of assessment did not achieve significance (β = .06, p = .11), a reliable Locomotion × Assessment interaction (β = .07, $p < .05$) revealed that the locomotion effect on GPA increased as a positive function of assessment. Indeed, for participants scoring below the median on assessment (*mdn* = 4.05), locomotion was unrelated to cumulative GPA (β = .04, *ns*). However, for high assessors (scoring >4.05), locomotion score was a reliable predictor of GPA, β = .23, $p < .001$. These results imply that, as predicted, optimal self-regulation occurs when both locomotion and assessment tendencies are relatively pronounced.

Study 8: Predicting Successful Completion of Elite Military Training

The Locomotion and Assessment Scales were administered, along with a battery of other prescreening measures, to 490 appli-

Table 14
Correlations of the Locomotion Scale With Other Individual Difference Measures: Zero-Order Correlations and Partial Correlations Controlling for the Big Five and the Assessment Scale

				Locomotion	
Scale	Sample	N	α	r	Partial r
Need for Cognitive Closure	A	216	.86	.17**	.14*
Decisiveness	A	216	.79	.29**	.15**
Preference for Order	A	216	.80	.16*	.09
Closed-Mindedness	A	216	.58	−.12	−.06
Preference for Predictability	A	216	.83	−.05	−.01
Discomfort with Ambiguity	A	216	.65	.16*	.21**
Fear of Invalidity	A	216	.73	−.31**	−.17**
Performance Goal Orientation	A	216	.83	.07	.06
Mastery Goal Orientation	A	216	.84	.47**	.31**
Attentional Control	B	203	.80	.35**	.15*
Need to Evaluate	B	203	.69	.36**	.18**
Functional Impulsivity	B	203	.73	.35**	.19**
Action–Decision	B	203	.66	.41**	.20**

Note. Sample A combines Individual Samples 1 and 2, and Sample B combines Individual Samples 3 and 5.
* $p < .05$. ** $p < .01$.

Table 15
Correlations of the Assessment Scale With Other Individual Difference Measures: Zero-Order Correlations and Partial Correlations Controlling for the Big Five and the Locomotion Scale

				Locomotion	
Scale	Sample	N	α	r	Partial r
Need for Cognitive Closure	A	216	.86	.05	.09
Decisiveness	A	216	.79	−.26**	−.19**
Preference for Order	A	216	.80	.09	.16
Closed-Mindedness	A	216	.58	−.06	−.13
Preference for Predictability	A	216	.83	.08	.11
Discomfort with Ambiguity	A	216	.65	.31**	.30**
Fear of Invalidity	A	216	.73	.40**	.35*
Performance Goal Orientation	A	216	.83	.33**	.32**
Mastery Goal Orientation	A	216	.84	.06	.08
Attentional Control	B	203	.80	−.25**	−.20**
Need to Evaluate	B	203	.69	.22**	.16*
Functional Impulsivity	B	203	.73	−.09	−.04
Action–Decision Scale	B	203	.66	−.16*	−.10

Note. Sample A combines Individual Samples 1 and 2, and Sample B combines Individual Samples 3 and 5.
* $p < .05$. ** $p < .01$.

cants to an elite combat training unit in the U.S. Army prior to onset of the training period. Applicants were all men ranging in age from 19 to 41, $M = 26.06$ years, all of whom were already in military service. Most were Caucasian (about 81%), and about 12% were commissioned officers. About 16% of the applicants had already completed a course of advanced training in the Army Rangers.

The program is highly selective and the training is extremely demanding. In fact, approximately 60% of the applicants in the current sample either withdrew voluntarily prior to the completion of training or else were removed for reasons of medical incapacity or unsatisfactory performance. In the current study, we attempted to predict successful completion of the training course from the locomotion and assessment scores and their interaction. We also controlled for several other predictor variables recommended by U.S. Army researchers who administered the precourse testing battery. These included applicants' scores from a general technical survey and from a spatial abilities test, whether applicants were commissioned officers or enlisted soldiers (0 = *enlisted,* 1 = *commissioned*), and whether applicants were "Ranger-qualified" (0 = *not qualified,* 1 = *qualified*). Because the primary dependent variable in question was dichotomous (0 = *did not complete the program,* 1 = *completed the program*), we used a logistic regression analysis, from which three significant effects emerged.

As expected, Ranger-qualified soldiers were more likely to complete the program than were nonqualified soldiers, $B = 1.36$, *Wald* (1) = 16.91, $p < .001$. In addition, higher locomotion scores predicted a higher likelihood of success, $B = 0.33$, *Wald* (1) = 6.41, $p < .02$. Finally, a reliable Locomotion × Assessment interaction, $B = 0.22$, *Wald* (1) = 4.09, $p < .05$, suggested that the impact of locomotion depended on level of the assessment tendency. Indeed, among soldiers scoring below the median in assessment (*mdn* = 3.43) locomotion had a negligible impact on program completion, $B = 0.06$, *Wald* (1) = 0.14, $p = .71$. However, among soldiers scoring above median assessment, locomotion score was a substantial predictor of success, $B = 0.58$, *Wald* (1) = 8.06, $p < .005$.

These results parallel precisely those found for college students' academic achievement. Although a tendency to locomote appears to be an important determinant of success at difficult endeavors requiring persistence and tenacity, it predicts success only when the individual's tendency to assess is relatively high as well. This interaction is quite notable. One might not find it surprising that individuals who describe themselves on a questionnaire as being a persistent, high energy go-getter and doer (high locomotors) are likely to be high performers. But the interaction shows that describing oneself in this way, by itself, does not in fact predict high success. Only high locomotors who are also high assessors are high performers.

Predictive Validity

Study 9: Error Spotting and Completion Time

According to our theory, assessors and locomotors should orient to different aspects of a task. High (vs. low) assessors may focus on the quality control aspect of task performance and may be highly critical and evaluative in their orientation. This critical stance might not only sensitize them to actual imperfections that an object or product may contain, but also lead to an exaggerated perception of errors and to "spotting" mistakes where none existed: Having discrepancies on one's mind, that is, positive (vs. null) outcomes of comparisons, may bias assessors to identify ambiguous stimuli as discrepancies. On the other hand, the assessment dimension should bear no direct relation to task-completion rate. There is little reason to suppose that high assessors should perform the task appreciably more rapidly or slowly than low assessors.

High (vs. low) locomotors, by contrast, should go swiftly through tasks, driven by their quest for palpable advancement. On the other hand, the locomotion tendency as such is not particularly relevant to error spotting. Thus, one's locomotion status shouldn't appreciably affect one's tendency to exercise tight quality control or to be vigilant with respect to imperfections. To test our hypotheses from the foregoing discussion, we used a proofreading task to see whether (a) the assessment, but not the locomotion, dimension would relate positively to finding errors and (b) the locomotion, but not the assessment, dimension would relate positively to completion rate.

Method

Participants. Participants were 101 undergraduates at the University of Maryland, College Park, 55 men and 46 women who participated either in partial fulfillment of a course requirement or for a $7.00 payment.

Design and procedure. Participants were run in groups of one to eight. They were seated at individual desks, separated by tall partitions prohibiting communication and social comparisons. The experiment was described as a study about the ease of reading and the detection of spelling errors as a function of using different fonts. Participants were given a red pen and two five-page booklets with identical passages printed in different fonts. They were then asked to check one of the booklets, labeled Sample Copy, against the other, labeled Master Copy. Each booklet contained three passages on different topics, all extracted from introductory psychology texts. These topics were (a) TV violence, (b) linguistic ability of children raised by wild animals, and (c) the two halves of the brain. Participants were told to circle on the Sample Copy any differences found between it and the Master Copy. Such differences included the appearance of different words, numbers, or dates; different punctuation marks; and outright grammatical or spelling errors in one of the copies but not the other. There were a total of 63 differences between the two passages.

All participants were allowed as much time as needed to complete their booklet. The time to completion was measured surreptitiously by the experimenter. Following the proofreading task, participants responded to an eight-item filler questionnaire about such things as the clarity of fonts used in the passages, the difficulty and interest level of the task, and participant's confidence in their performance. The filler activity continued with Zuckerman's (1971) Sensation-Seeking Scale, following which participants completed our Locomotion and Assessment Scales. At that point participants were debriefed and thanked for their participation.

Results

Two participants had extreme scores on a lie scale, more than three standard deviations above the mean of 12.67 (26 and 31 within a possible scale range of 0 to 36). These participants' data were dropped, resulting in $N = 99$ (45 women) for subsequent analyses. Sex of participants did not exert significant effects on any of our dependent variables and is not discussed further.

Error spotting. Assessment scores were regressed onto the total number of errors circled, controlling for the locomotion

scores. As expected, assessment scores significantly predicted the total number of errors circled, $F(1, 95) = 3.88, p < .05$. The errors total included both correct identifications and false hits. The latter constituted a very small percentage (.89%) of the total errors circled. When we excluded false hits from the errors measure, assessment scores still marginally predicted this variable, $F(1, 95) = 2.81, p < .10$. Furthermore, despite the very small number of false hits, this measure too was marginally predicted by the assessment scores, $F(1, 95) = 2.88, p < .10$. This evidence is consistent with our hypothesis that the assessment tendency is related to zealousness in finding errors. The locomotion scores did not significantly predict the number of errors spotted ($F < 1$).

Completion time. To test our predictions about completion time, the locomotion scores were regressed on the time variable (its inverse transformation), controlling for assessment scores and instruction type. As hypothesized, the locomotion scores predicted the completion time, $F(1, 95) = 4.77, p < .04$. There was no significant relation between assessment scores and completion time ($F < 1$).

Study 10: Selecting Goals and Generating Means

Goal Choice

As high (vs. low) locomotors are particularly concerned with progress, they may select their goals primarily on the basis of attainability information (Kruglanski, 1996). It follows, that high (vs. low) locomotors should adopt goals with high attainment expectancy. On the other hand, high (vs. low) locomotors should not differ much in the degree to which they select goals of considerable (vs. less pronounced) value, because locomotion is theoretically unrelated to comparing alternatives on merit or worth.

The very opposite can be expected of high (vs. low) assessors. High (more so than low) assessors should select goals of high perceived value or importance because concern with relative worthiness and excellence are quintessential features of the assessment dimension. We did not expect a significant relation between assessment and perceived goal attainability because ease of advancement seems unrelated to the evaluative essence of the assessment dimension.

Means Generation

High (vs. low) assessors may generate a greater number of means in order to have a suitable selection that affords evaluative comparison. On the other hand, high (vs. low) assessors should not predictably differ in how quickly they select the best means to attain their goals, because assessment is not directly related to the perceived urgency of commencing an activity. The opposite should hold for high (vs. low) locomotors, who should not particularly differ in the number of means they generate, because the issue of comparative evaluation is not directly relevant to locomotion. However, they should be quicker to select their best means in the interest of immediate activity engagement.

Method

In partial fulfillment of a course requirement, 63 University of Maryland, College Park, students, 22 men and 41 women, participated in the study. All participants were enrolled in an introductory psychology course, and each received one credit toward their experimental course requirement. Participants were run in groups of four or less.

Participants entered into a computer five personal attributes they wanted to attain. They listed attributes such as being or becoming "educated," "strong," "fit," "knowledgeable," or "outgoing." After listing all five attributes, participants were asked to enter into a computer all the different means they might use to attain each attribute. Participants also rated the likelihood they would attain each attribute, as well as its perceived value. Both types of ratings were made on 7-point scales ranging from 1 (*not at all likely/valuable*) to 7 (*extremely likely/valuable*).

Participants then typed in as quickly as possible responses to a number of control questions, such as their first name and the last five digits of their social security number. They then typed in as quickly as possible the best means for attaining each of the attributes. The order of attributes was randomly generated by the computer for each participant. Following the entire procedure, participants filled out the Locomotion and Assessment Scales. This completed the experiment. Participants were debriefed and thanked for their participation. The following outcome variables were used in subsequent analyses.

Total attainment expectancy. Total attainment expectancy was calculated by summing up the expectancy ratings for each of the attributes. This measure indexed the degree to which one pursues goals whose attainment expectancy is high.

Total attainment value. Total attainment value was calculated by summing up the value ratings for each of the attributes listed. This total indexed the degree to which one pursues goals whose attainment is valued highly.

Total number of means. The number of means listed for each attribute was summed across the five attributes for a total number of means.

Speed of choosing the best means. Times taken to type in the best means for each of the attributes were submitted to a natural log transformation to lessen the impact of outliers. They were then summed across the five attributes to indicate the speed with which participants listed their best means.

Control speed. Times taken to type in the control questions were also submitted to a natural log transformation and totaled to control for general individual differences in response speed.

Results

We carried out separate regression analyses to examine how differences in locomotion and assessment scores related to participants' tendencies to pursue valuable goals, attainable goals, or both. In conducting the analyses, attainment value was tested controlling for attainment expectancy and vice versa because the motivational literature postulates that the variables of value and expectancy are related to one another (see, for example, Atkinson, 1964), which means that a test of our two independent hypotheses requires controlling for one variable when testing the hypothesis about the other variable. A regression on participants' total attainment value, controlling for total attainment expectancy, found, as expected, that participants' assessment scores were positively related to value, $F(1, 55) = 8.85, p < .005$, whereas their locomotion scores were not, $F(1, 55) = 1.18, p > .25$. A regression on participants' total attainment expectancy, controlling for their total attainment value, found, as expected, that their locomotion scores were positively related to such expectancy, $F(1, 56) = 12.66, p < .001$. Also as expected, participants' assessment scores were not positively related to attainment expectancy, but were in fact negatively related, $F(1, 56) = 6.71, p < .01$. It is not clear why this negative relation was obtained rather than simply no relation. It could be that high assessors experience the process of goal attainment as difficult, as suggested by its extrinsic, demanding nature discussed earlier.

As expected, participants' assessment score was significantly and positively correlated with the number of means listed by participants, $F(1, 56) = 5.71$, $p < .05$, but their locomotion score was not, $F < 1$. As expected, participants' locomotion score was positively correlated with choice speed, $F(1, 54) = 4.10$, $p < .05$, but participants' assessment score was not, $F < 1$. A final analysis revealed that total means number and choice speed were not significantly correlated, $F < 1$.

GENERAL DISCUSSION

Beyond simple habits, most activities involve the copresence of two fundamental components, an evaluation that a particular activity is warranted and the commitment of energies to its initiation and maintenance. We refer to these functional ingredients as assessment and locomotion, respectively. One might think that the relative emphasis on assessment and locomotion should work in harmonious concert, jointly covarying with the perceived importance of a given self-regulatory activity. By contrast, we have theorized that, irrespective of specific tasks, individuals may differ on their assessment and locomotion tendencies independently of each other.

The research in this article reports our work with two scales designed to measure independently the assessment and locomotion functions. Our investigations encompassed a broad variety of samples (college students at various universities and with different majors, U.S. Army recruits and elite units) totaling over 5,000 participants. We also used heterogeneous methodologies to triangulate on the theoretically predicted properties of our scales. We used psychometric methods to determine their structural properties, and we used the known-groups technique; convergent, discriminant and predictive validation methods; as well as additional correlational and experimental means to investigate a broad range of propositions implied by our theory.

On the basis of this research, it seems justifiable to conclude that (a) our theoretical notions about assessment and locomotion were strongly supported, and (b) our two scales constitute adequate measures of the assessment and locomotion tendencies. Specifically, we found that our Assessment and Locomotion Scales are unidimensional and possess satisfactory degrees of internal consistency and temporal stability. These properties were demonstrated across numerous replications, including a cross-cultural replication with an Italian sample. Our Locomotion and Assessment Scales satisfactorily distinguished between groups that on a priori grounds may be expected to emphasize one tendency more so than another. We also found support for the notion that successful outcomes on complex and difficult tasks depend on the joint presence of assessment and locomotion.

Our Locomotion and Assessment Scales related in a theoretically predicted way to several individual difference constructs and demonstrated discriminant validity in regard to other constructs including the Big Five personality factors. We also found that (a) the assessment tendency is related to zealousness in determining the right thing to do, whereas locomotion relates to the inclination to move quickly through one's tasks; (b) in the choice of goals, assessment relates positively to an emphasis on value, whereas locomotion relates positively to an emphasis on expectancy and attainment progress; and (c) in the generation of means aimed at goal attainment, the assessment tendency is positively related to the number of alternative means produced, whereas the locomotion tendency is related to quickly selecting a means for immediate engagement.

Antecedents and Consequences

Antecedents

Whereas our findings thus far support the existence of two relatively independent functional dimensions of self-regulatory activities, important questions remain for further inquiry, principally, "What are the antecedents of an overemphasis on locomotion, assessment, or both?" and "What are its possible consequences?" For instance, it is of interest to ask what kinds of socialization patterns contribute to the development of locomotion and assessment inclinations and whether these are instigated by situational conditions as well. The notion that assessment activities are often prompted by failure experiences, for example, are suggested by findings of spontaneous attributional activity following failure (Weiner, 1985) or control deprivation experiences (Pittman & D'Agostino, 1985), as well as findings of enhanced counterfactual thinking following failure experiences (Nasco & Marsh, 1999; Roese & Olson, 1997). It seems plausible to assume that success experiences, to the contrary, may encourage locomotion.

Consequences

Potential consequences of locomotion and assessment are also worth exploring. For instance, responses to goal attainment may also differ as a function of the locomotion and assessment tendencies. It is likely that locomotors (i.e., persons emphasizing locomotion relative to assessment) may feel uncomfortable when a major goal has just been attained because this situation brings movement to a halt. Such people are likely to select a new goal to pursue as quickly as possible, much to the surprise of others who expected them to relax or take a break after having worked so hard for so long. Because locomotors are motivated to be in motion, rather than simply to attain their goals per se, such people may enjoy the fruits of their labor much less than would be expected from just their inherent value.

Social Implications

Individuals' assessment and locomotion tendencies may have important social consequences. When locomotion (vs. assessment) predominates, for example, people may prefer hierarchical decision-making systems where the amount of collective debate, discussion, and examination of alternatives is minimal, and the amount of action is maximal. By contrast, when assessment prevails, people may prefer participatory decision-making systems endowed with the opposite features. Similarly, a locomotion emphasis should yield a preference for authoritarian leadership whereas an assessment emphasis should yield preference for democratic leadership. In regard to modes of power (see French & Raven, 1959; Raven & Kruglanski, 1970), a locomotion emphasis might yield a preference for authority figures or legitimate power whereas an assessment emphasis might yield a preference for informational power or expertise.

It is of interest to consider the potential effects of locomotion and assessment orientation in the context of close relationships. Specifically, a couple whose regulatory modes diverge in that one partner is a high locomotor (and moderate to low assessor) and the other a high "assessor" (and moderate to low locomotor) may experience a great deal of conflict at the local level. Yet, from a more general perspective, the partners may do well in attaining their joint goals because of the complementary nature of their regulatory propensities. Such "mixed" couples may represent an intriguing exception to Berscheid's (1983) generalization that successful couples experience little affect in their relationship because of the facilitating nature of their interaction. To the contrary, mixed locomotor-assessor couples may experience a great deal of (local) conflict capable of engendering intense affect, while at the same time their clashing, yet complementary, orientations contribute to their successful coping with the obstacles and challenges they face together. This brings us full circle to the conflicted spouses in our opening example. If our analysis is correct, despite the tension-inducing incident on the parking lot, their overall partnership might be highly successful as well as stimulating. As the great oceans illustrate, it is not only still waters that run deep.

References

Amabile, T. M., & Hennessey, B. A. (1992). The motivation for creativity in children. In A. K. Boggiano & T. S. Pittman (Eds.), *Achievement and motivation: A social–developmental perspective* (pp. 54–74). New York: Cambridge University Press.

Amabile, T. M., Hill, K. G., Hennessy, B. A., & Tighe, E. M. (1994). The Work Preference Inventory: Assessing intrinsic and extrinsic motivational orientations. *Journal of Personality and Social Psychology, 66,* 950–967.

Aspinwall, L. G. (1998). Rethinking the role of positive affect in self-regulation. *Motivation and Emotion, 22,* 1–32.

Atash, M. N. (1994). Assessing the dimensionality of the IEA reading literacy data. In M. Binkley, K. Rust, & M. Wingle (Eds.), *Methodological issues in comparative educational studies: The case of the IEA reading literacy study* (pp. 75–103). Washington, DC: National Center for Educational Statistics.

Atkinson, J. W. (1964). *An introduction to motivation.* Princeton, NJ: Van Nostrand.

Bagozzi, R. B. (1993). Assessing construct validity in personality research: Application to measures of self esteem. *Journal of Research in Personality, 27,* 49–87.

Bagozzi, R. B., & Heatherton, T. F. (1994). A general approach to representing multifaceted personality constructs: Application to state self-esteem. *Structural Equation Modeling, 1,* 35–67.

Bentler, P. M., & Chou, C. P. (1987). Practical issues in structural modeling. *Sociological Methods & Research, 16,* 78–117.

Berscheid, E. (1983). Emotion. In H. H. Kelley, E. Berscheid, A. Christensen, J. Harvey, T. Huston, G. Levinger, E. McClintock, L. A. Peplau, & D. Peterson (Eds.), *Close relationships* (pp. 110–168). San Francisco: Freeman.

Boggiano, A. K. (1998). Maladaptive achievement patterns: A test of a diathesis–stress analysis of helplessness. *Journal of Personality and Social Psychology, 74,* 1681–1695.

Bollen, K. A. (1989). A new incremental fit index for general structural equation models. *Sociological Methods and Research, 17,* 303–316.

Brooke, P. P., Russell, D. W., & Price, J. L. (1988). Discriminant validation of measures of job satisfaction, job involvement, and organizational commitment. *Journal of Applied Psychology, 73,* 139–145.

Button, S. B., Mathieu, J. E., & Zajac, D. M. (1996). Goal orientation in organizational research: A conceptual and empirical foundation. *Organizational Behavior and Human Decision Processes, 67,* 26–48.

Carver, C. S., & Scheier, M. F. (1990). Origins and functions of positive and negative affect: A control process view. *Psychological Review, 97,* 19–35.

Cattell, R. B., Cattell, A. K., & Cattell, H. E. (1993). *Sixteen Personality Factor Questionnaire* (5th ed.). Champaign, IL: Institute for Personality and Ability Testing.

Costa, P. T., Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five Factor Inventory (NEO-FFI) professional manual.* Odessa, FL: Psychological Assessment Resources.

Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety.* San Francisco: Jossey-Bass.

Deci, E. L., & Ryan, R. M. (1991). A motivational approach to self: Integration in personality. In R. Dienstbier (Ed.), *Nebraska symposium on motivation* (Vol. 38, pp. 237–288). Lincoln, NE: University of Nebraska Press.

Dembroski, T. M., & MacDougall, J. M. (1978). Stress effects on affiliation preferences among subjects possessing the Type A coronary-prone behavior pattern. *Journal of Personality and Social Psychology, 36,* 23–33.

Dickman, S. J. (1990). Functional and dysfunctional impulsivity: Personality and cognitive correlates. *Journal of Personality and Social Psychology, 58,* 95–102.

Divgi, D. R. (1980, July). *Dimensionality of binary items: Use of mixed model.* Paper presented at the annual meeting of the National Council on Measurement in Education, Boston.

Duval, S., & Wicklund, R. A. (1972). *A theory of objective self-awareness.* New York: Academic Press.

Dweck, C. S. (1991). Self-theories and goals: Their role in motivation, personality and development. In R. Dienstbier (Ed.), *Nebraska symposium on motivation* (Vol. 38, pp. 199–235). Lincoln, NE: University of Nebraska Press.

Eagly, A. H., & Chaiken, S. (1998). Attitude structure and function. In D. Gilbert, S. Fiske, & G. Lindzey (Eds.), *Handbook of social psychology* (4th ed., Vol. 1, pp. 269–322). New York: McGraw-Hill.

Elliot, A. J., & Harackiewicz, J. M. (1996). Approach and avoidance achievement goals and intrinsic motivation: A mediational analysis. *Journal of Personality and Social Psychology, 70,* 461–475.

Fenigstein, A., Scheier, M. F., & Buss, A. H. (1975). Public and private self-consciousness: Assessment and theory. *Journal of Consulting and Clinical Psychology, 43,* 522–527.

French, J. R. P., Jr., & Raven, B. H. (1959). The bases of social power. In D. Cartwright (Ed.), *Studies in social power* (pp. 150–167). Ann Arbor, MI: University of Michigan Press.

Green, S. B., Lissitz, R. W., & Muliak, S. A. (1977). Limitations of coefficient alpha as an index of test unidimensionality. *Educational and Psychological Measurement, 37,* 827–838.

Goldberg, L. R. (1992). The development of markers for the Big Five factor structure. *Psychological Assessment, 4,* 26–42.

Gollwitzer, P. M. (1990). Action phases and mind-sets. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 2, pp. 53–92).

Gollwitzer, P. M., Heckhausen, H., & Stellar, B. (1990). Deliberative vs. implemental mind-sets: Cognitive tuning toward congruous thoughts and information. *Journal of Personality and Social Psychology, 59,* 1119–1127.

Harackiewicz, J. M., Manderlink, G., & Sansone, C. (1992). Competence processes and achievement: Implications for intrinsic motivation. In A. K. Boggiano & T. S. Pittman (Eds.), *Achievement and motivation: A social development perspective* (pp. 115–137). New York: Cambridge University Press.

Hattie, J. (1985). Methodology review: Assessing unidimensionality of tests and items. *Applied Psychological Measurement, 9,* 139–164.

Heckhausen, H., & Gollwitzer, P. M. (1987). Thought contents and cognitive functioning in motivational versus volitional states of mind. *Motivation and Emotion, 11,* 101–120.

Herman, W. E. (1990). Fear of failure as a distinctive personality trait measure of test anxiety. *Journal of Research and Development in Education, 23,* 180–185.

Higgins, E. T. (1987). Self-discrepancy: A theory relating self and affect. *Psychological Review, 94,* 319–340.

Higgins, E. T. (1989). Knowledge accessibility and activation: Subjectivity and suffering from unconscious sources. In J. S. Uleman & J. A. Bargh (Eds.), *Unintended thought* (pp. 75–115). New York: Guilford Press.

Higgins, E. T., & Kruglanski, A. W. (1995). *A theory of regulatory modes: When locomotion versus assessment is emphasized.* Unpublished manuscript, Columbia University, New York.

Higgins, E. T., Shah, J., & Friedman, R. (1997). Emotional responses to goal attainment: Strength of regulatory focus as moderator. *Journal of Personality and Social Psychology, 72,* 515–525.

Hill, C. A. (1987). Affiliation motivation: People who need people . . . but in different ways. *Journal of Personality and Social Psychology, 52,* 1008–1018.

Huba, G. J., Aneshensel, C. S., & Singer, J. L. (1981). Development of scales for three second-order factors of inner experience. *Multivariate Behavioral Research, 16,* 181–206.

Jackson, D. N. (1974). *Personality Research Form manual.* Goshen, NY: Research Psychologists Press.

Jarvis, W. B. G., & Petty, R. E. (1996). The need to evaluate. *Journal of Personality and Social Psychology, 70,* 172–194.

Jenkins, C. D., Zyzanski, S. J., & Roseman, R. H. (1979). *Jenkins Activity Survey, Form C.* New York: The Psychological Corporation.

Jöreskog, K. G., & Sörbom, D. (1993). *Lisrel 8: Structural equation modeling with the SIMPLIS command language.* Chicago: Scientific Software.

Kruglanski, A. W. (1996). Goals as knowledge structures. In P. M. Gollwitzer & J. A. Bargh (Eds.), *The psychology of action: Linking cognition and motivation to behavior* (pp. 599–619). New York: Guilford Press.

Kuhl, J. (1985). Volitional mediation of cognition–behavior consistency: Self-regulatory processes and action versus state orientation. In J. Kuhl & J. Beckman (Eds.), *Action control: From cognition to behavior* (pp. 101–128). Berlin, Germany: Springer-Verlag.

Leary, M. R. (1983). Social anxiousness: The construct and its measurement. *Journal of Personality Assessment, 47,* 66–75.

Lewin, K., Dembo, T., Festinger, L., & Sears, P. S. (1944). Level of aspiration. In J. McHunt (Ed.), *Personality and the behavior disorders* (Vol. 1, pp. 333–378). New York: Ronald Press.

Lumsden, J. (1961). The construction of unidimensional tests. *Psychological Bulletin, 58,* 122–133.

Maio, G. R., & Olson, J. M. (Eds.). (1999). *Why we evaluate: Functions of attitudes.* Hillsdale, NJ: Erlbaum.

Matthews, K. A., & Siegel, J. M. (1983). Type A behaviors for children, social comparison, and standards for self-evaluation. *Developmental Psychology, 19,* 135–140.

McNemar, Q. (1969). *Psychological statistics.* New York: Wiley.

Miller, G. A., Galanter, E., & Pribram, K. (1960). *Plans and the structure of behavior.* New York: Holt.

Mischel, W. (1974). Processes in delay of gratification. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 7, pp. 249–292). New York: Academic Press.

Mischel, W. (1981). Metacognition and the rules of delay. In J. H. Flavell & L. Ross (Eds.), *Social cognitive development: Frontiers and possible futures* (pp. 240–271). New York: Cambridge University Press.

Moretti, M. M., & Higgins, E. T. (1990). Relating self-discrepancy to self-esteem: The contribution of discrepancy beyond actual self-ratings. *Journal of Experimental Social Psychology, 26,* 108–123.

Muliak, S. A. (1987). A brief history of the philosophical foundations of exploratory factor analysis. *Multivariate Behavioral Research, 22,* 267–305.

Nasco, S. A., & Marsh, K. L. (1999). Gaining control through counterfactual thinking. *Personality and Social Psychology Bulletin, 25,* 556–568.

Nunnaly, J. C. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.

Pierro, A., Mannetti, L., Converso, D., Garsia, V., Miglietta, A., Ravenna, M., & Rubini, M. (1995). Caratteristiche strutturali della versione italiana della scala di bisogno di chiusura cognitiva (di Webster e Kruglanski) [Structural characteristics of the Italian version of the Need for Cognitive Closure Scale (of Webster and Kruglanski)]. *Testing, Psicometria, Metodologia, 2,* 125–141.

Pittman, T. S., & D'Agostino, P. R. (1985). Motivation and attribution: The effects of control deprivation on subsequent information processing. In J. H. Harvey & G. Weary (Eds.), *Attribution: Basic issues and applications* (pp. 117–141). New York: Academic Press.

Pratto, F., Sidanius, J., Stallworth, L. M., & Malle, B. F. (1994). Social dominance orientation: A personality variable predicting social and political attitudes. *Journal of Personality and Social Psychology, 67,* 741–763.

Pyszczynski, T., & Greenberg, J. (1987). Self-regulatory perservation and the depressive self-focusing style: A self-awareness theory of reactive depression. *Psychological Bulletin, 102,* 122–138.

Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1,* 385–401.

Raven, B. H., & Kruglanski, A. W. (1970). Conflict and power. In P. Swingle (Ed.), *The structure of conflict* (pp. 69–109). New York: Academic Press.

Roese, N. J., & Olson, J. M. (1997). Counterfactual thinking: The intersection of affect and function. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 29, pp. 1–59). San Diego, CA: Academic Press.

Rosenberg, M. (1965). *Society and the adolescent self-image.* Princeton, NJ: Princeton University Press.

Ruble, D. N. (1983). The development of social comparison processes and their role in achievement-related self-socialization. In E. T. Higgins, D. N. Ruble, & W. W. Hartup (Eds.), *Social cognition and social development: A socio-cultural perspective* (pp. 134–157). New York: Cambridge University Press.

Ryan, R. M. (1995). Psychological needs and the facilitation of integrative processes. *Journal of Personality, 63,* 397–427.

Ryan, R. M., & Frederick, C. (1997). On energy, personality, and health: Subjective vitality as a dynamic reflection of well-being. *Journal of Personality, 65,* 529–565.

Sansone, C., & Harackiewicz, J. M. (1996). "I don't feel like it": The function of interest in self-regulation. In L. Martin & A. Tesser (Eds.), *Striving and feeling: Interactions between goals and affect* (pp. 203–228). Mahwah, NJ: Erlbaum.

Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology, 67,* 1063–1078.

Shah, J. Y., Kruglanski, A. W., & Thompson, E. P. (1998). Membership has its (epistemic) rewards: Need for closure effects on intergroup favoritism. *Journal of Personality and Social Psychology, 75,* 383–393.

Strube, M. J. (1987). A self-appraisal model of the Type A behavior pattern. In R. Hogan & W. Jones (Eds.), *Perspectives in personality: Theory, measurement, and interpersonal dynamics* (Vol. 2, pp. 201–250). Greenwich, CT: JAI Press.

Tanaka, J. S. (1993). Multifaceted conceptions of fit in structural equation models. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 10–39). Newbury Park, CA: Sage.

Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: A social

psychological perspective on mental health. *Psychological Bulletin, 103,* 193–210.

Thompson, E. P., Chaiken, S., & Hazlewood, J. D. (1993). Need for cognition and desire for control as moderators of extrinsic reward effects: A Person × Situation approach to the study of intrinsic motivation. *Journal of Personality and Social Psychology, 64,* 987–999.

Thompson, M. M., Naccarato, M. E., & Parker, K. E. (1989, June). *Assessing cognitive need: The development of the Personal Need for Structure and Personal Fear of Invalidity scales.* Paper presented at the annual meeting of the Canadian Psychological Association, Halifax, Nova Scotia, Canada.

Trope, Y., & Neter, E. (1994). Reconciling competing motives in self-evaluation: The role of self-control in feedback seeking. *Journal of Personality and Social Psychology, 66,* 646–657.

Vallerand, R. J., Pelletier, L. G., Blais, M. R., Briere, N. M., Senecal, C., & Vallieres, E. F. (1992). The academic motivation scale: A measure of intrinsic, extrinsic, and amotivation in education. *Educational and Psychological Measurement, 52,* 1003–1017.

Webster, D. M., & Kruglanski, A. W. (1994). Individual differences in need for cognitive closure. *Journal of Personality and Social Psychology, 67,* 1049–1062.

Weiner, B. (1985). Spontaneous causal thinking. *Psychological Bulletin, 97,* 74–84.

Zuckerman, M. (1971). Dimension of sensation-seeking. *Journal of Consulting and Clinical Psychology, 36,* 45–52.

Received August 23, 1999
Revision received March 22, 2000
Accepted May 24, 2000 ■