

Two Facets of Self-Knowledge: Cross-Cultural Development of Measures in Iran and the United States

NIMA GHORBANI

*Department of Psychology
University of Tehran*

P. J. WATSON

MARK N. BING

*Department of Psychology
University of Tennessee at Chattanooga*

H. KRISTL DAVISON

*Department of Psychology
University of Hartford*

DANIEL LeBRETON

*Department of Psychology
University of Tennessee at Chattanooga*

ABSTRACT. Self-knowledge is an ideal not only within psychological theory and practice but also within the religious and philosophical foundations of many cultures. In 6 studies conducted in Iran and the United States, the authors sought to construct and to validate scales for measuring two facets of self-knowledge. *Experiential self-knowledge* was defined as an ongoing sensitivity to the self in the present. *Reflective self-knowledge* was described in terms of personal efforts to integrate experience within self-schemas developed in the past. Thirteen-item experiential self-knowledge and reflective self-knowledge scales were created by the authors using samples of Iranian and American university students. A confirmatory factor analysis verified this 2-factor structure in a second study, and these results were replicated in a 3rd study. Correlations with a broad array of self-report variables established the two scales as valid measures of adjustment. Both displayed adequate test-retest reliability. Correlations with peer reports suggested that the two factors had behavioral implications in both cultures. Reflective self-knowledge proved to be as important as educational abilities in predicting the academic performance of Americans who were motivated to attend class. Experiential self-knowledge and reflective self-knowledge also interacted to predict better grades. In short, the experiential self-knowledge and reflective self-knowledge scales operationalized cross-cultural personality processes that deserve additional research attention.

Key words: experiential self-knowledge, Iran, personality, reflective self-knowledge, United States

IN MANY CULTURES, self-knowledge has been recognized as central to human flourishing. Vedic, Buddhist, and Eastern mystical traditions promote spiritual liberation through self-knowledge (e.g., Mitchell, 2000; Rahula, 1959; Titmuss, 1998). In the Hebrew scriptures, a lack of self-knowledge is a fundamental human flaw (Ecclesiastes; Jeremiah, 17:9), and the Christian New Testament essentially encourages self-knowledge (Matthew 6:19–7:27; Brown, 1997, p. 180). The Christian mystic Teresa of Avila (1979/1577) once described the soul as an “Interior Castle” in which spending time in the self-knowledge of the “first room” was necessary before moving more deeply within. In his *Institutes of the Christian Religion*, Calvin (1960/1599) asserted that “without knowledge of self there is no knowledge of God” (p. 35) and that “without knowledge of God there is no knowledge of self” (p. 37). Islam similarly emphasizes that forgetting God is linked to forgetting the self (Holy Qu’ran, Sura 59: Verse 19). Early Muslim spiritual leaders and mystics also argued that “someone who knows oneself, knows God” (Frozanfar, 1992, p. 167), that “self-knowledge is the most useful form of knowledge” and a sign of wisdom (Khansari, 1988, pp. 25, 297), and that “not knowing oneself ends in immaturity and destroys salvation” (Rumi, 1985/1278, p. 150).

Philosophical traditions have praised self-knowledge as well. In the ancient world, understanding the self was a guiding principle in the lives of early philosophers (Hadot, 2002). Medieval Christian philosophy was influenced by Augustine’s journey into his “inward self” (Augustine, 1943/397–401, p. 149). Social life later moved through the *cogito* of Descartes (1968/1637) into the urbane self-knowledge of modernity, which Rousseau (1975/1762) rejected in favor of the “inner light” (p. 236) found within a “simplicity of the heart” (p. 292). Hegelian analysis subsequently placed the dialectical unfolding of self-consciousness at the center of history (Kojève, 1969), and existentialism and other Western philosophical developments recently have returned to the ancient Delphic counsel to “know thyself” (Jopling, 2000).

Contemporary psychology has confirmed the importance of self-knowledge, perhaps most obviously in psychotherapy. In psychoanalysis, for example, “Self-knowledge of a very special kind strengthens the individual’s ability to make choices and seek fulfillment” (Arlow, 1995, p. 16). In person-centered therapy, “the therapist facilitates the client’s discoveries of the meaning of his or her own current inner experiencing” (Meador & Rogers, 1984, p. 146). Cognitive therapists assume that “behavior can be influenced by beliefs of which one is not immediately aware” (Beck & Weishaar, 1995, p. 230), and they consequently encourage clients to become more cognizant of their “ongoing internal dialogue” (Meichenbam, 1985) and their “automatic thoughts” (Beck, 1976).

Address correspondence to P. J. Watson, Psychology/Department #2803, 350 Holt Hall, 615 McCallie Avenue, University of Tennessee at Chattanooga, Chattanooga, TN 37403; paul-watson@utc.edu (e-mail).

Even in behavior therapy, identifying the factors that influence behavior and setting goals often require at least a superficial level of client self-knowledge. Indeed, in behavior therapy, "self-knowledge is a prerequisite for more advanced interventions. Without adequate self-knowledge, clients are not ready to proceed into areas of self-acceptance or self-regulation" (Overholser, 1996, p. 551).

In psychological research, numerous instruments measure self-knowledge (Robins, Norem, & Cheek, 1999). This research interest makes it clear that self-knowledge "has a unique functional status among our stored knowledge of objects in the world" because it alone "concerns the only object in the world that a person must continually regulate in order to survive" (Higgins, 1996, p. 1063). The Self-Consciousness Scale (Fenigstein, Scheier, & Buss, 1975), for instance, has been widely used (Carver & Scheier, 1981) and has cross-cultural validity (e.g., Nystedt & Smari, 1989). Its Private Self-Consciousness subscale records an introspective openness to inner thoughts and feelings, but it has ambiguous mental health implications. Internal State Awareness and Self-Reflectiveness factors within it (Mittal & Balasubramanian, 1987) tend to predict adjustment and maladjustment, respectively, with such relationships even more obvious when Internal State Awareness is reexamined after partialing out Self-Reflectiveness and vice versa (e.g., Watson & Biderman, 1993). The poor internal reliability of these factors also suggests that new instruments need to be constructed (Britt, 1992). A central goal of the present project was to develop more unambiguously healthy measures of self-knowledge.

Two Facets of Self-Knowledge

In short, religious, philosophical, therapeutic, and research considerations have revealed the need for valid measures of an adaptive self-knowledge. We developed new instruments in the present project by using samples from two very different societies: Iran and the United States. As noted previously, self-knowledge is an emphasis within Islamic traditions that are central to Iranian social life and to the Judeo-Christian and philosophical foundations of a Western culture like the United States. The examination of samples from these two societies made it possible to offer a preliminary test of the presumed cross-cultural significance of self-knowledge.

Development of the new scales was based on the foundational assumption that self-knowledge is an integrative, adaptive, and dynamic psychological process that operates across time. Self-knowledge is an integrative process because it attempts to bring the experiences and attributes of the self into a meaningful synthesis. Self-knowledge is adaptive because it is a self-regulatory process that promotes the well-being of the self. Self-knowledge is dynamic because the self must respond to frequently changing circumstances. Frequently changing circumstances mean that self-knowledge must include an awareness of present experience and must relate present experience to the past.

According to this conceptualization, therefore, a truly adaptive self-knowledge must consist of experiential self-knowledge and of reflective self-knowledge. In this study, we conceptualized *experiential self-knowledge* as a receptive processing of information about the self in terms of its moment-to-moment, dynamic changes in the present. As an awareness of ongoing psychological states, experiential self-knowledge would allow the individual to discriminate among and to process the contents of current experience. It would provide the immediate input of self-experience that is necessary to meet challenges and to achieve goals, and it would also help prevent excessively automatic or compulsive forms of responding. We defined *reflective self-knowledge* as an active cognitive processing of information about the self relative to its past. Reflective self-knowledge would involve the analysis of self-experience through more complex, higher order cognitive functions and would facilitate the creation of progressively more sophisticated self-schemas that would supply a broader perspective for guiding behavior.

As interrelated processes essential to adjustment, experiential self-knowledge and reflective self-knowledge should work in tandem and should display similar correlations with a wide range of variables. Experiential self-knowledge, nevertheless, should dominate during challenging circumstances that demand careful attention to the self in the present. In such situations, an overreliance on reflective self-knowledge could promote habitual modes of responding that have little or no grounding in current experiential realities. Conversely, experiential self-knowledge without the benefit of reflective self-knowledge could result in a failure to bring past insights to bear on current experience. In fact, experiential self-knowledge presumably would be influenced by current self-schemas and by tendencies to assimilate experiences within those schemas. Information supplied by experiential self-knowledge should also be essential in attempts to accommodate to new experiences. With reflective self-knowledge, knowledge of the self would be enhanced through personal reflections that were related more or less analytically to existent self-schemas. Such reflections could lead to accommodative alterations in schemas, but deeper assimilations of experience presumably could occur as well.

Experiential self-knowledge and reflective self-knowledge define processes that seem relevant to a broad array of previous work. At a basic conceptual level, they correspond to the "two classes of self phenomena" that have been central to previous theoretical and empirical examinations of the self (Robins et al., 1999, p. 448). Specifically, experiential self-knowledge is about an "ongoing sense of self-awareness," and reflective self-knowledge involves "stable self-representations" (Robins et al., p. 448).

Rough parallels with experiential self-knowledge also seem evident, for example, in the "stream of consciousness" (James, 1904/1890, pp. 224-290), in the Rogerian "fully functioning person" who is "able to experience all of their feelings, afraid of none of them, allowing awareness to flow freely in and

through their experience" (Raskin & Rogers, 1995, p. 141), in an existential "realization of one's being" (May & Yalom, 1995, p. 263), and in "mindfulness" (Brown & Ryan, 2003). Theories about self-concept include ideas similar to reflective self-knowledge (e.g., Robins et al., 1999, pp. 444–445). Measures of alexithymia often record an absence of emotional experiential self-knowledge (Bagby, Parker, & Taylor, 1994). Emotional intelligence scales can include elements of both experiential self-knowledge and reflective self-knowledge (Salovey, Mayer, Goldman, Turvey, & Palfai, 1995). These and numerous other examples reveal that measures of experiential self-knowledge and reflective self-knowledge could clarify a wide range of theoretical perspectives and empirical findings.

In summary, in this investigation, we sought to create measures of experiential self-knowledge and reflective self-knowledge. We used Iranian and American samples as a first step toward demonstrating the cross-cultural significance of self-knowledge. In the first study, we identified items for the two instruments and obtained evidence of initial validity by examining correlations with other self-report variables. In the second and third studies, we confirmed the two-factor structure of self-knowledge while further examining relationships with self-reported personality traits. We evaluated test–retest reliabilities in a fourth procedure. We examined relationships with peer reports from both cultures in a fifth investigation. In a final study, we examined whether self-knowledge would help predict the academic performance of American students.

STUDY 1

Iranian and American university students were participants in the first study, which was designed to construct the experiential self-knowledge and reflective self-knowledge scales. We assessed the validity of these measures by examining relationships with the Self-Consciousness Scale (Fenigstein, Scheier, & Buss, 1975), the 20-item version of the Toronto Alexithymia Scale (Bagby et al., 1994), the Trait Meta-Mood Scale of emotional intelligence (Salovey et al., 1995), the Costello and Comrey (1967) Anxiety and Depression Scales, the Rosenberg (1965) Self-Esteem Scale, and the Perceived Stress Scale (Cohen, Kamarack, & Mermelstein, 1983). The general expectation was that both forms of self-knowledge would predict relative mental health cross-culturally.

Method

Participants

Research participants were university student volunteers from Iran and the United States. The Iranian sample was from the University of Tehran and included 116 women, 111 men, and 4 individuals who did not indicate gender. Their average age was 21.97 years ($SD = 2.91$). Of the 220 Americans, 86 were

women and 134 were men. These students attended the University of Tennessee at Chattanooga and were 68.2% Caucasian, 25.0% African American, and 6.8% various other racial groups. The average age of the American sample was 20.30 years ($SD = 3.81$).

In this series of studies, Iranian students tended to be older for two reasons. Iranian men usually complete military service obligations before beginning their higher education, and Iranian students often take highly competitive entrance examinations several times before gaining admission into a university. Religious affiliation was not formally assessed throughout this project. However, all the Iranians were Muslim, and dozens of investigations involving literally thousands of individuals consistently have described American samples from the University of Tennessee at Chattanooga to be 90% Christian, with the remaining 10% having no or other religious affiliations (e.g., Watson, Morris, & Hood, 1990). Among the Christians, approximately 40% of the full samples are typically Baptists. Catholics, Presbyterians, and Methodists constitute about 10% each, with various other denominations making up the rest.

Measures

Scales for this and a number of other projects were combined into two questionnaires. The first questionnaire contained 105 potential self-knowledge statements, followed by measures of anxiety and depression. To develop the 105 items, we sought items that express the full range of characteristics that might contribute to self-knowledge, including an awareness of and personal attempts to understand one's own emotions, behaviors, intellectual functioning, moods, personality, and somatic states. We also performed an in-depth analysis of the two-facet conceptualization of self-knowledge, along with a careful consideration of other instruments that seemed to be at least somewhat relevant (e.g., measures of private self-consciousness, alexithymia, and emotional intelligence). All other scales were included in the second questionnaire.

This and subsequent studies in this series involved the use of parallel procedures to construct the questionnaires. Research materials were as similar as possible across the two samples. Iranians received Persian versions of all materials. The first two authors conducted extensive e-mail conversations clarifying the nuances of all English statements before translating them into Persian. We confirmed the adequacy of all translations by having someone unfamiliar with the hypotheses of the project translate all Persian statements back into English.

Except for perceived stress and self-knowledge, participants in this first study responded to all questionnaires using a 5-point Likert scale ranging from *strongly agree* (0) to *strongly disagree* (4). Options for self-knowledge were *largely untrue* (0), *somewhat untrue* (1), *neither true nor untrue* (2), *somewhat true* (3), and *largely true* (4). For perceived stress, possible responses varied from *never* (0) to *very often* (4).

In addition to private self-consciousness, the Fenigstein et al. (1975) Self-Consciousness Scale assessed public self-consciousness and social anxiety. Public self-consciousness records an individual's awareness of the self in relationship to others. Social anxiety records a personal apprehensiveness about being evaluated by others. We scored self-consciousness variables according to the recommendations of Mittal and Balasubramanian (1987) and included the Internal State Awareness and Self-Reflectiveness factors of private self-consciousness and the Appearance and Style Consciousness factors of public self-consciousness. Alexithymia was assessed with the 20-item Toronto Alexithymia Scale, with dimensions operationalizing externally oriented thinking, difficulty identifying feelings, and difficulty describing feelings (Bagby et al., 1994). The 30-item Trait Meta-Mood Scale recorded three components of emotional intelligence (Salovey et al., 1995): attention to feelings, clarity of feelings, and mood repair. Tendencies toward dispositional depression and anxiety were gauged with the Costello and Comrey (1967) scales. The Rosenberg (1965) scale recorded global self-esteem, and the Cohen et al. (1983) instrument evaluated individual differences in the perceived stress of recent experience.

Procedure

In this and all related projects, informed consent was obtained from the volunteers, and appropriate debriefing procedures were followed. Participants in the first study responded to the questionnaires in groups of approximately 50 or fewer. Completion of all measures occurred within 1.5 hr in virtually every instance. Americans entered responses to all items on standardized answer sheets that were read into a computer file by optical scanning equipment. Iranians noted their responses on paper; these data later were entered manually into a computer file. The Iranian file was double-checked to ensure the accuracy of data entry.

For the sake of clarity and brevity, in the presentation of this series of studies we focus exclusively on development of the self-knowledge scales. Detailed reviews of (a) reliability and validity information for the other measures, (b) descriptive statistics and coefficient alphas obtained for these other measures, (c) correlations observed among them, and (d) additional cross-cultural comparisons between the two samples were reserved for presentation in companion projects, which are available on request. Two companion projects were associated with this first study (Ghorbani, Bing, Watson, Davison, & Mack, 2002; Watson et al., 2002).

Overall, three generalizations supplied the necessary interpretative background for evaluating the self-knowledge data across these studies. First, with one exception to be noted in a later study, all measures displayed generally acceptable internal reliabilities for research purposes with all alphas greater than .60. Second, no cross-cultural contrasts appeared in the implications of any construct. In other words, a clear index of adjustment in one society never correlat-

ed positively with maladjustment in the other. Finally, correlations among putative measures of healthy and unhealthy psychological functioning confirmed their validity in both cultures.

Analyses

Analyses creating the cross-cultural experiential self-knowledge and reflective self-knowledge scales were based on three fundamental assumptions. First, we used a principal components analysis (PCA) to maximize the self-knowledge variance explained in each sample separately (Tabachnick & Fidell, 1996, p. 664). The hope was that an extraction of maximum variance would increase the probability of obtaining parallel cross-cultural loadings. In other words, this would decrease the probability of obtaining more discrete culturally unique explanations of the variance. Second, we used an oblique rotation because we presumed that experiential self-knowledge and reflective self-knowledge would operate as related forms of adjustment. Finally, and most important, we expected that any final factor structure would need to be verified in subsequent studies using confirmatory factor analysis (CFA) procedures.

Of the 105 potential self-knowledge items, 55 attempted to operationalize experiential self-knowledge and 50 attempted to operationalize reflective self-knowledge. In each sample separately, coefficient alphas were computed for each measure. Any item with a negative item-to-total correlation or with a badly skewed response pattern in either sample was dropped from both. Thirty statements remained for experiential self-knowledge, and 34 remained for reflective self-knowledge.

Roughly similar item-to-total correlations were observed cross-culturally. We combined items with the highest correlations in one or the other sample and used them in PCA procedures that forced the data into two oblique factors. Identification of an acceptable item was based on three criteria: (a) a loading of .30 or higher on the factor for which the item was written, (b) a loading that was stronger for the theoretically appropriate factor than for the other factor, and (c) an observation of this pattern across both cultures. We entered no more than 15 items per self-knowledge measure into each factor analysis, which guaranteed that subject-to-item ratios were always greater than 5:1. We replaced all items that failed to meet these three criteria in the next factor analysis by items that displayed the next highest item-to-total correlations. We continued these procedures until all items had been examined. A final analysis combined data from both cultures into a single PCA to ensure that the two-factor structure would reappear cross-culturally.

Prior to examining experiential self-knowledge and reflective self-knowledge correlations with other variables, we computed internal reliabilities for all measures in each sample separately. Among the other variables, any items that displayed a negative item-to-total correlation in either sample were dropped from

both to improve internal reliability and the accuracy of construct measurement. After we removed single items from the attention to feelings, the externally oriented thinking, and the perceived stress measures (see Ghorbani et al., 2002), experiential self-knowledge and reflective self-knowledge were correlated with all other scales.

Results and Discussion

Seven iterations of the factor analysis procedure were required to examine all potential self-knowledge items. The seventh analysis yielded 15 reflective self-knowledge and 13 experiential self-knowledge items. Two reflective self-knowledge items displayed poorer differentiations between the two factors in Iran and were dropped from an eighth factor analysis to produce two equal-sized, 13-item instruments. Final factor analysis data are given in Table 1 for experiential self-knowledge and in Table 2 for reflective self-knowledge. In Iran, the alpha for the experiential self-knowledge scale was .90 (M response per item = 2.45, SD = 0.72), whereas in the United States, it was .86 (M = 2.74, SD = 0.56). An alpha of .84 was obtained for reflective self-knowledge in Iran (M = 2.45, SD = 0.71). In the United States, it was .81 (M = 2.76, SD = 0.55).

Further attempts to reduce the number of items resulted in less clarity in the differentiation between factors, especially with the Iranian data. With the 13-item measures, clear loadings of statements on one but not the other dimension were obvious for both factors in the United States and for experiential self-knowledge in Iran. For the Iranians, three reflective self-knowledge items displayed noteworthy secondary loadings ($> .30$) on experiential self-knowledge, with 1 item in particular displaying only a slightly stronger loading on reflective self-knowledge. A relatively weaker differentiation between dimensions was evident in the Iranian correlations as well. The relationship between the two factors was .74 ($p < .001$) for the Iranians and .46 ($p < .001$) for the Americans.

To what extent did these contrasts reveal fundamental cross-cultural differences in the way items defined the self-knowledge scales? To assess measurement invariance across samples, we specified a two-factor measurement model. The model included two correlated latent factors reflecting experiential self-knowledge and reflective self-knowledge. We assessed the adequacy of the model by using the comparative fit index (CFI; Bentler, 1990) and the non-normed fit index (TLI; Tucker & Lewis, 1973). CFI and TLI values greater than .90 are typically taken to indicate acceptable fit. First, we assessed configural invariance by determining the fit of the two samples to the basic two-factor model. Fit indices indicated that both sample covariance matrices could be explained with a two-factor model, with reflective self-knowledge items loading on one factor and experiential self-knowledge items loading on the other (CFI = .988, TLI = .986). Next, we assessed metric invariance by specifying a model that constrained the factor loadings to be identical across the two samples. These results

TABLE 1. Loadings of Experiential Self-Knowledge (ESK) Items on ESK and Reflective Self-Knowledge (RSK) Factors in Iranian, United States, and Combined Samples

Item	Iran		United States		Combined	
	ESK	RSK	ESK	RSK	ESK	RSK
I usually am aware of the thoughts that make me worry or make me sad.	.40	.04	.46	.06	.47	.21
Usually, I am immediately aware of the feelings I am experiencing.	.56	.17	.74	-.01	.69	.02
I am conscious of how my mind is working when I am trying to solve a problem.	.47	.04	.37	.06	.45	.06
I usually notice right away when my fists become clenched and my muscles tense.	.58	-.05	.41	-.01	.50	-.02
I am immediately aware of the feelings which are flowing in me.	.79	-.16	.71	-.06	.76	-.11
I usually understand immediately why my emotions change.	.72	.00	.82	-.03	.78	-.05
Usually I am aware immediately when my ongoing thoughts or feelings create worry or sadness in me.	.66	.03	.71	-.03	.71	-.09
I am often aware of the line of associations that link my thoughts together.	.58	.15	.36	.19	.47	.21
I am clearly aware of my ongoing feelings.	.76	-.05	.71	-.03	.74	.01
Usually, I am immediately aware of the changes which my feelings create in my thinking.	.68	-.03	.59	.13	.64	.04
I can always identify how I feel as I experience one emotion or another.	.64	.05	.64	.03	.65	.03
In almost all situations, I am frequently noticing how the spontaneous reactions of my mind determine how I behave.	.56	.13	.41	.06	.52	.09
I am immediately aware of the ongoing changes in my feelings.	.78	.03	.81	-.04	.81	-.01

Note. ESK eigenvalue (% variance explained): Iran = 9.64 (37.07%), United States = 6.90 (26.53%), combined = 8.66 (33.39%).

TABLE 2. Loadings of Reflective Self-Knowledge (RSK) Items on Experiential Self-Knowledge (ESK) and RSK Factors in Iranian, United States, and Combined Samples

Item	Iran		United States		Combined	
	ESK	RSK	ESK	RSK	ESK	RSK
I really enjoy analyzing the reasons and causes behind my feelings and behaviors.	.15	.61	.06	.69	.10	.67
I usually try to discover what my goals and motivations are when I do things for reasons that are not very clear to me.	.24	.49	.13	.38	.18	.45
I don't have much interest in figuring out the roots or deep causes of my thoughts, emotions, or behavior. (R)	-.01	.46	-.03	.63	-.08	.57
I believe it is important to analyze and understand my thinking and feeling processes.	.16	.59	.29	.59	.21	.57
I almost never think about how my family background and personal history have affected my personality traits. (R)	-.08	.51	-.06	.40	-.06	.46
I try to solve my interpersonal problems by considering my feelings and motives.	.24	.49	.25	.51	.25	.50
I think it is a waste of time to think about my feelings. (R)	-.11	.53	.03	.47	.01	.48
I find it important to occasionally consider how my thinking, feeling, and behavior in a specific situation relate to my character traits.	.26	.53	.16	.47	.23	.52
My experience has taught me how my negative emotions can produce physical complaints such as headaches.	-.07	.61	-.27	.62	-.21	.66
Through reflection, I am able to see how both my positive and negative moods influence how I communicate with others.	.35	.53	.20	.46	.32	.51
I often learn more about myself by considering the reactions of other people to my behavior.	.40	.41	.05	.42	.23	.45

(Table continues)

TABLE 2. Continued

Item	Iran		United States		Combined	
	ESK	RSK	ESK	RSK	ESK	RSK
I maintain an inner dialog among the conflicting ideas within me until I understand what I should do about them.	.31	.37	-.06	.58	.06	.53
I have learned how some of my thoughts and behavior can reduce negative feelings like anxiety and sadness.	.17	.55	.04	.54	.10	.57

Note. (R) indicates a reverse-scored item. RSK eigenvalue (% variance explained): Iran = 1.48 (5.68%), United States = 2.44 (9.40%), combined = 1.82 (7.00%)

suggested adequate metric invariance ($CFI = .985$, $TLI = .983$). That is, when the regression paths from the latent factors to the manifest indicators were constrained to be equal across the two samples, the model demonstrated excellent fit to the observed sample covariance matrices. In short, no fundamental differences appeared cross-culturally in the way that self-knowledge items defined the two scales.

Relationships of experiential self-knowledge and reflective self-knowledge with all other variables are given in Table 3. For the Iranian sample, both experiential self-knowledge and reflective self-knowledge predicted higher levels of both private self-consciousness factors, both public self-consciousness factors, all three dimensions of emotional intelligence, and self-esteem. The two scales also were associated with lower externally oriented thinking, depression, and perceived stress. Experiential self-knowledge alone was correlated negatively with difficulty identifying feelings and difficulty describing feelings. For the American sample, experiential self-knowledge and reflective self-knowledge predicted lower externally oriented thinking and higher internal state awareness and emotional intelligence. Reflective self-knowledge was correlated positively with self-reflectiveness, whereas experiential self-knowledge was correlated positively with self-esteem and negatively with difficulty identifying feelings, difficulty describing feelings, depression, and perceived stress. These data confirmed the validity of experiential self-knowledge and reflective self-knowledge in both samples. Expected relationships were observed with self-consciousness, alexithymia, emotional intelligence, and mental health.

In summary, factor analyses revealed a clear differentiation between experiential self-knowledge and reflective self-knowledge items in both scales for the Americans and in experiential self-knowledge for the Iranians. In the Iranian

TABLE 3. Correlations of Experiential Self-Knowledge (ESK) and Reflective Self-Knowledge (RSK) With Self-Consciousness, Alexithymia, Emotional Intelligence, and Measures of Mental Health in Samples From Iran ($n = 231$) and the United States ($n = 220$)

Variable	Iran		United States	
	ESK	RSK	ESK	RSK
Self-consciousness				
Internal state awareness	.60***	.54***	.47***	.35***
Self-reflectiveness	.51***	.67***	.07	.38***
Appearance consciousness	.45***	.47***	.08	.06
Style consciousness	.48***	.61***	.03	.07
Social anxiety	.05	.11	-.11	-.06
Alexithymia				
Difficulty identifying feelings	-.15*	-.01	-.33***	.04
Difficulty describing feelings	-.16*	-.01	-.27***	-.06
Externally oriented thinking	-.45***	-.51***	-.34***	-.55***
Emotional intelligence				
Attention to feelings	.39***	.41***	.30***	.45***
Clarity of feelings	.57***	.39***	.57***	.16*
Mood repair	.54***	.53***	.23**	.18**
Mental health				
Anxiety	-.08	.01	-.07	.09
Depression	-.38***	-.31***	-.17*	-.09
Self-esteem	.45***	.36***	.26**	.04
Perceived stress	-.28***	-.21**	-.21*	-.04

* $p < .05$. ** $p < .01$. *** $p < .001$.

sample, reflective self-knowledge items did not differentiate as markedly between the two factors. Both self-knowledge measures also predicted greater Iranian but not American public self-consciousness, and the experiential self-knowledge correlation with reflective self-knowledge tended to be more robust in the Iranians. Such observations perhaps revealed that self-awareness was more differentiated in the Americans. Such a possibility would be consistent with both favorable (Fukuyama, 1992) and unfavorable (Cushman, 1995) assessments of a presumed Western emphasis on the self. In later studies in this series, however, Iranian correlations between experiential self-knowledge and reflective self-knowledge were not always stronger than those of the Americans. In contrast to these initial findings, experiential self-knowledge predicted greater self-reflectiveness in the Americans. Subsequent CFA procedures also strongly supported the two-factor self-knowledge structure in both societies. Some unspecified idiosyncratic features of this first Iranian sample, therefore, might have caused the poorer differentiation of reflective self-knowledge items that was displayed in these Iranian participants.

STUDY 2

Valid self-knowledge measures presumably should correlate positively with a need for cognition (Cacioppo, Petty, Feinstein, & Jarvis, 1996) and with an internal locus of control (Levenson, 1973). They also should display negative associations with obsessive thinking (Sanavio, 1988) about the self and with the chance and powerful others dimensions of an external locus of control (Levenson). We tested these hypotheses in the second study. We reexamined private self-consciousness factors as well because of their special relevance to the development of the self-knowledge scales. CFA also made it possible to determine whether the two-factor structure of self-knowledge could be verified in samples from each society.

Method

Participants

Iranian participants were again from Tehran and included 186 men, 127 women, and 12 individuals who did not indicate their gender. Their average age was 21.70 years ($SD = 2.40$). Americans participants were again from the University of Tennessee at Chattanooga and included 174 men, 222 women, and 5 who left their gender unreported. These participants were 72.1% Caucasian, 18.5% African American, and 9.4% from various other racial groups. Their average age was 19.82 years ($SD = 4.69$).

Measures

All measures again were presented in a questionnaire booklet much like that used in the first study. We administered the Private Self-Consciousness subscale (Fenigstein et al., 1975) and scored it as before. We also presented the 13-item reflective self-knowledge and experiential self-knowledge measures developed in the first study using the same instructions as before, followed by the 18-item Need for Cognition Scale (Cacioppo et al., 1996), with response options ranging from *strongly characteristic of me* (0) to *strongly uncharacteristic of me* (4). Eight items defined each Multidimensional Locus of Control Scale (Levenson, 1973), with reactions ranging from *strongly disagree* (0) to *strongly agree* (4). The excessive self-rumination of obsessive thinking was measured with 17 statements from the Impaired Control Over Mental Activities factor from the Padua Inventory of obsessive-compulsiveness (Sanavio, 1988). Response options for this measure varied from *not at all* (0) to *very much* (4). A companion project presents more background information about these measures along with additional findings (Ghorbani, Watson, & Krauss, 2003).

Procedure

Both samples responded to the questionnaire in groups of varying size but none larger than approximately 75 participants. Completion of the questionnaire took less than 1 hr in virtually every instance. Processes for entering data into computer files remained the same. Descriptive statistics, internal reliabilities, and correlations were computed for experiential self-knowledge and reflective self-knowledge in each sample separately. CFA procedures determined whether a two-factor oblique model supplied an adequate fit for the 26 self-knowledge items. We used three fit indices to assess the adequacy of this two-factor model: CFI (Bentler, 1990), TLI (Tucker & Lewis, 1973), and the root mean square error of approximation (*RMSEA*; Steiger, 1990). A *RMSEA* of less than .08 and, as noted previously, CFI and TLI values greater than .90 are generally identified as standards for defining acceptable fit.

Results and Discussion

In Iran, internal reliabilities again were acceptable for experiential self-knowledge ($\alpha = .81$, $M = 2.86$, $SD = 0.57$) and reflective self-knowledge ($\alpha = .74$, $M = 2.86$, $SD = 0.58$). The American participants also displayed acceptable coefficient alphas for experiential self-knowledge ($\alpha = .83$, $M = 2.67$, $SD = 0.60$) and reflective self-knowledge ($\alpha = .82$, $M = 2.87$, $SD = 0.60$). The two-factor model provided an adequate fit in both Iran (CFI = .99, TLI = .99, *RMSEA* = .047) and the United States (CFI = .98, TLI = .98, *RMSEA* = .064). The correlation between experiential self-knowledge and reflective self-knowledge was .53 ($p < .001$) in Iran and .54 ($p < .001$) in the United States.

As shown in Table 4, experiential self-knowledge and reflective self-knowledge in both samples correlated positively with need for cognition, internal control, internal state awareness, and self-reflectiveness. Reflective self-knowledge also predicted lower levels of powerful others and chance forms of locus of control. In addition, the results from the Iranian sample showed negative correlations between experiential self-knowledge and powerful others and between reflective self-knowledge and obsessive thinking. A negative experiential self-knowledge association with obsessive thinking was evident in the Americans.

Both experiential self-knowledge and reflective self-knowledge, therefore, reflected a motivation to actively process cognitive information about the self that was not associated with self-ruminative obsessive thinking. Indeed, at least some evidence in each sample suggested an incompatibility between self-knowledge and obsessive thinking. Positive correlations confirmed the intuitively obvious expectation that any truly meaningful internal locus of control would be based on self-knowledge. The obverse expectation for an external locus of control received less robust—though still statistically significant—support. Positive experiential self-knowledge correlations with reflective self-knowledge were slightly weaker for the Iranians and

TABLE 4. Correlations of Experiential Self-Knowledge (ESK) and Reflective Self-Knowledge (RSK) With Need for Cognition, Locus of Control, and Obsessive Thinking in Samples From Iran ($n = 314$) and the United States ($n = 398$)

Variable	Iran		United States	
	ESK	RSK	ESK	RSK
Need for cognition	.19**	.40***	.11*	.34***
Internal control	.29***	.33***	.27***	.21***
Powerful others	-.13*	-.20***	-.04	-.12*
Chance	-.04	-.12*	-.06	-.15**
Obsessive thinking	-.11	-.18**	-.15**	.03
Internal state awareness	.45***	.46***	.61***	.47***
Self-reflectiveness	.36***	.50***	.23***	.50***

* $p < .05$. ** $p < .01$. *** $p < .001$.

slightly stronger for the Americans compared with those obtained in the first study. Similar patterns of contrast also appeared in self-knowledge relationships with internal state awareness and self-reflectiveness.

STUDY 3

Truly adaptive self-knowledge presumably should work against narcissistic immaturity and encourage self-actualization. Associations with a sense of identity and with an awareness of personal values should be evident as well. We tested these hypotheses in the third study. We reexamined relationships with internal state awareness and self-reflectiveness a final time because of contrasts observed between the first two studies. In addition, using CFA procedures, we attempted to offer a final confirming replication of the two-factor structure.

Method

Participants

Students from the same two institutions as before served as participants. Of the 232 Iranians, 102 were men, 122 were women, and 8 did not indicate their gender. Their average age was 21.87 years ($SD = 3.31$). Of the 241 Americans, 96 were men, and 144 were women. Their average age was 19.51 years ($SD = 3.58$). The sample from the United States was 72.6% Caucasian, 22.4% African American, and the remaining 5.0% was from various other racial groups.

Measures and Procedure

Research materials were like those of the first two studies. Private self-consciousness and self-knowledge scales were administered as before. We measured narcissism by using the 23 forced-choice items from the Margolis and Thomas (1980) Narcissism Scale, and we recorded self-actualization with 14 statements from the Short Index of Self-Actualization (Jones & Crandall, 1986), using a *strongly disagree* (0) to *strongly agree* (4) response format. Of all the scales used in this series of studies, this self-actualization measure displayed the most questionable level of internal reliability in Iran ($\alpha = .52$; for Americans, $\alpha = .64$). Options for the 19-item Identity Scale (Ochse & Plug, 1986) also ranged from *strongly disagree* (0) to *strongly agree* (4). Six and seven items made up Collectivist and Individualist Values Scales, respectively (Chan, 1994). Each item presented a relevant value plus a parenthetical clarification. Personal commitments to all values ranged from *not important* (0) to *of supreme importance* (4). More information about these variables is presented in a companion project (Ghorbani, Watson, Krauss, Bing, & Davison, in press).

Procedures for administering the questionnaire booklets and for analyzing the data paralleled those used in the second study.

Results and Discussion

In Iran, the correlation between experiential self-knowledge and reflective self-knowledge was .65 ($p < .001$). In the United States, it was .53 ($p < .001$). Acceptable internal reliabilities again were obtained for the two self-knowledge scales in Iran: experiential self-knowledge ($\alpha = .88$, $M = 2.81$, $SD = 0.72$) and reflective self-knowledge ($\alpha = .75$, $M = 2.92$, $SD = 0.59$). Similar data were observed for the Americans: experiential self-knowledge ($\alpha = .84$, $M = 2.72$, $SD = 0.61$) and reflective self-knowledge ($\alpha = .79$, $M = 2.85$, $SD = 0.57$). As in the previous study, the two-factor oblique model was acceptable, and fit indices for the two cultures were essentially identical after rounding ($CFI = .98$, $TLI = .97$, $RMSEA = .068$).

As shown in Table 5, experiential self-knowledge and reflective self-knowledge in both samples were associated with lower levels of narcissism and with higher levels of self-actualization, individualist values, collectivist values, internal state awareness, and self-reflectiveness. Identity also predicted slightly greater reflective self-knowledge in Iran and slightly greater experiential self-knowledge in the United States.

Linkages of experiential self-knowledge with reflective self-knowledge and of these two scales with the private self-consciousness factors supplemented previous findings in defining a range of correlations associated with these variables. An adaptive self-knowledge presumably should not reflect a narcissistic self-preoccupation, and these data, in fact, identified self-knowl-

TABLE 5. Correlations of Experiential Self-Knowledge (ESK) and Reflective Self-Knowledge (RSK) With Narcissism, Self-Actualization, Identity, and Individualist and Collectivist Values in Samples from Iran ($n = 231$) and the United States ($n = 241$)

Variable	Iran		United States	
	ESK	RSK	ESK	RSK
Narcissism	-.25***	-.38***	-.15*	-.15*
Self-actualization	.14*	.33***	.24***	.23***
Identity	.09	.18*	.20**	-.10
Individualist values	.25***	.32***	.19**	.18**
Collectivist values	.29***	.34***	.26***	.21**
Internal state awareness	.63***	.54***	.64***	.59***
Self-reflectiveness	.47***	.56***	.32***	.58***

* $p < .05$. ** $p < .01$. *** $p < .001$.

edge as somewhat antithetical to this form of maladjustment. As expected, self-knowledge predicted a clearer sense of values and identity. Individualistic and collectivistic values have correlated with adjustment in both cultures (Ghorbani, Bing, Watson, Davison, & LeBreton, 2003); thus, these relationships supplied further evidence of the positive mental health implications of experiential self-knowledge and reflective self-knowledge. Finally, the two-factor structure of the self-knowledge measures seemed well established, based on the results of these first three investigations.

STUDY 4

Self-reported self-knowledge presumably reflects individual differences in a stable dimension of personality. Adequate test-retest reliabilities, therefore, should be observed for both experiential self-knowledge and reflective self-knowledge.

Method

Participants

Forty-four Americans from the previously described third study sample served as the research participants. The Iranian sample consisted of 44 completely new participants (29 women and 15 men, average age = 24.34 years [$SD = 5.75$]).

Procedure

We recruited a small subset of participants from the American sample in third study for involvement in a subsequent, related project in which 7 to 8 weeks after their initial participation, they once again responded to the experiential self-knowledge and reflective self-knowledge scales. The Iranian participants also responded to the experiential self-knowledge and reflective self-knowledge scales at two intervals separated by 7 to 8 weeks.

Results and Discussion

In Iran, the test-retest reliability for experiential self-knowledge was .76 ($p < .001$). For reflective self-knowledge, it was .68 ($p < .001$). In America, these values were .75 ($p < .001$) for experiential self-knowledge and .76 ($p < .001$) for reflective self-knowledge. These two scales, therefore, proved to be stable measures of personality in both cultures.

STUDY 5

We conceptualized self-knowledge as a positive influence on adjustment that should be apparent to others. Indeed, the judgments by others are widely used in procedures to validate self-report measures of personality (e.g., Cheek, 1982; Funder & Colvin, 1997; John & Robins, 1994; McCrae & Costa, 1990) and seem especially relevant to self-knowledge because "self-insight means seeing oneself as others see one" (Robins & John, 1997, p. 651). In the fifth study, we tested the hypothesis that self-reported self-knowledge would correlate positively with peer reports of behaviors that were presumed to be indicative of self-insight. We framed this possibility within the context of two caveats.

First, self-knowledge might have subtler, less robust connections with peer reports of behavior than would at least some other personality traits, such as extraversion. Unlike self-knowledge measures, extraversion scales typically make direct reference to readily observable behaviors. This means that peer-report assessments of extraversion could be constructed simply by changing the perspective of questionnaire items from first-person self-reports to third-person peer reports. Such a procedure would not work as readily for self-knowledge scales, because these items refer to internal psychological processes that are less accessible to the observation of others. Attempts to analyze peer reports of self-knowledge, therefore, seem to require the creation of a special measure of behaviors that should reflect individual differences in self-insight. Specifically, we assumed that individuals high in self-knowledge would display in their interactions with peers evidence of greater emotional and behavioral self-awareness, a more focused pursuit of goals, superior abilities to

communicate personal ideas and desires, skill at achieving self-insight, appropriate self-control, and a sensitivity to the effects of their behaviors on others.

Second, experiential self-knowledge and reflective self-knowledge distinguish between internal processing of information about the self in the present and in the past, respectively. The two measures do not distinguish between behavioral manifestations that would necessarily be obvious to others. Peer reports of the same behavioral measures of adjustment, therefore, should correlate positively with both experiential self-knowledge and reflective self-knowledge.

Method

Participants

Additional students from the same Iranian and American universities served as the research participants. All supplied self-report data for themselves along with peer-report information for one of the other participants. Of the 134 Iranians, 71 were men, 56 were women, and 7 individuals did not indicate gender. The average age of the Iranian sample was 21.68 years ($SD = 2.14$). Of the 120 Americans, 42 were men, and 78 were women. Their average age was 19.68 years ($SD = 4.09$).

Measures

Research materials were contained in questionnaire booklets like those employed in the previous studies. We administered self-knowledge scales with the same instructions. In both cultures, we obtained acceptable internal reliabilities for reflective self-knowledge (Iran: $\alpha = .71$, $M = 2.87$, $SD = 0.54$; United States: $\alpha = .81$, $M = 2.89$, $SD = 0.57$) and for experiential self-knowledge (Iran: $\alpha = .82$, $M = 2.83$, $SD = 0.60$; United States: $\alpha = .83$, $M = 2.69$, $SD = 0.56$). The 10-item Goldberg (1999) Extraversion Scale was presented after the two self-knowledge scales. Self-reported extraversion was measured with a 5-point Likert response format ranging from *very inaccurate* (0) to *very accurate* (4). For Iranians, alpha for extraversion was .66 ($M = 2.21$, $SD = 0.64$). For Americans, it was .88 ($M = 2.56$, $SD = 0.87$).

A final section of the booklet randomly combined 10 extraversion with 18 self-knowledge peer-report items. Response options ranged from *strongly disagree* (0) to *strongly agree* (4). The instructions read, "The following statements note characteristics that may or may not describe the acquaintance or friend you are participating with in this study. Read each statement carefully and decide how strongly you agree or disagree that each characteristic is true of your friend/acquaintance." Each item began with the same "root" subject noun, "My friend/acquaintance. . . ." An extraversion or self-knowledge "stem" then followed this subject noun.

The 10 extraversion items directly repeated the behavioral characteristics mentioned in the original self-report scale. This peer-report measure displayed adequate internal reliability in both Iran ($\alpha = .76$, $M = 2.30$, $SD = 0.71$) and the United States ($\alpha = .89$, $M = 2.56$, $SD = 0.86$). For the 18 self-knowledge items, the stems referred to the behavioral traits mentioned previously that were deemed relevant to individuals high in self-knowledge. Acceptable internal reliabilities were obtained for this instrument in both Iran ($\alpha = .80$, $M = 2.28$, $SD = 0.60$) and the United States ($\alpha = .80$, $M = 2.63$, $SD = 0.53$).

Procedure

Individuals involved in this project agreed to participate in tandem at the same time with a friend or acquaintance. We used special procedures for confidentially coding and for later combining the data from each pair. In other words, we combined self-reports of each pair member with peer reports of the other. Other administration and data analytic procedures were like those of the previous studies.

Results and Discussion

Correlations between self-reported experiential self-knowledge and reflective self-knowledge were .66 ($p < .001$) in both Iran and the United States. Self-reported self-knowledge and self-reported extraversion were not correlated significantly in either sample ($r_s = -.03$ to $.08$, $p_s > .30$). The association between self-reported and peer-reported extraversion was .42 ($p < .001$) in Iran and .43 ($p < .001$) in the United States.

Initial analysis revealed a significant correlation between self- and peer-reported self-knowledge only in Iran. Therefore, using factor analysis, we reexamined the American peer-reported self-knowledge data to determine whether they were multidimensional and whether the multidimensional nature of this criterion could have concealed evidence of validity at the full-scale peer-report level. Principal axis factoring along with a varimax rotation uncovered five factors with eigenvalues greater than 1.0 (eigenvalues = 1.15–4.19, cumulative % variance = 55.8%). All 18 items loaded on at least one factor, with four items exhibiting cross-loadings greater than .30 on two factors. One other item displayed positive loadings on two factors and a negative loading on still another factor. Responses to items that loaded on each factor were summed to create five peer-reported self-knowledge measures. The one negatively loading item was reverse scored prior to being added into the total for this particular factor.

Five items defined an Emotional/Motivational Self-Insight factor. Strongest loadings were associated with the stems "is very skillful at thinking deeply about himself/herself and gaining insight into why he/she does things" (.66) and "is very good at paying attention to his/her emotions and controlling them" (.41).

One reverse-scored stem stated that the friend/acquaintance “doesn’t seem to be aware of his/her emotions” (.54). An eight-item Self-Insightful Interactions factor was associated with such peer reports as “doesn’t seem to understand how his/her behavior affects others” (.54, reverse scored), “accurately explains his her/ideas” (.53), and “is very good at helping me understand his/her feelings” (.49). Four reverse-scored stems defined a Self-Aware Healthy Inhibition factor: “sometimes shouts at others without being aware he/she is doing so” (.64), “often says things that he/she later regrets” (.54), “sometimes denies that he/she is upset with others when he/she obviously is” (.48), and “sometimes is unaware that he/she is angry” (.41).

Most complex was the three-item fourth factor. Positive loadings appeared for the stems “clearly understands what he/she wants” (.68) and “doesn’t have clear ideas about what he/she wants to do” (.64, reverse scored). A negative loading also appeared for the reverse-scored peer report “sometimes is unaware that he/she is angry” (–.34). Taken together, these statements seemed to describe an Assertive Self-Directedness factor. Finally, four items combined to create a Negative Characteristics Self-Insight factor: “sometimes seems unaware that he/she is sad” (.61, reverse scored), “is aware of his/her weaknesses and limitations” (.47), “seems so aware of what is going on between us when we are talking with each other” (.39), and “sometimes is unaware that he/she is angry” (.34, reverse scored).

The two self-knowledge self-report scales were subsequently correlated with all five factors and the full peer-report scale in both samples. Each self-knowledge measure in both Iran and the United States displayed at least two and as many as

TABLE 6. Correlations of Experiential Self-Knowledge (ESK) and Reflective Self-Knowledge (RSK) With Peer-Reported Self-Knowledge Characteristics in Samples From Iran ($n = 134$) and the United States ($n = 120$)

Variable	Iran		United States	
	ESK	RSK	ESK	RSK
Emotional/motivational self-insight	-.01	.21**	.24**	.26**
Self-insightful interactions	.25***	.32***	.29**	.22*
Self-aware healthy inhibition	.08	.21**	.13	.15*
Assertive self-directedness	.14	.16*	.13	.00
Negative characteristics self-insight	.20*	.27**	.30***	.27**
Full scale	.19*	.34***	.07	.12

* $p < .05$. ** $p < .01$. *** $p < .001$ (one-tailed tests).

five significant relationships with the peer-report factors (Table 6). Consequently, although the self-knowledge validity results between the cultures were divergent at the aggregate level for the full peer report, some correspondence in the evidence of validity for self-knowledge across the cultures was obtained when self-reported self-knowledge was correlated with the separate peer-report factors.

In summary, this study confirmed that self-reports and peer reports tend to correlate more strongly for extraversion than for self-knowledge. More important, however, these data indicated that individual differences in self-knowledge apparently predict adaptive behaviors that were at least somewhat apparent to others, although evidence supporting this possibility was more straightforward in Iran than in the United States.

STUDY 6

In the final study, we explored the possibility that self-knowledge has behavioral implications by examining correlations of experiential self-knowledge and reflective self-knowledge with university class grades. Underlying this procedure was the assumption that individual differences in grades reflect individual differences in the ability of a self to direct its resources toward class demands. Earning good grades presumably requires a self to coordinate a broad array of psychological characteristics, including its own intellectual aptitudes, study skill habits, motivations, and awareness of strengths and weaknesses, to name only a few. Self-knowledge should facilitate that process of coordination. Numerous interactions also might occur. Highest grades, for example, might require greater intellectual aptitude along with higher levels of both experiential self-knowledge and reflective self-knowledge. On the other hand, high self-knowledge might compensate for lower intellectual aptitude or vice versa.

We expected a positive correlation between self-knowledge and grades, but only in those students who were motivated to perform well in class. Only in students with a self directed toward academic goals would self-knowledge even have a chance to affect behaviors of relevance to learning. We used class attendance as a rough indicator of motivation to learn. We expected that only students with fewer absences would display a positive self-knowledge relationship with grades. We also assessed the possibility that self-knowledge operates independently of or interacts with intellectual aptitude by using scores from the American College Test (ACT).

Method

Procedure

Students ($n = 387$) from the previously described second and third American samples volunteered to participate in this project as well.

We administered the self-knowledge scales used in the second and third studies. Students signed an additional consent form that granted permission for the researchers to combine the students' personality data with their class grades and composite scores on the ACT, a well-established standardized assessment of educational abilities.

We administered personality questionnaires within the first 3 weeks of class. Students willing to be involved in this additional project signed an additional consent form that earned them extra credit beyond that associated with completing the personality measures. Among other things, this consent form gave the researchers approval to obtain ACT scores from permanent university records. Confidentiality of all procedures was guaranteed.

Grades earned in the class were collected at the end of the semester and were expressed on a 300-point scale. Final grade totals were determined by performance on the best three out of four 100-point examinations plus extra credit earned through research participation minus points lost because of absences. Up to 24 extra credit points on the 300-point scale could be earned through research. No points were lost for the first five absences, but each absence thereafter resulted in the subtraction of a single point from the total grade.

All variables were expressed as z scores. With regard to the number of classes missed, a z score lower than or equal to 0 defined the low-absence group, with other students placed in the high-absence group. In preliminary analyses, we sought to confirm that the low-absence group was in fact more motivated to make higher grades. We then examined correlations among measures in both groups. Multiple regression procedures then clarified these correlational data. Of special interest was whether the self-knowledge scales in the low-absence group would interact with each other or with the ACT score to predict class performance.

Results and Discussion

Obviously, preliminary analyses documented that the low-absence group had fewer absences than the high-absence group ($M = -0.25$ and $M = 1.04$, respectively), $F(1, 303) = 190.51, p < .001$. Students in the low-absence group also made higher scores on the three exams ($M = 0.30$ and $M = -0.53$, respectively), $F(1, 303) = 45.45, p < .001$, and earned more extra credit ($M = 0.32$ and $M = -0.51$, respectively), $F(1, 303) = 44.93, p < .001$. Given these outcomes, the low-absence group had significantly higher final grades as defined by exams, extra credit, and absences ($M = 0.33$ and $M = -0.60$), $F(1, 303) = 56.56, p < .001$. At the same time, ACT scores for the low-absence group were not significantly higher ($M = 0.05$ and $M = -0.11$), $F(1, 303) = 1.77, p > .15$, nor did the two groups differ on either self-knowledge measure ($ps > .35$). Hence, these data confirmed that the low-absence group was more motivated than the high-absence

group and that the two groups were not strikingly different in terms of their overall academic abilities or self-knowledge.

Patterns of relationship among the self-knowledge, ACT score, and final grade variables were different across the two groups, Box's $M = 48.48$, approximate $F(10, 167662.7) = 4.76$, $p = .001$. In both groups, the correlation between experiential self-knowledge and reflective self-knowledge was .60 ($ps < .001$). For the high-absence group, ACT score also predicted higher final grades ($r = .20$, $p < .05$). The low-absence group, in contrast, displayed significant associations of reflective self-knowledge ($r = .32$, $p < .001$), experiential self-knowledge ($r = .21$, $p < .01$), and the ACT score ($r = .30$, $p < .001$) with final grades. No significant relationships were observed in either group between self-knowledge and ACT.

We entered experiential self-knowledge, reflective self-knowledge, and ACT scores simultaneously into the first step of multiple regressions predicting final grades, followed by all two-way interactions in the second step, and then by the three-way interaction in the final step. We observed no significant R^2 -change values for the high-absence group. For the low-absence group, significant results appeared on both the first and second steps. On the first step, reflective self-knowledge ($\beta = .34$, $p < .001$) and ACT score ($\beta = .32$, $p < .001$) combined to produce an R^2 -change of .22, $F(3, 205) = 19.04$, $p < .001$. The second step was associated with an R^2 -change of .12, $F(3, 202) = 12.70$, $p < .001$, and was associated with a significant interaction between experiential self-knowledge and reflective self-knowledge ($\beta = -.39$, $p < .001$). This interaction was clarified by subdividing the low-absence group into students with higher ($z > 0$) and lower ($z \leq 0$) reflective self-knowledge scores. In those students with high reflective self-knowledge scores, experiential self-knowledge did not correlate with grades ($-.07$, $p > .40$). In those students with low reflective self-knowledge scores, this relationship was .34 ($p < .001$).

These data confirmed that the low-absence group was more motivated to make good grades. For such students, the expectation was that self-knowledge would contribute to successful academic performance. Both reflective self-knowledge and experiential self-knowledge, along with the ACT score, were correlated positively with final grades. The relationship for reflective self-knowledge was as strong as that observed for the ACT score. The similarity between reflective self-knowledge and ACT score reappeared in the multiple regression procedures, which also seemed to identify reflective self-knowledge as a mediator of the positive zero-order correlation between experiential self-knowledge and grades. Experiential self-knowledge still proved to be important, however. In those with lower, but not higher reflective self-knowledge, experiential self-knowledge predicted better grades. Overall, these data suggested that reflective self-knowledge was as important as general educational abilities in determining the academic performance of motivated students but that experiential self-knowledge perhaps operated as an adaptive back-up system for those who were more limited in their reflective self-knowledge.

GENERAL DISCUSSION

Self-knowledge is an ideal of human functioning not only within psychological theory and practice but also within the religious and philosophical foundations of many cultures. In the present project, our argument was that two related forms of self-knowledge exist and should be studied by psychologists. Experiential self-knowledge involves an ongoing processing of information about the self in the present. Reflective self-knowledge refers to active efforts by the individual to integrate experiences of the self within self-schemas developed in the past. Results from these studies clearly supported this two-facet conceptualization of self-knowledge.

CFA procedures first confirmed this two-factor structure cross-culturally, and then we replicated this outcome. Correlations with a broad array of self-report variables supported expectations that these scales would measure an adaptive form of self-functioning. In samples from both cultures, experiential self-knowledge and reflective self-knowledge predicted greater emotional intelligence, need for cognition, internal locus of control, self-actualization, individualist values, and collectivist values. They also correlated negatively with an alexithymic externally oriented thinking and with narcissism. In addition, at least one of the two scales in both cultures displayed expected associations with other dimensions of alexithymia, depression, self-esteem, perceived stress, external locus of control, obsessive thinking, and identity. Test-retest reliabilities verified the expectation that each scale would record a stable personality disposition.

Experiential self-knowledge and reflective self-knowledge had at least some behavioral implications as well. Peers evaluated individuals high in self-knowledge as more self-insightful in their interactions with others, as more aware of various internal psychological experiences, and as better able to exercise self-control. This was true in two societies in which numerous differences presumably exist in the way interpersonal relationships are maintained. Such peer-report findings, therefore, suggest that self-knowledge might contribute to explaining interpersonal relationships and behaviors across different cultures. In addition, both experiential self-knowledge and reflective self-knowledge helped predict the complex responding that is associated with successful performance in an American university classroom. Among motivated students, self-knowledge was as important as educational ability in predicting grades. At the same time, however, self-knowledge linkages with behavior were modest. In the future, researchers will need to determine whether stronger associations would appear with the measurement of other perhaps more relevant behaviors and with possible refinements in the self-knowledge scales.

Correlations between experiential self-knowledge and reflective self-knowledge in both societies were often quite robust. A number of observations, nevertheless, suggested that they were different constructs. In both Iranian and

American students, experiential self-knowledge but not reflective self-knowledge correlated inversely with difficulty identifying feelings and difficulty describing feelings. These two dimensions of alexithymia presumably reflect inability to process emotional information in the present. The fact that only experiential self-knowledge was correlated negatively with these measures, therefore, seems to support the description of this construct as a process that focuses on the present experience of the self.

Of further interest was the observation in both samples that reflective self-knowledge but not experiential self-knowledge was directly correlated with the Self-Aware Healthy Inhibition factor in the peer-report data. This factor recorded a self-aware ability to control anger and to avoid saying things that later would be regretted. Such abilities presumably would be products of previous experience. Hence, the cross-cultural relationship with this peer-report measure seem to support the conceptualization of reflective self-knowledge as a process involving self-schemas developed in the past.

Finally, the idea that experiential self-knowledge and reflective self-knowledge measured different processes received further and perhaps most obvious support in the multiple regressions predicting class grades. Experiential self-knowledge was correlated positively with grades only in those motivated students who had lower reflective self-knowledge scores. Such students presumably have less access to adaptive self-schemas that would help them do well in the classroom. Their opportunity to make better grades, consequently, seemed to rest on an ability to remain more immediately responsive to the day-to-day demands of the class in relation to the self.

In short, the multiple regression data and several other lines of evidence suggest that experiential self-knowledge and reflective self-knowledge may have discriminative validity, but this is an issue that will require additional research attention. In the future, researchers will also need to situate self-knowledge within a general nomothetic network by examining correlations of these scales with the Big Five, the 16PF, and other well-established multifactor personality tests. The possibility that self-knowledge is uniquely useful in exploring at least some individual differences in psychological functioning already seems apparent (Ghorbani, Ghramaleki, & Watson, 2003) and clearly will deserve further research consideration as well.

One impetus behind the creation of these self-knowledge scales was a need to respond to previous difficulties experienced with the Private Self-Consciousness subscale (Fenigstein et al., 1975). The notion that self-knowledge should promote psychological health is supported by all kinds of theoretical considerations; yet, the Private Self-Consciousness subscale has yielded ambiguous evidence. An Internal State Awareness factor does tend to display the expected relationships with psychological health, but its covariance with a more maladaptive Self-Reflectiveness factor obscures this kind of outcome. Extensive studies have clarified the problems associated with the Internal State Awareness and Self-Reflectiveness factors and

have documented the importance of developing better instruments (e.g., Creed & Funder, 1999).

In the present studies, experiential self-knowledge and reflective self-knowledge were correlated with both Internal State Awareness and Self-Reflectiveness factors, but neither was associated with the obsessive self-focus or narcissism that presumably characterize self-reflectiveness (e.g., Watson & Biderman, 1993). In fact, reflective self-knowledge in Iran and experiential self-knowledge in the United States were correlated negatively with obsessive thinking, and both self-knowledge scales predicted lower narcissism in both countries. Numerous other correlations further revealed the apparent benefits of both forms of self-knowledge. Moreover, the experiential self-knowledge and reflective self-knowledge scales were based on a clearly articulated conceptual foundation that offered a plausible interpretation of how self-knowledge operates across time. A healthy self-knowledge presumably must include an ability to attend clearly to the present experience of the self (experiential self-knowledge) and to benefit from the past experience of the self (reflective self-knowledge). Empirical and conceptual considerations, therefore, combine to suggest that the experiential self-knowledge and reflective self-knowledge scales will be of use to future researchers.

Finally, creation of the self-knowledge scales would have been a much simpler task if samples from only one culture had been examined. But again, self-knowledge is a virtually universal ideal of human flourishing and could serve as the focus for a noncontroversial, apolitical research program into a cross-cultural positive psychology (e.g., Seligman & Peterson, 2003). Indeed, our longer-term goal in this project was to create instruments for use in later cross-cultural investigations involving these two cultures. Data already make it clear that experiential self-knowledge and reflective self-knowledge are much more likely to predict religious motivations in Iran than in the United States (Watson et al., 2002), but such results seem unsurprising given the central role of religion in Iranian society. This contrast must also be framed within the context of the much more common cross-cultural similarities that have been observed in this and associated companion projects. Additional work will be needed to determine whether the appearance of so many parallels challenges the frequent presumption that Western society places a uniquely strong emphasis on the self (e.g., Cushman, 1995; Fukuyama, 1992). In a time when these two countries often seem so far apart, we hope that attempts to clarify the similarities and differences between them can make at least some small contribution to greater mutual understanding (cf. Watson, 1993, pp. 16–17).

REFERENCES

- Arlow, J. A. (1995). Psychoanalysis. In R. J. Corsini & D. Wedding (Eds.), *Current psychotherapies* (5th ed., pp. 15–50). Itasca, IL: Peacock.
- Augustine, St. (1943). *The confessions*. New York: Liveright. (Original work written 397–401)
- Bagby, R. M., Parker, J. D. A., & Taylor, G. J. (1994). The twenty-item Toronto Alex-

- ithymia Scale—I. Item selection and cross-validation of the factor structure. *Journal of Psychosomatic Research*, 38, 23–32.
- Beck, A. T. (1976). *Cognitive and emotional disorders*. New York: International Universities Press.
- Beck, A. T., & Weishaar, M. E. (1995). Cognitive therapy. In R. J. Corsini & D. Wedding (Eds.), *Current psychotherapies* (5th ed., pp. 229–261). Itasca, IL: Peacock.
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107, 238–246.
- Britt, T. W. (1992). The Self-Consciousness Scale: On the stability of the three-factor structure. *Personality and Social Psychology Bulletin*, 18, 748–755.
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 83, 822–848.
- Brown, R. E. (1997). *An introduction to the New Testament*. New York: Doubleday.
- Cacioppo, J. T., Petty, R. E., Feinstein, J. A., & Jarvis, W. B. G. (1996). Dispositional differences in cognitive motivation: The life and times of individuals varying in need for cognition. *Psychological Bulletin*, 119, 197–253.
- Calvin, J. (1960). *Institutes of the Christian religion*. Philadelphia: Westminster Press. (Original work published 1559)
- Carver, C. S., & Scheier, M. F. (1981). *Attention and self-regulation: A control-theory approach to human behavior*. New York: Springer-Verlag.
- Chan, D. K.-S. (1994). Colindex: A refinement of three collectivism measures. In U. Kim, H. C. Triandis, C. Kagitcibasi, S.-C. Choi, & G. Yoon (Eds.), *Individualism and collectivism: Theory, methods, and applications* (pp. 200–210). Thousand Oaks, CA: Sage.
- Check, J. M. (1982). Aggregation, moderator variables, and the validity of personality tests: A peer rating study. *Journal of Personality and Social Psychology*, 43, 1254–1269.
- Cohen, S., Kamarack, T., & Mermelstein, R. A. (1983). A global measure of perceived stress. *Journal of Health and Social Psychology*, 24, 355–396.
- Costello, C. G., & Comrey, A. L. (1967). Scales for measuring depression and anxiety. *The Journal of Psychology*, 66, 303–313.
- Creed, A. T., & Funder, D. C. (1999). Shining the light on private self-consciousness: A response to Silvia (1999). *European Journal of Personality*, 13, 539–542.
- Cushman, P. (1995). *Constructing the self, constructing America*. Reading, MA: Addison-Wesley.
- Descartes, R. (1968). *Discourse on method*. In F. E. Sutcliffe (Ed.), *Discourse on method and the meditations* (pp. 25–91). New York: Penguin. (Original work published 1637)
- Enigstein, 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.
- Frozanfar, B. Z. (1992). *Ahadis masnavi*. [The sayings of the Mathnawi]. Fifth Edition. Tehran: Amir Kabir. (In Persian)
- Fukuyama, F. (1992). *The end of history and the last man*. New York: Avon.
- Funder, D. C., & Colvin, C. R. (1997). Congruence of self and others' judgments of personality. In R. Hogan, J. A. Johnson, & S. R. Briggs (Eds.), *Handbook of personality psychology* (2nd ed., pp. 617–647). San Diego, CA: Academic Press.
- Ghorbani, N., Bing, M. N., Watson, P. J., Davison, H. K., & LeBreton, D. L. (2003). Individualist and collectivist values: Evidence of compatibility in Iran and the United States. *Personality and Individual Differences*, 35, 431–447.
- Ghorbani, N., Bing, M. N., Watson, P. J., Davison, H. K., & Mack, D. A. (2002). Self-reported emotional intelligence: Construct similarity and functional dissimilarity of higher order processing in Iran and the United States. *International Journal of Psychology*, 37, 297–308.
- Ghorbani, N., Ghramaleki, A., & Watson, P. J. (2003). *Philosophy, self-knowledge, and*

- personality in Iranian teachers and students of philosophy*. Manuscript submitted for publication.
- Ghorbani, N., Watson, P. J., & Krauss, S. W. (2003). *Private self-consciousness factors: Relationships with need for cognition, locus of control, and obsessive thinking in Iran and the United States*. Manuscript submitted for publication.
- Ghorbani, N., Watson, P. J., Krauss, S. W., Bing, M. N., & Davison, H. K. (in press). Social science as dialogue: Narcissism, individualist and collectivist values, and religious interest in Iran and the United States. *Current Psychology*.
- Goldberg, L. R. (1999). A broad-bandwidth, public domain, personality inventory measuring the lower-level facets of several five-factor models. In I. Mervielde, I. Deary, F. De Fruyt, & F. Ostendorf (Eds.), *Personality psychology in Europe* (Vol. 7, pp. 7–28). Tilburg, The Netherlands: Tilburg University Press.
- Hadot, P. (2002). *What is ancient philosophy?* Cambridge, MA: Harvard University Press.
- Higgins, E. T. (1996). The “self digest”: Self-knowledge serving self-regulatory functions. *Journal of Personality and Social Psychology*, 71, 1062–1083.
- James, W. (1904). *The principles of psychology* (Vol. 1). New York: Henry Holt. (Original work published 1890)
- John, O. P., & Robins, R. W. (1994). Accuracy and bias in self-perception: Individual differences in self-enhancement and the role of narcissism. *Journal of Personality and Social Psychology*, 66, 206–219.
- Jones, A., & Crandall, R. (1986). Validation of a short index of self-actualization. *Personality and Social Psychology Bulletin*, 12, 62–73.
- Jopling, D. A. (2000). *Self-knowledge and the self*. New York: Routledge.
- Khansari, S. J. (1988). *Sharhe Ghorar va dorar Amedi* [The Persian explanation of Amedi's Ghorar and dorar]. Tehran: University of Tehran. (In Persian)
- Kojève, A. (1969). *Introduction to the reading of Hegel*. Ithaca, NY: Cornell University Press.
- Levenson, H. (1973). Multidimensional locus of control in psychiatric patients. *Journal of Consulting and Clinical Psychology*, 41, 397–404.
- Margolis, H. D., & Thomas, V. A. (1980). *The measurement of narcissism in adolescents with and without behavioral and emotional disabilities*. Unpublished master's thesis. United States International University, San Diego, CA.
- May, R., & Yalom, I. (1995). Existential psychotherapy. In R. J. Corsini & D. Wedding (Eds.), *Current psychotherapies* (5th ed., pp. 262–292). Itasca, IL: Peacock.
- McCrae, R. R., & Costa, P. T. (1990). *Personality in adulthood*. New York: Guilford Press.
- Meador, B. D., & Rogers, C. R. (1984). Person-centered therapy. In R. J. Corsini (Ed.), *Current psychotherapies* (3rd ed., pp. 142–195). Itasca, IL: Peacock.
- Meichenbam, D. (1985). *Stress inoculation training*. London: Pergamon Press.
- Mitchell, S. (Trans.). (2000). *Bhagavad gita*. New York: Harmony.
- Mittal, B., & Balasubramanian, S. K. (1987). Testing the dimensionality of the self-consciousness scales. *Journal of Personality Assessment*, 51, 53–68.
- Nystedt, L., & Smari, J. (1989). Assessment of the Fenigstein, Scheier & Buss Self-Consciousness Scale: A Swedish translation. *Journal of Personality Assessment*, 53, 342–352.
- Ochse, R., & Plug, C. (1986). Cross-cultural investigation of the validity of Erikson's theory of personality development. *Journal of Personality and Social Psychology*, 50, 1240–1252.
- Overholser, J. C. (1996). Elements of the Socratic method: V. Self-improvement. *Psychotherapy*, 33, 549–559.
- Rahula, W. (1959). *What the Buddha taught*. New York: Grove Press.
- Raskin, N. J., & Rogers, C. R. (1995). Person-centered therapy. In R. J. Corsini & D. Wedding (Eds.), *Current psychotherapies* (5th ed., pp. 128–161). Itasca, IL: Peacock.

- Robins, R. W., & John, O. P. (1997). The quest for self-insight: Theory and research on accuracy and bias in self-perception. In R. Hogan, J. A. Johnson, & S. R. Briggs (Eds.), *Handbook of personality psychology* (pp. 649–679). New York: Academic Press.
- Robins, R. W., Norem, J. K., & Cheek, J. M. (1999). Naturalizing the self. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 443–447). New York: Guilford.
- Rosenberg, M. (1965). *Society and adolescent self-image*. Princeton, NJ: Princeton University.
- Rousseau, J.-J. (1975). The creed of the Savoyard priest. In L. Bair (Ed.), *The essential Rousseau* (pp. 231–300). New York: Meridian. (Original work published 1762)
- Rumi, J. M. (1985). *Mathnawi*. Vol. 2. Tehran: Mola Press. (In Persian, original work first collected 1278)
- Salovey, P., Mayer, J. D., Goldman, S. L., Turvey, C., & Palfai, T. P. (1995). Emotional attention, clarity, and repair: Exploring emotional intelligence using the trait meta-mood scale. In J. W. Pennebaker (Ed.), *Emotion, disclosure, and health* (pp. 125–154). Washington, DC: American Psychological Association.
- Sanavio, E. (1988). Obsessions and compulsions: The Padua Inventory. *Behavior Research and Therapy*, 26, 169–177.
- Seligman, M. E. P., & Peterson, C. (2003). Positive clinical psychology. In L. G. Aspinwall & U. M. Staudinger (Eds.), *A psychology of human strengths: Fundamental questions and future directions for a positive psychology* (pp. 305–317). Washington, DC: American Psychological Association.
- Steiger, J. H. (1990). Structural model evaluation and modification: An interval estimation approach. *Multivariate Behavioral Research*, 25, 173–180.
- Tabachnick, B. G., & Fidell, L. S. (1996). *Using multivariate statistics*. (3rd ed.). New York: Harper Collins.
- Teresa of Avila. (1979). *The interior castle*. New York: Paulist Press. (Original work published 1577)
- Titmuss, C. (1998). *Light on enlightenment: Revolutionary teaching on the inner life*. London: Rider.
- Tucker, L. R., & Lewis, C. (1973). The reliability coefficient for maximum likelihood factor analysis. *Psychometrika*, 38, 1–10.
- Watson, P. J. (1993). Apologetics and ethnocentrism: Psychology and religion within an ideological surround. *The International Journal for the Psychology of Religion*, 3, 1–20.
- Watson, P. J., & Biderman, M. D. (1993). Narcissistic Personality Inventory factors, splitting, and self-consciousness. *Journal of Personality Assessment*, 61, 41–57.
- Watson, P. J., Ghorbani, N., Davison, H. K., Bing, M. N., Hood, R. W., Jr., & Ghramaleki, A. H. (2002). Negatively reinforcing extrinsic personal religious motivations: Religious orientation, inner awareness, and mental health in Iran and the United States. *The International Journal for the Psychology of Religion*, 12, 255–276.
- Watson, P. J., Morris, R. J., & Hood, R. W., Jr. (1990). Extrinsic factors: Correlations and construction of religious orientation types. *Journal of Psychology and Christianity*, 9(3), 35–46.