

## VALIDITY OF EXPERIENTIAL AND REFLECTIVE SELF-KNOWLEDGE SCALES: RELATIONSHIPS WITH BASIC NEED SATISFACTION AMONG IRANIAN FACTORY WORKERS<sup>1</sup>

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*Summary.*—This study examined the validity of Experiential and Reflective Self-knowledge Scales in a sample of Iranian factory workers. Both scales were administered to 321 male and 12 female workers ( $M$  age = 35.6 yr.,  $SD$  = 8.9) along with the Basic Need Satisfaction at Work Scales, the Work Climate Questionnaire, and measures of Perceived Stress and Self-esteem. Scores on the two self-knowledge measures correlated with all other variables consistent with the claim of Self-determination Theory that self-insight is associated with a more complete satisfaction of basic needs. In a number of multiple regression analyses, Reflective and Experiential Self-knowledge combined to explain variance in other measures. These data further supported the validity of the two new Self-knowledge Scales.

Religious and philosophical traditions worldwide have anticipated contemporary psychological theory in recommending self-knowledge as fundamental to personal well-being (Ghorbani, Watson, Bing, Davison, & LeBretton, 2003; Ghorbani, Ghramaleki, & Watson, 2005). Two temporally distinct facets of self-knowledge were operationalized in a recent series of studies using Iranian and American samples (Ghorbani, *et al.*, 2003). Experiential self-knowledge taps into an on-going awareness of the self in the present. Reflective self-knowledge assesses active tendencies to understand the self relative to its past. The goal of the present study was to evaluate further the validity of these two new scales by examining their relationships with basic psychological needs.

According to Self-determination Theory, humans universally experience three basic needs: competence, autonomy, and relatedness (Deci & Ryan, 1985; Ryan & Deci, 2000). Competence refers to a sense of achievement through successful pursuit of challenging goals. With regard to autonomy, individuals must be satisfied that they can freely make meaningful choices in life. Relatedness involves a need to feel valued within a network of reliable and sustaining relationships. Research suggests that these needs have adaptive consequences when satisfied. Measures of basic need satisfaction in work organizations, for example, have reliably predicted superior work perfor-

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<sup>1</sup>This study was supported, in part, by a grant received by N. Ghorbani from the University of Chattanooga Foundation. Address correspondence to P. J. Watson, Psychology/Department #2803, 350 Holt Hall-615 McCallie, University of Tennessee at Chattanooga, Chattanooga, TN 37403 or e-mail (paul-watson@utc.edu).

mance and psychological adjustment in samples from American and other societies (e.g., Kasser, Davey, & Ryan, 1992; Ilardi, Leone, Kasser, & Ryan, 1993; Deci, Ryan, Gagné, Leone, Usunov, & Kornazheva, 2001; Baard, Deci, & Ryan, 2004).

Self-determination Theory also assumes that “the more informed and full one’s awareness, the more likely that behavior that follows from it is autonomous and well integrated” (Ryan & Brown, 2003, p. 75). Supporting this emphasis on awareness has been previous research demonstrating that self-insight is associated with superior managerial work performance (Church, 1997), a finding that has also been observed in Iranian managers responding to the Self-knowledge Scales (Ghorbani & Watson, 2004). In addition, Deci, *et al.* (2001) have reported that the three scores on Basic Need Satisfaction and Work Scales correlated with superior adjustment in Bulgarian and American workers below the managerial level. The overall suggestion of these observations, therefore, is that the Experiential and Reflective Self-knowledge Scales should predict greater satisfaction of basic needs for workers generally. That hypothesis was tested by administering the Self-knowledge and the Basic Need Satisfaction at Work Scales to a sample of Iranian workers and lower level managers at a tractor factory.

Factory workers also responded to the Work Climate Questionnaire (Baard, *et al.*, 2004), the Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983), and the Rosenberg Self-esteem Scale (1989). The Work Climate Questionnaire assesses employees’ perceptions of support for autonomy by management, and in the previous study of Bulgarian workers, scores correlated negatively with Anxiety and positively with Self-esteem and all three Basic Need Satisfaction at Work Scales (Deci, *et al.*, 2001). As adaptive psychological processes, Experiential and Reflective Self-knowledge should correlate negatively with Perceived Stress and positively with the Self-esteem and Work Climate measures.

Experiential and Reflective Self-knowledge Scales operationalize temporally distinct processes on the assumption that genuine insight requires attention to both present and past self-experience. Experiential and Reflective Self-knowledge, therefore, should make independent contributions to the explanation of variance in psychological functioning. Evaluation of that possibility was accomplished by using both scales in multiple regression procedures to predict simultaneously each of the other measures.

In summary, Experiential and Reflective Self-knowledge Scales were administered to Iranian factory workers and lower level managers to examine their validity further. Each scale was expected to correlate negatively with scores on Perceived Stress and positively with those on the Basic Need Satisfaction at Work, the Work Climate, and the Self-esteem measures. Use of multiple regression procedures made it possible to test the hypothesis that

each scale would independently explain variance in one or more of the other measures.

## METHOD

### *Participants*

Research participants were employed in Iran at a heavy truck factory that was licensed by the Volvo Corporation of Sweden. Each worker agreed to take part in this project in response to a general invitation to be involved in research. No special incentives were offered, and all participation was fully voluntary. The sample contained 321 male and 12 female factory workers and lower level executives. Their average age was 35.6 yr. ( $SD=8.9$ ).

### *Materials*

Questionnaires were presented in a single survey booklet. Persian versions of Experiential and Reflective Self-knowledge Scales were created during initial scale development (Ghorbani, *et al.*, 2003). All other measures were translated from English into Persian in preparation for the present or previous projects. In conformity with standard procedures for checking the adequacy of all translations, individuals not directly involved in the research transformed all Persian translations back into English. Provisions were made for discussing any questions in the translation process until all potential concerns were resolved. No irresolvable difficulties were experienced in this process of translation and back-translation. Formal permission was obtained to use all scales.

Responses to the Experiential Self-knowledge (13 items, e.g., "Usually, I am aware of the feelings I am experiencing"), Reflective Self-knowledge (13 items, "I believe it is important to analyze and understand my thinking and feeling processes"), and Self-esteem (10 items, e.g., "I feel that I'm a person of worth, at least on an equal plane with others") Scales were ratings using anchors of 0: strongly disagree and 4: strongly agree for these Likert-type scales.

The Perceived Stress Scale presented 14 questions about the frequency with which the individual had experienced stress during the past month (e.g., "In the last month, how often have you found that you could not cope with all the things that you had to do?"). Ratings were based on anchors of 0: never and 4: very often.

The Work Climate Questionnaire asked respondents to evaluate immediate supervisors in terms of their support for autonomy at work (15 items, e.g., "I feel my manager provides me with choices and options"). This questionnaire along with the Autonomy (7 items, e.g., "I am free to express my ideas and opinions on the job"), Competence (6 items, e.g., "People at work tell me I am good at what I do"), and Relatedness (8 items, "I really like the

people I work with") subscales of the Basic Need Satisfaction at Work Scale utilized anchors of 1: strongly disagree and 7: strongly agree in a rating format.

### *Procedure*

Procedures were conducted over a 2-wk. interval. Each participant received the questionnaire from an immediate supervisor. Responding occurred in groups of 5 to 10 in different areas of the factory. Individuals included no self-identifying information in the questionnaire booklets, so responding was anonymous. One member of each respondent group collected the completed forms and conveyed the questionnaires to N. Ghorbani, who was not an employee of the factory.

Data were entered into a computer file. A procedure was established for maximizing internal reliabilities of all scales by eliminating any item that displayed a negative item-to-total correlation. Based upon this criterion, one item was dropped from the Perceived Stress Scale, a finding which has been observed previously for this particular item in both Iranian and American samples (Ghorbani, Bing, Watson, Davison, & Mack, 2002, p. 300). One item was also dropped from each subscale of the Basic Need Satisfaction at Work Scale. Whether these outcomes reflected unsuspected difficulties in translation or cultural differences in meaning of these particular items will require additional research.

Each scale was scored by averaging the response to each item. Analysis of data began with an examination of correlations among scale scores, followed by multiple regression procedures in which Experiential and Reflective Self-knowledge scores were used simultaneously to predict each of the other variables.

### RESULTS

The Pearson correlation between Experiential ( $\alpha = .88$ ,  $M = 3.1$ ,  $SD = 0.6$ ) and Reflective Self-knowledge scales ( $\alpha = .70$ ,  $M = 3.2$ ,  $SD = 0.5$ ) was .52 ( $p < .001$ ). Linkages among all other measures essentially paralleled data obtained previously with samples from other countries. Specifically, the three subscales of the Basic Need Satisfaction at Work Scales displayed positive correlations with each other ( $r > .42$ ,  $p < .001$ ), direct linkages with the Work Climate Questionnaire and Self-esteem ( $r > .16$ ,  $p < .01$ ), and inverse associations with Perceived Stress ( $r > -.32$ ,  $p < .001$ ). The Work Climate Questionnaire scores also correlated negatively with Perceived Stress ( $r = -.33$ ,  $p < .001$ ).

As Table 1 demonstrates, the scores on the two Self-knowledge Scales correlated with all other measures in a manner that confirmed the empirical hypotheses. In other words, Self-knowledge scores were associated with lower scores on Perceived Stress and with higher scores on the measures of

TABLE 1  
 PEARSON CORRELATIONS AND MULTIPLE REGRESSIONS WITH EXPERIENTIAL SELF-KNOWLEDGE (ESK)  
 AND REFLECTIVE SELF-KNOWLEDGE (RSK) PREDICTING BASIC NEEDS, PERCEIVED AUTONOMY  
 SUPPORT, PERCEIVED STRESS, AND SELF-ESTEEM AMONG IRANIAN FACTORY WORKERS ( $N = 333$ )

Variable	$\alpha$	$M$	$SD$	Correlations		Multiple Regressions			
				ESK	RSK	$R^2$	Predictor	Beta	$t$
Autonomy	.63	4.8	1.0	.18 <sup>†</sup>	.29 <sup>‡</sup>	.08 <sup>‡</sup>	ESK	.04	0.65
							RSK	.27	4.29 <sup>‡</sup>
Competence	.62	5.5	1.1	.31 <sup>‡</sup>	.31 <sup>‡</sup>	.13 <sup>‡</sup>	ESK	.20	3.33 <sup>†</sup>
							RSK	.20	3.35 <sup>†</sup>
Relatedness	.68	5.3	1.0	.33 <sup>‡</sup>	.27 <sup>‡</sup>	.12 <sup>‡</sup>	ESK	.26	4.34 <sup>‡</sup>
							RSK	.13	2.68 <sup>*</sup>
Work Climate	.94	5.2	1.3	.14 <sup>*</sup>	.17 <sup>†</sup>	.03 <sup>†</sup>	ESK	.07	1.13
							RSK	.13	2.09 <sup>*</sup>
Perceived Stress	.82	1.4	0.6	-.16 <sup>†</sup>	-.25 <sup>‡</sup>	.06 <sup>‡</sup>	ESK	-.04	-0.69
							RSK	-.23	-3.60 <sup>‡</sup>
Self-esteem	.79	3.0	0.6	.23 <sup>‡</sup>	.24 <sup>‡</sup>	.07 <sup>‡</sup>	ESK	.14	2.23 <sup>*</sup>
							RSK	.22	2.63 <sup>†</sup>

\* $p < .05$ . <sup>†</sup> $p < .01$ . <sup>‡</sup> $p < .001$ .

Need Satisfaction at Work, Work Climate, and Self-esteem. Reflective Self-knowledge was the lone significant predictor of Autonomy, Work Climate, and Perceived Stress in the multiple regression analyses, but both scales made independent contributions to the explanation of variance in Competence, Relatedness, and Self-esteem.

#### DISCUSSION

This investigation yielded additional support for the validity of the Experiential and Reflective Self-knowledge Scales. In conformity with the arguments of Self-determination Theory (Ryan & Brown, 2003), higher scores on both scales were linked for these Iranian factory workers with greater satisfaction of basic needs for Autonomy, Competence, and Relatedness. In addition, scores on these two scales as expected correlated positively with the Work Climate and Self-esteem measures and negatively with Perceived Stress.

In previous samples of Iranian and American undergraduates, Self-knowledge Scales displayed predicted relationships with a broad range of personality constructs and with peer-assessments of self-insight, and they were associated with superior academic performance in an American university classroom (Ghorbani, *et al.*, 2003). In still other Iranian studies, these measures correlated as hypothesized with religious commitments (Watson, Ghorbani, Davison, Bing, Hood, & Ghramaleki, 2002), with interests in philosophy by high school students and teachers (Ghorbani, *et al.*, 2005), and with the number of promotions earned by corporate managers (Ghorbani & Watson, 2004). The present analysis of responses from Iranian factory work-

ers, therefore, supplemented previous findings that the Experiential and Reflective Self-knowledge Scales are valid for use with samples from diverse societies and backgrounds. More specifically, the present data indicated that Self-knowledge Scales may be of some practical utility in manufacturing-based employment settings.

Self-determination Theory assumes that humans universally experience basic needs for competence, autonomy, and relatedness (Deci & Ryan, 1985; Ryan & Deci, 2000). Evidence in favor of that contention has been obtained from workers in the United States and other societies (e.g., Kasser, *et al.*, 1992; Deci, *et al.*, 2001; Baard, *et al.*, 2004). In this study, Persian versions of the Basic Need Satisfaction at Work and the Work Climate measures displayed expected patterns of relationship in a sample of Iranian factory workers. Such data clearly yielded additional support for the assumptions of Self-determination Theory.

In multiple regression analyses, Reflective Self-knowledge was the lone significant predictor of Autonomy, Work Climate, and Perceived Stress scores. This finding demonstrated that correlations of Experiential Self-knowledge with these variables were explained by its covariance with Reflective Self-knowledge. Such data, therefore, suggested that an immediate awareness of the self is less important in these psychological processes than is the more past-oriented form of self-insight associated with Reflective Self-knowledge.

Both Self-knowledge Scales did, however, explain variance in Competence, Relatedness, and Self-esteem. These outcomes supported the assumption underlying development of these scales that genuine personal insight at least sometimes requires attention to the present and past experience of the self. Experiential and Reflective Self-knowledge Scales, therefore, should be of use to researchers who are interested in one or the other temporally distinct processes. At the same time, it is clear that additional research must be done to clarify when only one or when both forms of Self-knowledge are relevant to psychological functioning.

Finally, present results pointed toward other research concerns. Observations that Reflective and Experiential Self-knowledge could be combined to explain variance in at least some other measures perhaps indicated that the two forms of self-insight might sometimes function in an integrative manner. A single Integrative Self-knowledge Scale with fewer total items would be more convenient for research into self-insight when temporally distinct processes are not an issue. In addition, further refinements and improvements may be possible in how self-knowledge is conceptualized and thus operationalized. Cross-cultural studies exploring these possibilities are already underway.

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Accepted May 12, 2006.