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CONSTRUCTIVE THINKING INVENTORY: EVIDENCE OF VALIDITY AMONG IRANIAN MANAGERS[1]

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Summary.—This study examined the validity and incremental validity of the Constructive Thinking Inventory in a sample of Iranian managers. These 159 men were 39.9 yr. old ($SD=2.5$) and volunteered to participate in a project in which they responded to the Constructive Thinking Inventory, the Big Five Factors, the Costello and Comrey Depression and Anxiety Scales, and the Perceived Stress Scale. Numerous findings confirmed the validity of the Constructive Thinking Inventory, and the Global Constructive Thinking subscale displayed incremental validity. These data supported the validity of the Constructive Thinking Inventory and its associated theoretical assumptions in a sample of Iranian managers.

Cognitive-Experiential Self Theory assumes that personality functioning is the product of two psychological systems (Epstein, 1994, 1998). A rational system processes information consciously, using relatively slow logical operations to encode experience in terms of words, numbers, and abstract symbols. The relatively unique emphasis of this theory is on an evolutionarily older experiential system that involves a more holistic, affective, preconscious, and rapid processing of life events in terms of images, metaphors, and stories. Much behavior is presumed to be under the primary influence of the more automatic, intuitive, and context-specific reactions of the experiential system. Preconscious forms of constructive and destructive thinking theoretically organize this system to function either adaptively or maladaptively.

Support for this characterization of the experiential system comes from studies using the Constructive Thinking Inventory (Epstein, 1998). Its Emotional Coping subscale measures a person's ability to deal effectively with affective reactions to potentially disturbing circumstances. Behavioral Coping records tendencies to use active and confident problem-solving responses to challenges. Destructive experiential functioning is captured in subscales oper-

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ationalizing Categorical (e.g., "I tend to classify people as either for me or against me"), Esoteric (e.g., "I believe in flying saucers"), and Personal Superstitious (e.g., "If something good happens to me, I tend to assume it was luck") Thinking. Global Constructive Thinking combines selected items from these subscales to offer an overall assessment of adaptive experiential functioning. Ambivalent mental health implications are associated with the Naïve Optimism subscale (e.g., "I believe that anyone who isn't lazy can always find a job").

In the present project, the Constructive Thinking Inventory was translated into Persian and administered to a sample of Iranian managers. Previous research has established that the inventory usefully predicts work performance (Epstein, 1998, pp. 99-112), so examination of a managerial sample was deemed to be appropriate in this effort to extend the assumptions of Cognitive-Experiential Self Theory to a different cultural context. Validity of the Constructive Thinking Inventory was examined by having these managers also respond to Persian versions of the Five Factor Model (Goldberg, 1999), Depression and Anxiety Scales (Costello & Comrey, 1967), and the Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983).

The expectation was that all three Constructive Thinking measures (Emotional Coping, Behavioral Coping, and Global Constructive Thinking) would correlate positively with the Big Five Factors (Emotional Stability, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness) and negatively with Depression, Anxiety, and Perceived Stress. Opposite relationships were hypothesized for the three clearly destructive thinking subscales, Categorical, Personal Superstitious, and Esoteric Thinking. Data with ambivalent implications were expected for Naïve Optimism. Finally, the combination of the Big Five Factors and Global Constructive Thinking in the first and then the second steps, respectively, of multiple regression procedures made it possible to offer a preliminary evaluation of the incremental validity of the Constructive Thinking Inventory in Iran (e.g., Piedmont, 1999).

Method

Participants

Middle and upper-level managers from a variety of Iranian private sector companies served as the research participants. All 159 subjects were men. Their average age was 39.9 yr. (SD=7.5). They had worked in their organizations for 7.9 yr. (SD=5.4) and in their current positions for 3.1 yr. (SD= 2.4). These managers represented 79% of a larger group who volunteered to participate after being invited to do so by the first author (N.G.). The first author identified possible participants during consulting activities conducted throughout Iran.

Measures

Psychological scales were included in three questionnaire booklets containing additional measures for use in other projects. With written permission of an author for each test, all scales were translated from English into Persian in preparation for the present or previous projects. The nuances of all English statements received extensive analysis in e-mail correspondence between the first (N.G.) and the third authors (P.J.W.), who had used the Constructive Thinking Inventory in previous research (e.g., Watson, Morris, Hood, Miller, & Waddell, 1999). To confirm the adequacy of this process, Persian versions of all scales were back-translated into English by a bilingual Iranian who was not otherwise involved in this study. No major difficulties were encountered during these translation procedures.

Responses to all inventories occurred along appropriately worded Likert-type scales. The Constructive Thinking Inventory contained 108 items. Responses were anchored by 0 = definitely false and 4 = definitely true. All but the Personal Superstitious Thinking subscale displayed an internal reliability that was adequate for research purposes (see Table 1): Global Constructive Thinking (M response per item in the present sample = 2.7, SD = .5), Emotional Coping (M = 2.7, SD = .5), Behavioral Coping (M = 3.2, SD = .4), Categorical Thinking (M = 1.6, SD = .5), Personal Superstitious Thinking (M = 1.2, SD = .6), Esoteric Thinking (M = 1.7, SD = .5), and Naïve Optimism (M = 2.5, SD = .7). Psychometric details about the other variables have been reported previously (Ghorbani & Watson, 2004). Responses to these other scales were rated on a 5-point scale with anchors of 1 = strongly disagree and 4 = strongly agree.

Procedure

Managers working throughout Iran received copies of the questionnaires through the mail. They responded to all measures and sent the questionnaires back to the first author. Procedures guaranteed confidentiality. Involvement in the project was voluntary. Participation was rewarded with an opportunity to attend a free training workshop for managers that was conducted by the first author.

Results

Robust positive correlations appeared among the three constructive thinking subscales, ranging from $r_{157} = .61$ ($p < .001$) between Emotional and Behavioral Coping to $r_{157} = .89$ ($p < .001$) between Global Constructive Thinking and Emotional Coping (Table 1). These measures all had negative associations with Categorical and with Personal Superstitious Thinking. The highest correlation was $r_{157} = -.59$ between Global Constructive Thinking and Categorical Thinking. The lowest was $r_{157} = -.30$ ($p < .001$) between Be-

TABLE 1

INTERNAL RELIABILITIES FOR AND CORRELATIONS AMONG CONSTRUCTIVE THINKING INVENTORY, FIVE FACTOR MODEL, AND MEASURES OF PSYCHOLOGICAL MALADJUSTMENT IN A SAMPLE OF IRANIAN MANAGERS ($N = 159$)

Scale	α	*r*														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Constructive Thinking Inventory																
1. Global Constructive Thinking	.84		.87	.79	−.59	−.50	−.13	.05	.63	.47	.43	.48	.25	−.57	−.57	−.51
2. Emotional Coping	.85			.61	−.50	−.41	−.10	−.01	.62	.34	.33	.35	.11	−.60	−.55	−.46
3. Behavioral Coping	.70				−.34	−.30	.01	.14	.45	.44	.43	.53	.43	−.38	−.50	−.47
4. Categorical Thinking	.71					.46	.31	.15	−.37	−.30	−.04	−.27	−.05	.36	.35	.32
5. Personal Superstitious Thinking	.45						.34	.20	−.42	−.16	−.20	−.16	−.07	.34	.30	.35
6. Esoteric Thinking	.65							.48	−.19	.01	.05	.05	.02	.14	.09	.02
7. Naïve Optimism	.73								−.06	.08	.18	.23	.00	.09	−.04	.01
Five Factor Model																
8. Emotional Stability	.91									.39	.30	.41	.36	−.81	−.52	−.55
9. Extraversion	.86										.45	.57	.25	−.26	−.39	−.35
10. Openness to Experience	.81											.44	.17	−.23	−.23	−.30
11. Agreeableness	.79												.33	−.27	−.41	−.41
12. Conscientiousness	.87													−.23	−.36	−.35
Psychological Maladjustment																
13. Depression	.82														.54	.53
14. Anxiety	.87															.63
15. Perceived Stress	.82															

Note.—For correlations, .15 to .21 ($p < .05$), .22 to .28 ($p < .01$), and > .28 ($p < .001$).

havioral Coping and Personal Superstitious Thinking. With one exception, Naïve Optimism and the Categorical, Personal Superstitions, and Esoteric Thinking subscales all correlated positively with each other. A correlation of .48 ($p < .001$) between Esoteric Thinking and Naïve Optimism was the highest of these associations. The connection between Categorical Thinking and Naïve Optimism was not significant ($r_{157} = .15$, $p = .06$). Other correlations among subscales were not significant.

Correlations of the Constructive Thinking Inventory with the other personality constructs are given in Table 1. The three constructive thinking variables correlated positively with each of the Big Five factors and negatively with the three indices of maladjustment. The only exception to this rule was the failure of Emotional Coping to predict greater Conscientiousness. Categorical Thinking and Personal Superstitious Thinking were associated with lower scores on Extraversion and Agreeableness and with generally higher maladjustment. Negative correlations were also observed between Categorical Thinking and Emotional Stability and between Personal Superstitious Thinking and Openness to Experience. A negative correlation with Emotional Stability was the only significant result for Esoteric Thinking. Naïve Optimism correlated positively with Agreeableness and with Openness to Experience.

In examining incremental validity, the Big Five factors were entered on the first step and Global Constructive Thinking on the second step of multiple regressions predicting Anxiety, Depression, and Perceived Stress. Global Constructive Thinking was used in this procedure because it offered a clear summary assessment of adaptive and flexible forms of constructive thinking. As Table 2 shows, a significant ΔR^2 was obtained in all three analyses ($\Delta R^2 \geq .01$; $F_{1,151} \geq 4.54$, $p < .05$). As would be expected of an operationalization of healthy personality functioning, Global Constructive Thinking was an inverse predictor of Anxiety, Depression, and Perceived Stress.

TABLE 2
MULTIPLE REGRESSIONS USING GLOBAL CONSTRUCTIVE THINKING TO PREDICT PSYCHOLOGICAL ADJUSTMENT MEASURES AFTER ENTERING BIG FIVE FACTORS

Variable	Big Five Factors			Global Constructive Thinking	
	R^2	Significant Predictor	β	ΔR^2	β
Anxiety	.67‡	Emotional Stability	−.89‡	.01*	−.14*
Depression	.59‡	Emotional Stability	−.37‡	.07‡	−.36‡
		Conscientiousness	−.15*		
Perceived Stress	.36‡	Emotional Stability	−.40‡	.02*	−.20*
		Conscientiousness	−.14*		

*$p < .05$. †$p < .01$. ‡$p < .001$.

Discussion

The Constructive Thinking Inventory was a valid personality measure for this sample of Iranian managers. The constructive and destructive forms of thinking monitored by this inventory yielded expected correlations with the Big Five Factors and with Depression, Anxiety, and Perceived Stress. Global Constructive Thinking also produced an increment in the variance explained by the Five Factor Model, suggesting that Cognitive Experiential Self Theory includes conceptualizations that offer enhanced insights into personality functioning.

Naïve Optimism was associated with higher scores on Agreeableness and Openness to Experience, indicating that it may have positive mental health implications in Iran. Evaluation that it can have negative psychological implications awaits the future examination of a wider range of variables.

Personal Superstitious Thinking was the one subscale of the Constructive Thinking Inventory that had an unacceptably low internal consistency ($\alpha = .45$). This inadequacy perhaps reflected subtle difficulties in translation. This subscale assesses personalized forms of irrationality that people use to brace themselves for disappointment. Iranians may have at least some culturally specific "superstitious" ways of thinking about such circumstances, and this also could have reduced the internal reliability of the subscale. At the same time, however, scores on Personal Superstitious Thinking correlated as expected with a number of other variables.

Most important in these data was the indication that the Constructive Thinking Inventory was a valid personality measure with incremental validity even when expressed in a completely different language and used in a completely different culture. At a practical level, these data indicated that the Constructive Thinking Inventory might be useful in selection, evaluation, development, and training procedures for Iranian managers. At the theoretical level, these results indicated that the inventory should be correlated with other variables of potential research interest (Epstein, 1994). Finally, Cognitive-Experiential Self-Theory describes the experiential system as a product of evolution, and as such, should be a cross-cultural feature of human psychological functioning. The findings of this study supported that idea.

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