J Bus Psychol (2007) 22:45–53
DOI 10.1007/s10869-007-9046-9

Constructive Thought Strategies and Job Satisfaction: A Preliminary Examination

Jeffery D. Houghton · Darryl L. Jinkerson

Published online: 26 May 2007

Abstract In order to examine the potential of constructive thought strategies for enhancing employee job satisfaction, an existing dispositional model of job satisfaction was expanded and tested. Structural equation modeling techniques indicated significant relationships among constructive thought strategies, dysfunctional thought processes, subjective well-being, and job satisfaction. In addition, two competing models were examined to test for the full or partial mediation of the effects of constructive thought strategies on job satisfaction. The implications of these findings for constructive thought strategy training interventions are discussed, along with directions for future research efforts.

Keywords Job satisfaction · Constructive thought strategies · Dysfunctional thinking processes

Job satisfaction can be defined in terms of the pleasurable emotional state resulting from one's evaluation of one's job or job experience (Locke, 1976). For many years, the prevailing view of job satisfaction was a situational one (i.e., task characteristics, pay, working conditions, supervision, etc. are the key determinants of job satisfaction). This view led to job design interventions aimed at increasing job satisfaction through the manipulation of objective job characteristics (e.g., Hackman & Oldham, 1976, 1980). More recently, a second perspective has emerged and gained momentum. Citing evidence of consistency in job attitudes over time (Pulakos & Schmitt, 1983), Staw and Ross (1985) argued for a dispositional view of job satisfaction. According to this view, individuals interpret their job context in accordance with their own relatively stable affective dispositions. That is to say, individuals who are predisposed to be generally happy or satisfied with life tend to be more happy and satisfied with their jobs, over and above the influence of specific positive or negative contextual job factors. Although the dispositional approach has been subject to criticism (Gerhart, 1987), empirical evidence has been advanced to further support this perspective.

Building on earlier work by Weitz (1952), Judge and his colleagues (Judge, 1993; Judge & Hulin, 1993; Judge & Locke, 1993) developed and tested a complex dispositional model of job satisfaction. At the heart of this model is the concept that affective disposition is a key determinant of subjective well-being. Subjective well-being, in turn, is reciprocally related to job satisfaction. Within the Judge model, affective disposition is defined as a predisposition to respond to the environment in a certain way (Judge & Hulin, 1993), while subjective well-being is defined as a state of psychological wellness (Diener, 1984). Research based on the Judge model has employed neutral stimuli methods developed by Weitz (1952) to demonstrate that those individuals with an affective predisposition to be satisfied are likely to exhibit higher levels of subjective well-being and job satisfaction (Judge & Hulin, 1993; Judge & Locke, 1993).

Judge and Locke (1993) provided a theoretical basis for the dispositional perspective by incorporating the cognitive theory of depression (Beck, 1987; Beck, Rush, Shaw, & Emery, 1979) into the study of job satisfaction. The cognitive theory of depression suggests that individual thinking patterns are a potential source of unhappiness.

J. D. Houghton (✉)
West Virginia University, Morgantown, WV, USA
e-mail: jeff.houghton@mail.wvu.edu

D. L. Jinkerson
Abilene Christian University, Abilene, TX, USA

Specifically, unhappy or depressed individuals are presumed to engage in chronic dysfunctional thinking (Beck, 1987). Dysfunctional thought processes such as overgeneralization, perfectionism, dependence on others, or the desire for social approval tend to undermine self-worth (e.g., Kuiper, Olinger, & Swallows, 1987) and lead to perceptions of failure and unhappiness (Judge & Locke, 1993). Because job satisfaction is essentially an evaluative process and because dysfunctional thinking processes cause individuals to evaluate information inappropriately (e.g., Keller, 1983), the examination of dysfunctional thought processes in relationship to job satisfaction seems particularly appropriate (Judge & Locke, 1993).

Recognizing the potential for the application of dysfunctional thinking to the study of job satisfaction, Judge and Locke (1993) expanded the basic Judge and Hulin (1993) model to include the effects of dysfunctional thought processes on subjective well-being. The results of this study indicated that the affects of dysfunctional thought processes on subjective well-being were stronger than any other predictor in the model (e.g., age, married, male, race) including affective disposition (Judge & Locke, 1993). Judge and Locke (1993) concluded that, ''well-being and job satisfaction may be increased by reducing the degree to which employees think dysfunctionally'' and that ''organizational interventions [designed to reduce dysfunctional thinking]…may be effective and well-advised'' (p. 487).

Training in constructive thought strategies is one such intervention that has great potential for positively affecting job satisfaction. Constructive thought strategies (e.g., Neck & Manz, 1992; 1996) include the evaluation of dysfunctional beliefs and assumptions and the use of positive self-talk and mental imagery. The process of *evaluating beliefs and assumptions* involves actively identifying and confronting dysfunctional beliefs in order to replace them with more rational beliefs (Burns, 1980; Ellis, 1977; Neck & Manz, 1992). The development of dysfunctional beliefs and assumptions, often triggered by stressful or troubling situations, can lead to chronic dysfunctional thinking, which in turn is likely to result in depression and unhappiness (Burns, 1980; Ellis, 1977). By eliminating or altering these distorted beliefs, individuals may reduce dysfunctional thought processes, thus alleviating depression and unhappiness (Burns, 1980, Ellis, 1975). *Self-talk* or self-dialogue may be defined as what we covertly tell ourselves (Ellis, 1962; Neck & Manz, 1992). Self-talk is hypothesized to correspond with emotional states, which in turn affect cognition (Ellis, 1977; Neck & Manz, 1992). Through the proper application of self-talk strategies, individuals can learn to suppress negative, pessimistic self-talk while encouraging more optimistic self-dialogues (Seligman, 1991). *Mental imagery* refers to envisioning successful performance of a task before it is actually completed (Manz & Neck, 1991; Neck & Manz, 1992). This strategy suggests that those who envision and mentally rehearse performance of a task beforehand are likely to experience greater success than those who do not. Mental imagery is conceptually similar to Weick's (1979) notion of ''future perfect thinking.'' In short, Weick (1979) suggested that if an individual viewed a future event as if it had already occurred perfectly, then current cognitive processes could more effectively deal with the event.

The constructive thought strategies outlined above combine to influence an individual's thinking pattern or habitual way of thinking (Neck & Manz, 1992). Those utilizing constructive thought strategies are likely to engage in a habitually functional, opportunityoriented thinking pattern along the lines of worthwhile challenges and constructive approaches to difficult situations. In contrast, those who fail to utilize these constructive thought strategies are more likely to engage in dysfunctional, obstacle-oriented thinking involving a habitual focus on reasons to give up or retreat in the face of problems or difficulties (Manz & Neck, 1999; Neck & Manz, 1992, 1996).

The usefulness of constructive thought strategies has been supported in a variety of published studies across many fields and disciplines. For example, the effects of self-talk and mental imagery on performance have been empirically demonstrated in sports psychology (e.g., Andre & Means, 1986; Feltz & Landers, 1983; Ryan & Simons, 1981), clinical psychology (e.g., Bonadies & Bass, 1984; Harrell, Chambless, & Calhoun, 1981; Rosin & Nelson, 1983), counseling psychology (Baker, Johnson, Kopala, & Strout, 1985), and communication (Boice, 1985). In one particularly relevant study, Neck and Manz (1996) showed that individuals receiving training in constructive thought strategies exhibited higher levels of mental performance, positive affect, and job satisfaction relative to a no-training control group. Additionally, as reviewed above, clinical psychologists have outlined a theory of cognitive depression through which an individual's beliefs and assumptions can result in cognitive distortions and dysfunctional thought processes leading to depression (Beck, et al., 1979; Burns, 1980, Ellis, 1975).

Research hypotheses

The primary purpose of the present study is to examine the role of cognitive processes in influencing job satisfaction. A hypothesized model of the relationships between constructive thought strategies, dysfunctional thought processes, subjective well-being, and job satisfaction is shown in Fig. 1. In this section, formal research hypotheses for each linkage in the model will be presented along with theoretical, logical and empirical justification for each linkage.

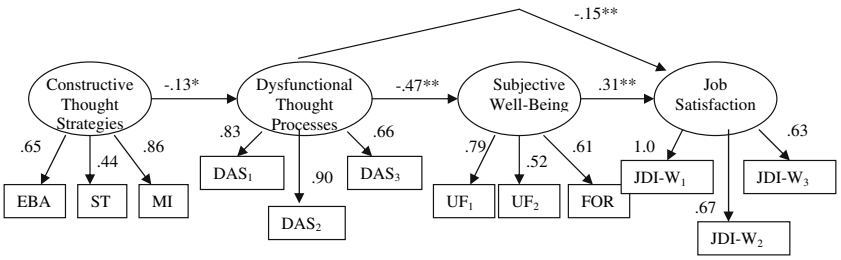

Fig. 1 Hypothesized model and standardized parameter estimates. *Note:* EBA = Evaluating Beliefs and Assumptions, ST = Self-Talk, MI = Mental Imagery, DAS = Dysfunctional Attitude Survey, UF = Underwood and Froming, FOR = Fordyce, JDI-W = Job Descriptive Index Work Subscale. *$P < .10$, **$P < .05$

Subjective well-being → Job satisfaction

Dispositional job satisfaction research provides ample empirical evidence in support of a hypothesized linkage between subjective well-being and job satisfaction (e.g., Judge & Hulin, 1993; Judge & Locke, 1993: Pulakos & Schmitt, 1983; Staw & Ross, 1985; Weitz, 1952). In addition, drawing from work in cognitive psychology, Judge and Locke (1993) have suggested that one theoretical explanation for this hypothesized linkage may relate to the influence of subjective well-being on processes of collecting and recalling job information. Happy individuals, that is, those who rate themselves highly in subjective well-being, may in fact evaluate, store and recall job information differently than unhappy individuals who are lower in subjective well-being (Judge & Locke, 1993). This process has been also been demonstrated in the general storage and recall of life events (Bower, 1981). Based on this evidence,

Hypothesis 1 Subjective well-being will be positively related to job satisfaction.

Dysfunctional thought processes → Subjective well-being

As outlined above, this linkage is primarily supported by the cognitive theory of depression (e.g., Judge & Locke, 1993). Furthermore, a significant number of research studies suggest that chronic dysfunctional thinking patterns lead to unhappiness and depression (e.g., Beck, 1967; Beck et al., 1979; Kuiper et al., 1987; Olinger, Kuiper, & Shaw, 1987; Wierzbicki & Rexford, 1989; Wise & Barnes, 1986). Given this evidence, it seems likely that dysfunctional thought processes may indeed influence an individual's subjective well-being (i.e., one's experienced happiness). Finally, Judge and Locke (1993) found a strong negative linkage between dysfunctional thought processes and subjective well-being. In fact, dysfunctional thinking was the strongest among the seven predictors of subjective well-being, including affective disposition (Judge & Locke, 1993). Based on this justification,

Hypothesis 2 Dysfunctional thought processes will be negatively related to subjective well-being.

Constructive thought strategies → Dysfunctional thought processes

Theorists have suggested that constructive thought strategies (e.g., the evaluation of beliefs and assumptions, constructive self-talk, and positive mental imagery) interact to influence individual thought patterns (Manz & Neck, 1999; Neck & Manz, 1992). Individual thinking patterns may be characterized in terms of either negative or positive chains of cognition (i.e., habitual ways of thinking) that may be more functional and opportunistic in nature or more dysfunctional and pessimistic in nature (Manz & Neck, 1999; Neck & Manz, 1992; Seligman, 1991). It seems reasonable to propose that cognitive strategies designed to enhance functional thinking patterns will in fact be negatively related to dysfunctional thinking. However, while empirical research has demonstrated the positive effects of cognitive strategies on performance outcomes (e.g., Neck & Manz, 1996; Prussia, Anderson, & Manz, 1998), researchers have failed to directly investigate the mechanism (i.e., thought processes) through which these outcomes are realized. It is a primary purpose of this study to empirically investigate this very issue. Thus, based on the theoretical specifications in the literature:

Hypothesis 3 Constructive thought strategies will be negatively related to dysfunctional thought processes; that is, the more an individual engages in constructive thought strategies the more functional (and less dysfunctional) will be the resulting thought patterns.

Dysfunctional thought processes → Job satisfaction

Locke (1976) suggested that dysfunctional thought processes, especially those oriented toward the job, might have a direct impact on job satisfaction. Further, Judge and Locke (1993) demonstrated a direct (but relatively weak)

relationship between dysfunctional thought processes and job satisfaction. Thus, based primarily on the previous findings of Judge and Locke (1993), it seems likely that the effects of job satisfaction will be only partially mediated through subjective well-being in accordance with requirements for partial mediation as stipulated by Baron & Kenny (1986). Hence:

Hypothesis 4 Dysfunctional thought processes will be negatively related to job satisfaction.

Hypothesis 5 The effects of dysfunctional thought processes on job satisfaction will be partially mediated through subjective well-being.

Constructive thought strategies → Job satisfaction

Previous research has demonstrated relationships between constructive thought strategies and job satisfaction. For instance, Neck and Manz (1996) reported that constructive thought strategy training led to a significant increase in job satisfaction. Further, Roberts and Foti (1998) found that constructive thought strategies interacted with work structures such that individuals high in these skills were most satisfied when working in unstructured work environments that allowed the freedom and autonomy to practice such strategies. However, in contrast with Neck & Manz (1996), Roberts and Foti (1998) failed to show a significant direct relationship between constructive thought strategy skills and job satisfaction. Indeed, it seems likely that the direct relationship between constructive thought strategies and job satisfaction reported by Neck and Manz (1996) is spurious. That is, the effects of constructive thought strategies on outcomes (e.g., job satisfaction) may be mediated through cognitive processes. Hence, it seems likely that the effects of constructive thought strategies on job satisfaction will be fully mediated through dysfunctional thought processes and subjective well-being. Thus:

Hypothesis 6 The effects of constructive thought strategies on job satisfaction will be fully mediated through dysfunctional thought processes and subjective well-being.

Method

Subjects and procedures

The sample consisted of approximately 269 full-time employees of a medium-sized private university located in the southwestern United States. Subjects represented every segment of the university system including faculty, staff, administration and facilities. Approximately 800 full-time employees were eligible to participate in the study. The response rate was approximately 34%. Listwise deletion due to missing data resulted in a final sample of 263 employees. Surveys were administered to employees via a web-based delivery system during working hours on a voluntary basis. Confidentiality of responses was assured. Upon completion of the questionnaire, subjects became eligible to win an Apple iPod MP3 Player valued at approximately $400.

Measures

Constructive thought strategies

Constructive thought strategies were measured using three sub-scales from Houghton and Neck's (2002) Revised Self-Leadership Questionnaire (RSLQ). The four-item ''evaluating beliefs and assumptions'' sub-scale includes items such as ''I mentally try to evaluate the accuracy of my own beliefs about situations I am having problems with.'' Cronbach (1951) coefficient alpha (α) reliability estimates have ranged from .75 to.78 for this subscale (Houghton & Neck, 2002). (Nunnally [1978] has suggested .70 as a minimum acceptable threshold for scale reliability estimates). The three-item ''self-talk'' sub-scale (α = .92 to .93) includes items such as ''Sometimes I talk to myself (out loud or in my head) to work through difficult situations.'' The five-item ''visualizing successful performance'' (i.e., mental imagery) sub-scale (α = .85 to .87) includes items such as ''Sometimes I picture in my mind a successful performance before I actually do a task.'' Respondents were asked to ''try to decide how true the statement is in describing you.'' Responses were measured on a five-point Likert-type scale ranging from 1 = ''Not at all Accurate'' to 5 = ''Completely Accurate.''

Dysfunctional Thought Processes

Dysfunctional thought processes were measured by 25 items from the Dysfunctional Attitude Survey—Form A (DAS-A; Cane, Olinger, Gotlib, & Kuiper, 1986), a short version of the 100-item Dysfunctional Attitude Survey (DAS; Weissman & Beck, 1978). The DAS is one of the more widely used and extensively validated instruments for measuring dysfunctional cognitive processes (Cane et al., 1986; Oliver & Baumgart, 1985). The 15-item ''performance evaluation'' subscale of the DAS-A (α = .84; Cane et al., 1986) includes items such as, ''If I do not do as well as other people, it means I am an inferior human being.'' The 10-item ''approval by others'' subscale of the DAS-A (α = .76; Cane et al., 1986) includes items such as, ''My value as a person depends greatly on what others think of me.'' Respondents were asked the extent to which they

agree or disagree with each statement on the basis of a five-point Likert-type scale ranging from 1 = ''totally disagree'' to 5 = ''totally agree.''

Subjective well-being

Subjective well-being was assessed by two scales. The first scale was the 7-item ''mood level'' subscale of Underwood and Froming's (1980) 15-item Mood Survey, which asks respondents to indicate the extent of agreement with items such as ''I usually feel quite cheerful.'' The subscale has demonstrated a test-retest reliability of .80 (Underwood and Froming, 1980). The other scale consisted of Fordyce's (1977) ''percent time happy'' item. Mood Survey items were measured on a five-point Likert-type scale ranging from 1 = ''totally disagree'' to 5 = ''totally agree.'' The ''percent time happy'' item was measured on a five-point Likert-type scale ranging from 1 = 0–20% to 5 = 80–100%.

Job satisfaction

Job satisfaction was measured using the ''work'' subscale (α = .88) of Rozinowski's (1989) modification of the Job Descriptive Index (JDI; Smith, Kendall, & Hulin, 1969). Respondents were asked to select ''yes'', ''no'', or ''undecided'' in assessing the extent to which they would describe their job using various adjectives such as ''fascinating'', ''satisfying'', and ''boring.'' Items were scored according to the recommendations of Smith et al. (1969) and then summed and converted to a five-point metric to form three composite indicators.

Results

Hypotheses were tested using structural equation modeling (SEM) techniques, specifically, the maximum likelihood estimation technique in LISREL 8 (Jöreskog & Sörbom, 1993). The hypothesized model (shown in Fig. 1) was analyzed using the two-step modeling approach recommended by Anderson and Gerbing (1988). The first step consists of an analysis of the measurement model. The second step tests the structural relationships among latent constructs. A two-step process is preferred because it ensures that the latent constructs are adequately measured before examining the structural relationships in the model.

Based on the recommendations of Hoyle and Panter (1995), the following fit indexes were used to assess the fit of the hypothesized model: chi-square (χ^2, e.g., Bollen, 1989a), the goodness-of-fit-index (GFI, Jöreskog & Sörbom, 1981), the nonnormed fit index (NNFI, Bentler & Bonnett, 1980), the incremental fit index (IFI, Bollen, 1989b), and the comparative fit index (CFI, Bentler, 1990). The use of multiple fit indexes is generally advisable in order to provide convergent evidence of model fit. The values of GFI, NNFI, IFI, and CFI range from 0 to 1.0, with values above .90 commonly indicating acceptable model fit (Bentler & Bonnet, 1980; Hoyle & Panter, 1995).

Established item-parceling procedures (e.g., Barry & Stewart, 1997; Collins & Gleaves, 1998; Schmit & Ryan, 1993) were applied in the current study. Items from the evaluating beliefs and assumptions, self-talk, and mental imagery sub-scales of the RSLQ were summed to form three composite indicators of constructive thought strategies. Likewise, items comprising the ''level'' subscales of the Mood Survey were randomly divided and summed to form two composite indicator of subjective well-being. The Fordyce ''percent time happy'' item served as a third indicator of subjective well-being. Items from the JDI ''work'' sub-scale were summed to form three composite indicators of job satisfaction. Finally, the 15 items of the DAS-A ''performance evaluation'' subscale were randomly divided and summed to form two composite indicators of dysfunctional thought processes. Likewise, the 10 items of the DAS-A ''approval by others'' subscale were summed to form an additional composite indicator of dysfunctional thought processes. Although Judge and Locke (1993) found meaningful factors in a factor analysis of the full DAS, none of these factors were more highly correlated with subjective well-being than any other. This suggests that creating random composites within the two subscales is likely acceptable for this particular instrument. In general, the forming of composites allows for fewer parameter estimations and greater stability of estimates (e.g., Marsh, Antill, & Cunningham, 1989). Overall, twelve indicator variables were used to estimate the measurement model, with three composite indicators for each latent construct (see Fig. 1).

The hypothesized model (Model 1) was compared with two alternative, theoretically derived nested models in order to identify the model of best fit. Sequential χ^2 difference tests were used to assess changes in fit between the hypothesized model and competing nested models (e.g., Anderson & Gerbing, 1988; Bollen, 1989a). In Model 2, the path between dysfunctional thought processes and job satisfaction was restricted to test for the full mediation of dysfunctional thought processes on job satisfaction through subjective well-being. A case for full mediation could be made based on the cognitive theory of depression and the relatively weak findings for the direct path in previous research (Judge & Locke, 1993). If fit indexes remain unchanged or only slightly worsen and/or the χ^2 difference test is non-significant, then the more parsimonious Model 2 should be retained, providing evidence for a fully mediated

relationship between dysfunctional thought processes and job satisfaction.

Model 3 consisted of adding a path between constructive thought strategies and job satisfaction. Such a path could be justified by empirical evidence provided by Neck and Manz (1996), who showed a significant direct relationship between constructive thought strategies and job satisfaction in a training effects study. If fit indexes show little or no improvement and the χ^2 difference test is non-significant, then the more parsimonious hypothesized Model 1 should be retained, thus providing evidence for a fully mediated relationship for constructive thought strategies on job satisfaction through dysfunctional thought processes and subjective well-being.

Descriptive statistics and intercorrelations among variables are presented in Table 1. The measurement model was assessed using a confirmatory factor analysis model that specified the relations of indicator variables to underlying constructs with the constructs allowed to intercorrelate freely (Anderson & Gerbing, 1988). As indicated in Table 2, the measurement model demonstrated fairly good fit (χ^2 [48, N = 263] = 62.23, GFI = .96, NNFI = .98, IFI = .99, CFI = .99). Accordingly, respecification of the measurement model was deemed unnecessary.

Fit indexes for the covariance structure models tested are shown in Table 2. The hypothesized model (Model 3, Table 2) demonstrated acceptable fit to the data (χ^2 [51, N = 263] = 100.24, GFI = .94, NNFI = .94, IFI = .95, CFI = .95). The standardized solution for the hypothesized model is shown in Fig. 1 with measurement error effects omitted for clarity. As indicated in Fig. 1, the hypothesized linkages between subjective well-being and job satisfaction and between dysfunctional thought processes and subjective well-being were significant at the $\alpha = .05$ level. Thus, hypotheses 1 and 2 were fully supported. The hypothesized linkage between constructive thought strategies and dysfunctional thought processes was significant only at the $\alpha = .10$ level. Thus, hypothesis 3 received only marginal support. The hypothesized linkage between dysfunctional thought processes and job satisfaction was significant at the $\alpha = .05$ level. Thus, hypothesis 4 was fully supported.

Alternative theoretical models were then tested to assess whether fit might be improved by restricting the path from dysfunctional thought processes to job satisfaction (Model 4, Table 2) and by adding a path from constructive thought strategies to job satisfaction (Model 5, Table 2). As reflected in Table 2, the restriction of the path in Model 4 worsened the fit of the model. A χ^2 difference test indicated that the difference of 3.89 was significant. Hence, the hypothesized Model 3 is retained and hypothesis 5 was fully supported, suggesting that the effects of dysfunctional thought processes on job satisfaction appear to be partially mediated through subjective well-being. Additionally, the Sobel (1982) test ($z = -3.10$, $P = .002$) provided additional support for significant mediation. Finally, the addition of the path in Model 5 improved model fit only slightly. A χ^2 difference test indicated that the difference of 1.20 was non-significant. Thus, the more parsimonious Model 3 was retained and hypothesis 6 was fully supported, suggesting

Table 1 Means, standard deviations, and intercorrleations among indicator variables

Indicator variable	*M*	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. $JDI\text{-}W_1$	3.96	0.939	–											
2. $JDI\text{-}W_2$	4.12	1.017	.668**	–										
3. $JDI\text{-}W_3$	4.13	0.937	.635**	.599**	–									
4. FOR	3.97	0.562	.263**	.261**	.164**	–								
5. UF_1	3.61	0.76	.290**	.315**	.247**	.486**	–							
6. UF_2	3.3	0.524	.207**	.245**	.231**	.251**	.449**	–						
7. DAS_1	2.13	0.585	–.206**	–.182**	–.195**	–.309**	–.266**	–.142*	–					
8. DAS_2	1.63	0.609	–.280**	–.241**	–.238**	–.344**	–.305**	–.230**	.753	–				
9. DAS_3	1.99	0.731	–.258**	–.244**	–.185**	–.255**	–.255**	–.215**	0.554	.587**	–			
10. EBA	3.86	0.711	0.08	0.096	0.094	–0.017	.151*	0.141	–0.074	–0.111	0.016	–		
11. ST	3.62	1.124	0.061	0.028	–0.035	–0.058	–0.051	–0.003	–0.04	–0.04	–0.018	.284**	–	
12. MI	3.5	1.001	0.113	.174**	0.059	0.063	.138*	0.044	–0.119	–0.073	–0.084	.563**	.379**	–

Note: $N = 263$. $JDI\text{-}W_1$ = Job Descriptive Index Work Subscale Composite 1, $JDI\text{-}W_2$ = Job Descriptive Index Work Subscale—Composite 2, $JDI\text{-}W_3$ = Job Descriptive Index Work Subscale Composite 3, FOR = Fordyce Percent Time Happy Item, UF_1 = Underwood & Froming Mood Survey Level Subscale Composite 1, UF_2 = Underwood & Froming Mood Survey Level Subscale Composite 2, DAS_1 = Dysfunctional Attitude Survey Composite 1, DAS_2 = Dysfunctional Attitude Survey Composite 2, DAS_3 = Dysfunctional Attitude Survey Composite 3, EBA = Evaluating Beliefs and Assumptions Composite, ST = Self-Talk Composite, MI = Mental Imagery Composite

** $P < .01$ (two-tailed), * $P < .05$ (two-tailed)

Table 2 Fit indexes for covariance structure analyses

Model	χ^2	*Df*	GFI	NNFI	IFI	CFI	χ^2 difference	*df*
1. Measurement	62.23	48	.96	.98	.99	.99		
2. Null	1083.36	66						
3. Hypothesized	100.24	51	.94	.94	.95	.95		
Model 3-2 difference							983.12	15
4. Restrict path:	104.13	52	.94	.93	.95	.95		
Dysfunctional thought processes → Job satisfaction Model 4-3 difference							3.89	1
5. Add path:	99.04	50	.94	.94	.95	.95		
Constructive thought strategies → Job satisfaction Model 5-3 difference							1.20	1

Note: $N = 263$. GFI = Goodness of Fit Index, NNFI = Non-Normed Fit Index, IFI = Incremental Fit Index, CFI = Comparative Fit Index

that the effects of constructive thought processes may be fully mediated through dysfunctional thought processes and subjective well-being in accordance with the requirements for full mediations as stipulated by Baron and Kenny (1986). Conversely, the Sobel (1982) test ($z = 1.36$, $P = .175$) suggested no mediation. This result is likely due to the relatively weak (–.13, $P = .08$) relationship between constructive thought strategies and dysfunctional thought processes. However, the direct relationship between constructive thought strategies and job satisfaction is even weaker (.07, $P = .13$). Thus, our data suggests that if there is indeed a relationship between constructive thought strategies and job satisfaction, it is likely mediated through dysfunctional thought processes.

Discussion

The current study represents an important first step toward understanding the potential role of constructive thought strategies for enhancing job satisfaction and has at least two important practical implications. The results of this study suggest that constructive thought strategies are related to job satisfaction and that the effects of these strategies are fully mediated through dysfunctional thought processes. Given these results, it is possible that a training program designed to increase the usage of constructive thought strategies (e.g., Neck & Manz, 1996; Stewart, Carson, & Cardy, 1996) could serve as an effective organizational interventions for increasing job satisfaction among employees by decreasing dysfunctional thought processes as suggested by Judge and Locke (1993). These results also imply, in a more general context, that the effects of constructive thought strategies on performance outcomes in general likewise may be mediated through thinking processes, rather than having a direct influence on behavior.

The research presented here has certain limitations. First, although the structural equation modeling methodology employed in this study enjoys certain advantages over other methods utilized in testing causal relationships, causality cannot be unequivocally determined given the cross-sectional nature of the data. However, theoretical justification and logical arguments have been provided in support of the proposed directionality of the relationships examined. Future research involving longitudinal data would be useful in determining causality and the extent to which the use of constructive thought strategies facilitates job satisfaction.

Second, the linkage between constructive thought processes and dysfunctional thinking was relatively weak and significant only at the $\alpha = .10$ level. Although this relatively weak relationship casts some degree of doubt on the efficacy of constructive thought strategies to affect dysfunctional thought processes, these findings are nevertheless encouraging given the preliminary nature of the current study and the limitations of the present methodological design. Constructive thought strategies and dysfunctional thought processes were measured concurrently using a single instrument. A stronger and more effective test of these relationships would involve a longitudinal training effects study. A training effects study similar to those reported by Neck and Manz (1996) and Stewart et al. (1996) could be used to examine whether training in the use of cognitive thought strategies would indeed lead to lower levels of dysfunctional thought processes and increased job satisfaction as suggested by the present findings. The training study could utilize a pretest–posttest control group experimental design that Campbell and Stanley (1963) have called a ''true experimental design.'' This design allows for the detection of history effects, maturation effects, and instrument decay. Further, assuming subjects could be randomly assigned to treatment groups, the design would be unbiased with respect to regression, selection, and mortality effects (cf. Campbell & Stanley, 1963; Runkel & McGrath, 1972). Such training, if shown effective, could prove to be a valuable organizational intervention for improving dysfunctional thinking and ultimately job satisfaction.

In summation, the results of this study provide preliminary support for a dispositional model of job satisfaction in which the use of constructive thought strategies may ultimately contribute to employee satisfaction. Specifically, the findings presented here suggest that the use of constructive thought strategies may lead to a decrease in dysfunctional thought processes, an increase in subjective well-being, and an increase in job satisfaction. Further, the effects of constructive thought strategies on job satisfaction appear to be fully mediated through dysfunctional thought processes and subjective well-being. Although this study represents a good first step toward understanding these relationships, it is the task of future research to further examine the role and potential of constructive thought strategies in the context of job satisfaction.

References

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin, 103*, 411–423.

Andre, J. C., & Means, J. R. (1986). Rate of imagery in Mental Practice: An experimental investigation. *Journal of Sports Psychology*, *8*, 123–128.

Baker, S. B., Johnson, E., Kopala, M., & Strout, N. J. (1985). Test interpretation competence: A comparison of microskills and mental practice training. *Counselor Education and Supervision, 25*, 31–43.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–1182.

Barry, B., & Stewart, G. L. (1997). Composition, process, and performance in self-managed groups: The role of personality. *Journal of Applied Psychology, 82*, 62–78.

Beck, A. T. (1987). Cognitive models of depression. *Journal of Cognitive Psychotherapy, 1*, 5–37.

Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive theory of depression*. New York: Guilford Press.

Bentler, P. M. (1990). Comparative fit indices in structural models. *Psychological Bulletin, 107*, 238–246.

Bentler, P. M., & Bonnett, D. G. (1980). Significance tests and goodness-of-fit in the analysis of covariance structures. *Psychological Bulletin, 88*, 588–606.

Boice, R. (1985). Cognitive components of blocking. *Written Communication, 2*, 91–104.

Bollen, K. A. (1989a). *Structural equations with latent variables*. New York: Wiley.

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

Bonadies, G. A., & Bass, B. A. (1984). Effects of self-verbalizations upon emotional arousal and performance: A test of rational-emotive theory. *Perceptual and Motor Skills, 59*, 939–948.

Bower, G. H. (1981). Mood and memory. *American Psychologist, 36*, 129–148.

Burns, D. D. (1980). *Feeling good: The new mood therapy*. New York: William Morrow.

Campbell, D. T., & Stanley, J. C. (1963). *Experimental and quasi-experimental designs for research*. Chicago: Rand McNally.

Cane, D. B., Olinger, L. J., Gotlib, I. H., & Kuiper, N. A. (1986). Factor structure of the Dysfunctional Attitude Scale in a student population. *Journal of Clinical Psychology, 42*, 307–309.

Collins, J. M., & Gleaves, D. H. (1998). Race, job applicants, and the five-factor model of personality: Implications for black psychology, industrial/organizational psychology, and the five-factor theory. *Journal of Applied Psychology, 83*, 531–544.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*, 297–334.

Diener, E. (1984). Subjective well-being. *Psychological Bulletin, 95*, 542–575.

Ellis, A. (1962). *Reason and emotion in psychotherapy*. New York: Lyle Stuart.

Ellis, A. (1975). *A new guide to rational living*. Englewood Cliffs, NJ: Prentice-Hall.

Ellis, A. (1977). *The basic clinical theory of rational-emotive therapy*. New York: Springer.

Feltz, D. L., & Landers, D. M. (1983). The effects of mental practice on motor skill learning and performance: A meta-analysis. *Journal of Sport Psychology, 5*, 25–57.

Fordyce, M. W. (1977). Development of a program to increase personal happiness. *Journal of Counseling Psychology, 24*, 511–521.

Gerhart, B. (1987). How important are dispositional factors as determinants of job satisfaction? Implications for job design and other personnel programs. *Journal of Applied Psychology, 72*, 366–373.

Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performance, 16*, 250–279.

Hackman, J. R., & Oldham, G. R. (1980). *Work redesign*. Reading, MA: Addison-Wesley.

Harrell, T. H., Chambless, D. L., & Calhoun, J. F. (1981). Correlational relationships between self-statements and affective states. *Cognitive Therapy and Research, 5*, 159–173.

Hoyle, R. H., & Panter, A. T. (1995). Writing about structural equation models. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (pp. 158–176). Thousand Oaks, CA: Sage.

Houghton, J. D., & Neck, C. P. (2002). The revised self-leadership questionnaire: Testing a hierarchical factor structure for self-leadership. *Journal of Managerial Psychology, 17*, 672–691.

Jöreskog, K., & Sörbom, D. (1981). *LISREL V: Analysis of linear structural relationships by the method of maximum likelihood*. Chicago: National Educational Resources.

Jöreskog, K., & Sörbom, D. (1993). *LISREL 8: Structural equation modeling with the SIMPLIS command language*. Hillsdale, NJ: Erlbaum.

Judge, T. A. (1993). Does affective disposition moderate the relationship between job satisfaction and voluntary turnover. *Journal of Applied Psychology, 78*, 395–401.

Judge, T. A., & Hulin, C. L. (1993). Job satisfaction as a reflection of disposition: A multiple source causal analysis. *Organizational Behavior and Human Decision Processes, 56*, 388–373.

Judge, T. A., & Locke, E. A. (1993). Effect of dysfunctional thought processes on subjective well-being and job satisfaction. *Journal of Applied Psychology, 78*, 475–490.

Keller, K. E. (1983). Dysfunctional attitudes and the cognitive therapy for depression. *Cognitive Therapy and Research, 7*, 437–444.

Kuiper, N. A., Olinger, L. J., & Swallows, S. R. (1987). Dysfunctional attitudes, mild depression, views of self, self-consciousness, and social perceptions. *Motivation and Emotion, 11*, 379–401.

Locke, E. A. (1976). The nature and causes of job satisfaction. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 1297–1349). Chicago: Rand McNally.

Manz, C. C., & Neck, C. P. (1991). Inner leadership: Creating productive thought patterns. *The Executive, 5*, 87–95.

Manz, C. C., & Neck, C. P. (1999). *Mastering self-leadership: Empowering yourself for personal excellence* (2nd ed.). Upper Saddle River, NJ: Prentice Hall.

Marsh, H. W., Antill, J. K., & Cunningham, J. D. (1989). Masculinity, femininity, and androgyny: Bipolar and independent constructs. *Journal of Personality, 57*, 625–663.

Neck, C. P., & Manz, C. C. (1992). Thought self-leadership: The impact of self-talk and mental imagery on performance. *Journal of Organizational Behavior, 12*, 681–699.

Neck, C. P., & Manz, C. C. (1996). Thought self-leadership: The impact of mental strategies training on employee behavior, cognition, and emotion. *Journal of Organizational Behavior, 17*, 445–467.

Nunnally, J. (1978). *Psychometric theory*. New York: McGraw-Hill.

Olinger, L. J., Kuiper. N. A., & Shaw, B. F. (1987). Dysfunctional attitudes and stressful life events: An interactive model of depression. *Cognitive Therapy and Research, 11*, 25–40.

Oliver, J. M., & Baumgart, E. P. (1985). The Dysfunctional Attitude Scale: Psychometric properties and relation to depression in an unselected adult population. *Cognitive Therapy and Research, 9*, 161–167.

Prussia, G. E., Anderson, J. S., & Manz, C. C. (1998). Self-leadership and performance outcomes: The mediating influence of self-efficacy. *Journal of Organizational Behavior, 19*, 523–538.

Pulakos, E. D., & Schmitt, N. (1983). A longitudinal study of a valence model approach for the prediction of job satisfaction of new employees. *Journal of Applied Psychology, 68*, 307–312. .

Roberts, H. E., & Foti, R. J. (1998). Evaluating the interaction between self-leadership and work structure in predicting job satisfaction. *Journal of Business and Psychology, 12*, 257–267.

Rosin, L., & Nelson, W. M. (1983). The effects of rational and irrational self-verbalizations on performance efficiency and levels of anxiety. *Journal of Clinical Psychology, 39*, 208–213.

Rozinowski, M. (1989). An examination of the measurement properties of the Job Descriptive Index with experimental items. *Journal of Applied Psychology, 74*, 805–814.

Runkel, P. J., & McGrath, J. E. (1972). *Research on human behavior: A systematic guide to method*. New York: Holt, Rinehart & Winston.

Ryan, E. D., & Simons, J. (1981). Cognitive demand, imagery, and frequency of mental rehearsal as factors influencing acquisition of motor skills. *Journal of Sport Psychology, 3*, 35–45.

Schmit, M. J., & Ryan, A. M. (1993). The Big Five in personnel selection: Factor structure in applicant and nonapplicant populations. *Journal of Applied Psychology, 78*, 966–974.

Seligman, M. E. P. (1991). *Learned optimism*. New York: Alfred Knopf.

Smith, P. C., Kendall, L., & Hulin, C. L. (1969). *The measurement of satisfaction in work and retirement*. Chicago: Rand-McNally.

Sobel, M. E. (1982). Asymptotic intervals for indirect effects in structural equations models. In S. Leinhart (Ed.), *Sociological methodology 1982* (pp.290–312). San Francisco: Jossey-Bass.

Staw, B. M., & Ross, J. (1985). Stability in the midst of change: A dispositional approach to job attitudes. *Journal of Applied Psychology, 70*, 469–480.

Stewart, G. L., Carson, K. P., & Cardy, R. L. (1996). The joint effects of conscientiousness and self-leadership training on self-directed behavior in a service setting. *Personnel Psychology, 49*, 143–164.

Underwood, B., & Froming, W. J. (1980). The mood survey: A personality measure of happy and sad moods. *Journal of Personality Assessment, 44*, 404–414.

Weick, K. E. (1979). *The social psychology of organizing*. Reading, MA: Addison-Wesley.

Weissman, A. & Beck, A. T. (1978). *Development and validation of the Dysfunctional Attitude Scale*. Paper presented at the annual convention of the American Educational Research Association, Toronto.

Weitz, J. (1952). A neglected concept in the study of job satisfaction. *Personnel Psychology, 5*, 201–205.

Wiezbicki, M., & Rexford, L. (1989). Cognitive and behavioral correlates of depression in clinical and non-clinical populations. *Journal of Clinical Psychology, 45*, 872–877.

Wise, E. H., & Barnes, D. R. (1986). The relationship among life events, dysfunctional attitudes, and depression. *Cognitive Therapy and Research, 10*, 257–266.