African Journal of Business Management Vol. 5(1), pp. 76-87, 4 January, 2010
Available online at http://www.academicjournals.org/AJBM
DOI: 10.5897/AJBM10.702
ISSN 1993-8233 ©2011 Academic Journals

Full Length Research Paper

Task value, goal orientation, and employee job satisfaction in high-tech firms

Jung-Yu Lai[1]*, Hsin-Jung Chi[1] and Chun-Chieh Yang[2]

[1]Institute of Technology Management, National Chung Hsing University, No. 250, Kuo Kuang Road, Taichung 402, Taiwan.
[2]Department of Information Management, National Sun Yat-Sen University, No. 70, Lien-hai Road, Kaohsiung 804, Taiwan.

Accepted 9 September, 2010

Operating in highly competitive environments, high-tech firms leverage capital-intensive facilities, technology-intensive products and computer applications to earn competitive advantages. Doing so requires employees perform tasks that are relatively more complex in comparison with other industry sectors. Employee job satisfaction, a surrogate measure of organizational effectiveness/performance, is an important management index for practitioners and researchers. However, the impact that task value and goal orientations, as perceived by employees during task execution, have on individual and organizational effectiveness/performance has not received sufficient attention in the context of high-tech firms. This study integrated two theories, expectancy-value and achievement goal, to explore the effect of task value and goal orientation on high-tech employee job satisfaction. After surveying 156 respondents in six Taiwan-based multinational high-tech manufacturers, results show that task value and goal orientation affect employee job satisfaction in the high-tech sector positively. Findings provide guidance to managers for improving employee job satisfaction and in-depth insights for researchers interested to test or further develop organizational development theories.

Key words: Effectiveness, task value, goal orientations, job satisfaction.

INTRODUCTION

A new era of knowledge-based economics has blossomed over the past few decades, and various industries have achieved remarkable innovative strides by stressing workforce quality and innovation in research and development (R&D). The high-tech industry distinguishes itself from others by the high ratio of scientists and engineers employed (Glinow and Mohrman, 1990). To be considered “high-tech”, a firm is expected to maintain a workforce in which over 10% of employees hold graduate degrees and the R&D/sales revenue ratio exceeds 5% (Baruch, 1997). The American Electronics Association (AeA) defines firms manufacturing or developing technical products or services such as semiconductors, electronics, and telecommunications to be in the high-tech industry (Davies and Brush, 1997; Jin and (Davies and Brush, 1997; Jin and Wu, 2007). To remain and improve competitiveness, high-tech firms must invest in capital-intensive facilities, develop technology-intensive products, employ highly skilled labor, maintain efficient manufacturing lead times, commercialize new technologies, maintain near-continuous technological innovation, and integrate closely with computer applications (Jin and Wu, 2007; Littler and Sweeting, 1990). Hi-tech firms thus operate in a competitive environment marked by rapid change, high levels of uncertainty, short product life cycles, and the regular implementation of new processes necessary to reduce production costs (Cascio, 1990; Mar et al., 1985; Moriarty and Kosnik, 1989). Task value, derived from expectancy-value theory (Eccles et al., 1983; Wigfield, 1994; Wigfield and Eccles, 2000), has been of ongoing interest to researchers in the domains of academic education (Eccles et al., 1983; Liem et al., 2008; Wigfield, 1994; Wigfield and Eccles, 2000; Wigfield and Eccles, 2002) and physical education (Cox and Whaley, 2004; Eccles and Harold, 1991). For employees

*Corresponding author. E-mail: jylai@nchu.edu.tw. Tel: 886-935697208. Fax: 886-4-22859497.

in high-tech firms, competitive stress intensifies as task complexity increases. When employees do not understand the intent of their task (that is, task value), motivation to perform may suffer. Neither employee subjective values, job satisfaction nor organizational performance are enhanced even when such tasks are accomplished. Thus, helping ensure that employee subjective values approximate the respective values assigned to tasks employers has become a crucial issue.

Goal orientation, derived from achievement goal theory (Ames, 1992; Dweck and Leggett, 1988; Nicholls, 1989), bifurcated mastery orientation, and performance orientation, has been applied in management and shown to have a positive effect on employee job satisfaction (Yperen and Janssen, 2002). Prior research on goal orientation has examined individual achievement goals and the relation of such to achievement behavior (Ames, 1992; Dweck, 1999; Pintrich, 2000b). Employees with different goal orientations may perceive and behave differently and have different levels of job satisfaction (Phillips and Gully, 1997; Yperen and Janssen, 2002). Therefore, "goal orientation" has risen in importance as an issue when exploring the improvement of employee job satisfaction.

Job satisfaction is a critical indicator of organization success/effectiveness (Schmitt and Pulakos, 1985). Higher job satisfaction facilitates higher job performance (Judge et al., 2001; Nerkar et al., 1996; Shore and Martin, 1989), increasing organizational effectiveness and benefits. Although previous scholarly studies have addressed the influence of task values and goal orientation on individual and organizational effectiveness (Acuna et al., 2009; Chiu and Wang, 2008; Donavan et al., 2004; Godshalk and Sosik, 2003; Harris et al., 2005; Janssen and Yperen, 2004; Liem et al., 2008; Yperen and Janssen, 2002), there have been few relevant studies in the high-tech industry. The primary purpose of this study was to examine the effects of task value and goal orientation on employee job satisfaction in high-tech firms. The study was organized as follows. First, the relationship between job satisfaction and the two concepts of task value and goal orientation were described and then hypotheses were proposed. Second, reliability and validity of the developed research model were evaluated and task value and goal orientation were tested, respectively, to determine their effects on job satisfaction. The final section discusses findings and practical implications for researchers and managers.

THEORETICAL DEVELOPMENT

Concepts of task value, goal orientations, and job satisfaction

Education scholars have discussed extensively the concept of task value, which addresses individual beliefs about a task and is defined as the degree to which a task meets an individual's various needs (Eccles et al., 1983; Wigfield and Eccles, 1992). Pintrich and Schunk (1996) examined task value in terms of the subjective beliefs of individuals regarding school lesson activities. Task value comprises the four components of attainment value, interest value, utility value, and cost (Eccles et al., 1983; Wigfield and Eccles, 1992). Such beliefs affect student leaning motivation. Attainment value refers to the importance to an individual of performing a task well (Eccles et al., 1983). Attainment value corresponds positively to an individual's willingness to perform tasks. Interest value refers to the level of enjoyment an individual obtains from performing a task (Eccles et al., 1983), which is similar to the concept of intrinsic motivation (Deci and Ryan, 1985). The greater the interest value, the greater the attention and motivation an employee focuses on his or her job. Utility value refers to the usefulness of a particular task to an individual's future plan or goal (Eccles et al., 1983). For example, an individual may work hard to obtain future pay raises. Value of a task to an individual's personal goals corresponds positively to utility value.

Achievement goals have been divided into two goal orientation categories. Elliott and Dweck (1988) posited the existence of learning and performance orientations in the individual learning process, with the former focused on developing an individual's competence and mastering tasks and the latter focused on demonstrating competence. Other studies (Nicholls, 1979; Nicholls et al., 1989) have also defined the two goal orientation categories of task-involved and ego-involved goals. Other researchers have proposed other dichotomous conceptualizations of goal orientations, including mastery vs. performance goals (Ames, 1992) and task orientations vs. ego orientations (Skaalvik, 1997). Although goal theorists have taken different approaches to goal orientation, their conceptualizations are fundamentally similar. Hence, Pintrich (2000b) integrated these terms and employed mastery orientation (learning orientation) and performance orientation to represent two different goal orientations. Further, some researchers have separated goal orientation into four dimensions, namely mastery–approach goals, mastery–avoidance goals, performance–approach goals, and performance–avoidance goals (Elliot, 1999; Pintrich, 2000a; Pintrich, 2000b). This study represents employee goal orientation perceptions using the dual performance and master approach.

The concept of job satisfaction was first addressed by Hoppock (1935). Over following decades, researchers developed a variety of explanations for job satisfaction. Vroom (1964) viewed job satisfaction as the feeling or emotional response of a worker toward his/her present job. Warr et al. (1979) suggested job satisfaction to be the extent to which an individual is satisfied with the intrinsic and extrinsic features of a job. Locke (1976) defined job satisfaction as an affective evaluative response to an individual's job, that is, an emotional state

attained through work experience. He also argued that job satisfaction represents an individual's perceptions of whether she/he can achieve important value in work. Many researchers have identified factors associated with job satisfaction (George and Jones, 2004; Vroom, 1964). Vroom (1964) proposed factors such as organization, promotion, colleagues, working environment, compensation, job content, and direct supervisor all affect job satisfaction. George and Jones (2004) identified four factors affecting job satisfaction, including individual values, which they segregated further into intrinsic and extrinsic work values.

In high-tech firms, employees are often required to have a relatively broader skill range and coordinate activities across departments to accomplish tasks. Therefore, self-perceived task attainment, interest, and utility values are important to high-tech employees, and influence their work motivation. It seems reasonable to argue that employees with higher levels of attainment value, interest, and utility will be more willing to devote greater effort to performing jobs, enjoy their job content more, and have a greater likelihood of achieving their personal goals. Consequently, higher perception of task value will lead to higher work motivation and then improved job satisfaction. On the other hand, goal orientation also affects job satisfaction. Employees with mastery orientations will focus on developing their competence to accomplish jobs or tasks in order to increase job satisfaction. Similarly, employees with performance orientations also prefer to show their competence to perform assigned tasks, increasing their performance and job satisfaction. Based on the foregoing discussion, this study argues that task value and goal orientation will increase employee job satisfaction (Figure 1).

Attainment value

Employees often invest greater effort in job performance in order to achieve attainment value. By performing jobs and tasks well, employees are expressing that such are important to them. Conceivably, performing jobs and tasks well not only helps employees attain achievement, but also affects their lives and the work of others. Using the importance perspective, Brief and Aldag (1976) found task significance (similar to importance) to affect work satisfaction positively. Similarly, Parker et al. (2003) found a positive association between the psychological importance of a job and job satisfaction. Thus, employees whose jobs and tasks have higher importance values will show greater satisfaction with such (Mobley and Locke, 1970).

The relationship between attainment value and job satisfaction can also be explained by the involvement effect on job satisfaction. Employees realize attainment value by investing greater effort in a work task. The more effort expended, the more job involvement an employee gains. Job involvement reflects the worth of a work task to an individual (Lodahl and Kejner, 1965). Such also indicates the extent to which an individual desires to invest their work (Warr et al., 1979). Jobs and tasks become very important components of an individual's life when job involvement reaches a certain, critical level that leads to work conditions to impact significantly on overall life quality and satisfaction. Concurrently, employees become more deeply engaged in their jobs and tasks and expect to perform in order to achieve even higher levels of satisfaction. Additionally, extensive research has provided evidence of a positive correlation between job involvement and job satisfaction (Parasuraman and Simmers, 2001; Schuler, 1975; Warr et al., 1979; Weissenberg and Gruenfeld, 1968). For instance, Parasuraman and Simmers (2001) found job involvement to have a positive effect on job satisfaction in adult graduate students. Warr et al. (1979) revealed a positive correlation between work involvement and job satisfaction in blue-collar workers. Based on the above discussion, this study hypothesizes:

H_1: Attainment value will have a positive effect on job satisfaction.

Interest value

Prior studies comparing interest with other psychological variables (such as ability and aptitude) found interest to be more important than other variables in terms of individual perception (Berdie, 1955; Sharf, 1970). For instance, Cronbach (1970) asserted that individuals with a high level of interest in their occupation are likely to enjoy their work. Furthermore, interest has been demonstrated to relate to intrinsic job satisfaction when referring to task enjoyment (Chartrand and Walsh, 1999). Additionally, Holland (1985) indicated that the interest-satisfaction relationship depends on congruence between an individual's personality and the work environment. Previous evidence has demonstrated the effects of this congruence on job satisfaction (Nafziger et al., 1975; Walsh and Lewis, 1972). Klein and Wiener (1977) indicated congruency between individual vocational interests and job activities as one of the three elements of the individual-environment relationship, representing the degree of interest an individual has in his present job. A longitudinal study also explored the relationship between interest-occupation congruency and job satisfaction, finding a positive relationship between the two (Swaney and Prediger, 1985). Barak and Meir (1974) indicated job satisfaction is higher when individual vocational interests are congruent with occupation. Therefore, interest-occupation congruency should correlate positively with employee-derived enjoyment from doing jobs/tasks, implying that interest value affects job satisfaction positively. Thus, this study hypothesizes:

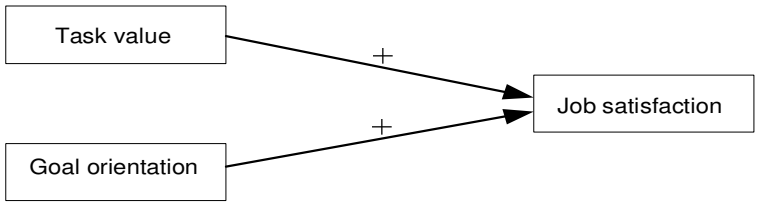

Figure 1. Research model.

H_2: Interest value will have a positive effect on job satisfaction.

Utility value

Utility value refers to the usefulness of jobs and tasks, including the application of other aspects and the improvement of personal relative abilities in the future (Eccles et al., 1983). The effects of utility value on job satisfaction can be explained using the two aspects of utility value, i.e., career planning and career goals, which can benefit employees in the future. The relationship between career planning and job satisfaction has been addressed in previous studies (Aryee and Debrah, 1993; Lord, 1982). Career planning is an individual's decision process that consists of self-assessment, goal setting, and designing routes for goal achievement (Crites, 1973; Walker, 1980). Career planning benefits both the individual and the organization. From an individual's perspective, career planning can increase effectiveness, improve work attitude, and lead to greater job satisfaction. From an organizational perspective, such helps increase productivity and profits (Miller, 1978).

Research has elucidated the relationship between career planning and job satisfaction, showing career planning to correlate positively with career satisfaction (Aryee and Debrah, 1993; Gould, 1979; Lord, 1982; Pazy, 1988). A career goal refers to a career-related outcome desired by an individual (Noe, 1996). Lord (1982) found that nurses with career goals tend to gain greater job satisfaction than those without. This study posits that career goals correlate positively with job satisfaction. Previous research suggests that the effects of career planning and career goals (e.g., useful outcomes) on job satisfaction may explain the effects of utility on job satisfaction. Therefore, this study hypothesizes:

H_3: Utility value will have a positive effect on job satisfaction.

Mastery orientation and performance orientation

Mastery orientation and performance orientation represent intrinsic and extrinsic motivation, respectively. Employees with the former, related to intrinsic work interest (Ames and Archer, 1988), seek to master their tasks and develop competencies. This study argues that employees with mastery orientations tend to improve task competence, find their jobs enjoyable and pleasing, and experience greater job satisfaction. The relationship between mastery orientation and job satisfaction is also supported by previous studies conducted on subject groups different from that targeted in this paper. Yperen and Janssen (2002) found a positive correlation between mastery orientation and overall job satisfaction for university employees. In addition, a significant mastery orientation effect on job satisfaction was found amongst energy supplier employees (Janssen and Yperen, 2004). As for performance orientation, individuals with high performance orientation may feel satisfied, as they display competence to perform better than others (Steele-Johnson et al., 2000). A recent study conducted with salespersons found performance orientation positively affected job satisfaction (Harris et al., 2005). In a performance-oriented environment, employees with a performance orientation tend to pursue performance outcomes in order to gain rewards such as raises, promotions and bonuses. As such, employees should willingly work to demonstrate their competence in order to compete with and outperform others. Hence, this study hypothesizes:

H_4: A mastery orientation will have a positive effect on job satisfaction.

H_5: A performance orientation will have a positive effect on job satisfaction.

METHODOLOGY

A survey instrument was developed specifically for this study. To ensure content validity of the scales, items must represent the concept about which generalizations are to be made. Items listed in the Appendix for measuring constructs were adapted mainly from prior research. The three items were developed based on the definitions of task value addressed by Eccles et al., 1983 and Wigfield and Eccles, 2002. This study proposed items for measuring attainment value, interest value, and utility value. Mastery orientation and performance orientation were then each measured using four items taken from a previously validated questionnaire (Yperen and Janssen, 2002), and four items for measuring job

Table 1. Demographics of respondents at each company.

	TSMC	UMC	AUO	CMO	MXIC	ASC
No. of respondents	34	17	15	16	45	29
Gender ratio (F:M)	12:22	12:22	4:13	1:14	4:12	9:36
Average age	32.0	32.0	31.3	30.2	30.1	33.9
Education ≥ Bachelor	34	34	17	14	14	44
Computer experience	11.0	11.0	8.9	8.5	13.4	8.7

satisfaction were taken from a survey by Janssen and Yperen (2004). Furthermore, consistent with prior research on social and organizational behavior, we measured demographic variables (gender, age, education, and organization). Items were validated in a pilot study by selected experts in the high-tech field and modified, based on expert suggestions, to make them relevant to the high-tech environment.

Data for this study were collected using a questionnaire survey administered in the Hsinchu Science-Based Industrial Park (HSBIP) and similar industrial parks in Taiwan. Taiwan's top-100 high-tech manufacturing companies were included, providing a sample of 20 companies with multinational operations. After initial phone calls were made to the twenty to explain research purpose and confirm willingness to participate, six responded as willing and included as study participants. Contact persons, including IT managers, project leaders, manufacturing supervisors, and senior engineers, were identified for each participant. These contact persons were asked to provide the names of, and distribute self-administered questionnaires to, potential users. Questionnaires were presented in Chinese under the presumption that there would be an insignificant number of respondents not literate in Chinese. The present study targeted mid-to-low managers and similar-level staff for several reasons. Firstly, these individuals play a pivotal role in communicating overall executive planning to the organization and in communicating emergent ideas generated in the organization to senior executives (Lassen, 2009). They further work with and motivate frontline supervisors, lower level managers and employees to achieve organizational goals. Secondly, dynamic and constant changes in the high-tech industry present a unique juncture for mid-to-low management to reinforce its value to the organization by creating the agility that enables an organization to respond swiftly to a changing environment (Adebi, 2008). Thirdly, they serve as role models for lower level managers and employees. Their attitudes and behavior toward the organization can impact significantly on other employees as well as company performance (Wang and Guo, 2003). Fourthly, they are likely to share overlapping relationship networks and demographic characteristics, show homogeneity in organizational behavior and attitudes (Chou et al., 2006). We sent out 250 questionnaires to target respondents, asking them to indicate agreement or disagreement to questions in the survey instruments using a five-point Likert-type scale. A total of 156 valid questionnaires were returned, giving a response rate of 62.4%. All respondents were employees of six Taiwan science park-based, globally recognized semiconductor manufacturing companies, including Taiwan Semiconductor Manufacturing Corporation (TSMC), United Microelectronics Corporation (UMC), AU Optronics Corporation (AUO), Chi-Mei Optoelectronics Corporation (CMO), Advanced Semiconductor Engineering Inc. (ASE), and Macronix International (MXIC). Table 1 shows respondent demographics.

DATA ANALYSIS AND RESULTS

Relationship between task value and goal orientation

A second-order confirmatory factor analysis approach was conducted to analyze the relationship between task value and goal orientation. Task value, the second order factor, can be regarded as a higher order latent factor containing three first order factors. Second order factors are assumed to be associated with goal orientation, which contains two first order factors. Figure 2 results show a significant correlation coefficient between the second order task value and goal orientation latent factor (φ = 0.68, P < 0.001), indicating a high correlation between task value and goal orientation. Results of this combined model also show adequate data fit. The values of seven common goodness-of-fit indexes were: Normed Chi-square = 1.59, GFI = 0.89, AGFI = 0.84, NFI = 0.90, NNFI = 0.95, CFI = 0.96 and RMSEA = 0.06.

Analysis of measurement reliability and validity

All analyses were conducted using structural equation modeling (SEM) via the CALIS procedure of SAS 8.1, providing estimates of parameters and tests of fit similar to LISREL. This study examined three causal models, including A (task value mode), B (goal orientation model), and C (the integrated model comprising task value and goal orientation). First, construct reliability and validity were established using confirmatory factor analysis (CFA) with model C (Figure 3). Convergent validity was then evaluated based on criteria recommended, as follows, by Fornell and Larcker (1981): (a) All indicator factor loadings (λ) should be significant; (b) Construct reliability in terms of composite reliability (CR), the internal consistency of indicators used to measure a given factor, should exceed 0.80. CR is computed by taking the square of sums of the standardized factor loadings divided by the square of sums of the standardized factor loadings and sums for error variance; and (c) The average variance extracted (AVE) for each construct should exceed 0.50. This assesses the amount of variance captured by the underlying factor in relation to the amount of variance due to measurement error. Results for model A and B revealed a composite reliability for each factor greater than 0.80 and an AVE for each factor greater than 0.5 (minimum = 0.54). Composite reliability for each Model C factor was: attainment value = 0.86; interest value = 0.92; utility value = 0.89; mastery orientation = 0.83; performance orientation = 0.88; and job satisfaction = 0.85. Further, the AVE for each factor exceeded 0.5, suggesting acceptable reliability and good

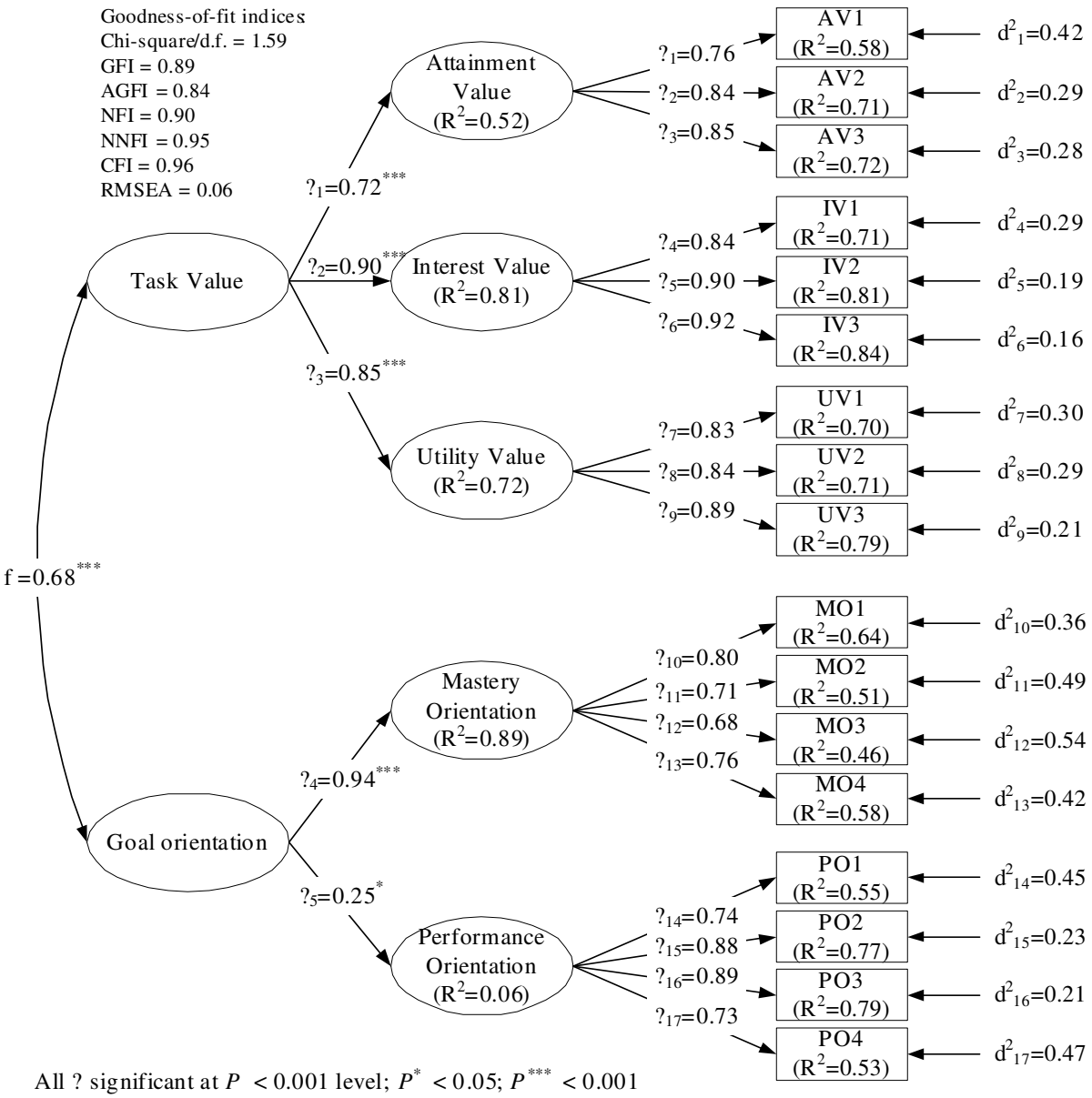

Figure 2. Combined confirmatory factor analysis for task value and goal orientation.

convergent validity (Table 2).

Average variance extracted (AVE) and shared variance were employed to evaluate discriminant validity (Fornell and Larcker, 1981). To fit the requirement for adequate discriminant validity, AVE must exceed shared variance for all factors. Unlike the approach of Campbell and Fiske (1959), this criterion is associated with model parameters and recognizes that measurement error can vary in magnitude across a method set (that is, indicators of constructs). Task value and goal orientation model results satisfied the requirement. Further, as shown in Table 2, integrated model results fit the requirement. This suggests adequate discriminant measurement convergence and validity.

Testing results of causal models

Before analyzing the path coefficients of our research models, a number of statistics may be employed to test the goodness-of-fit of models to the data, including absolute, incremental, and parsimonious fit measures (Hair et al., 1998). As no agreement exists on one or more measures adequate to assess fitness (Maruyana, 1998), it is standard practice to assess fitness using several widely-used measures. This study used goodness-of-fit index (GFI) (Bentler and Bonnet, 1980); measures of incremental fit: adjusted goodness-of-fit index (AGFI) (Bagozzi and Yi, 1988), normed-fit index (NFI), the non-normalized fit index (NNFI) (Bentler and Bonnet, 1980) and

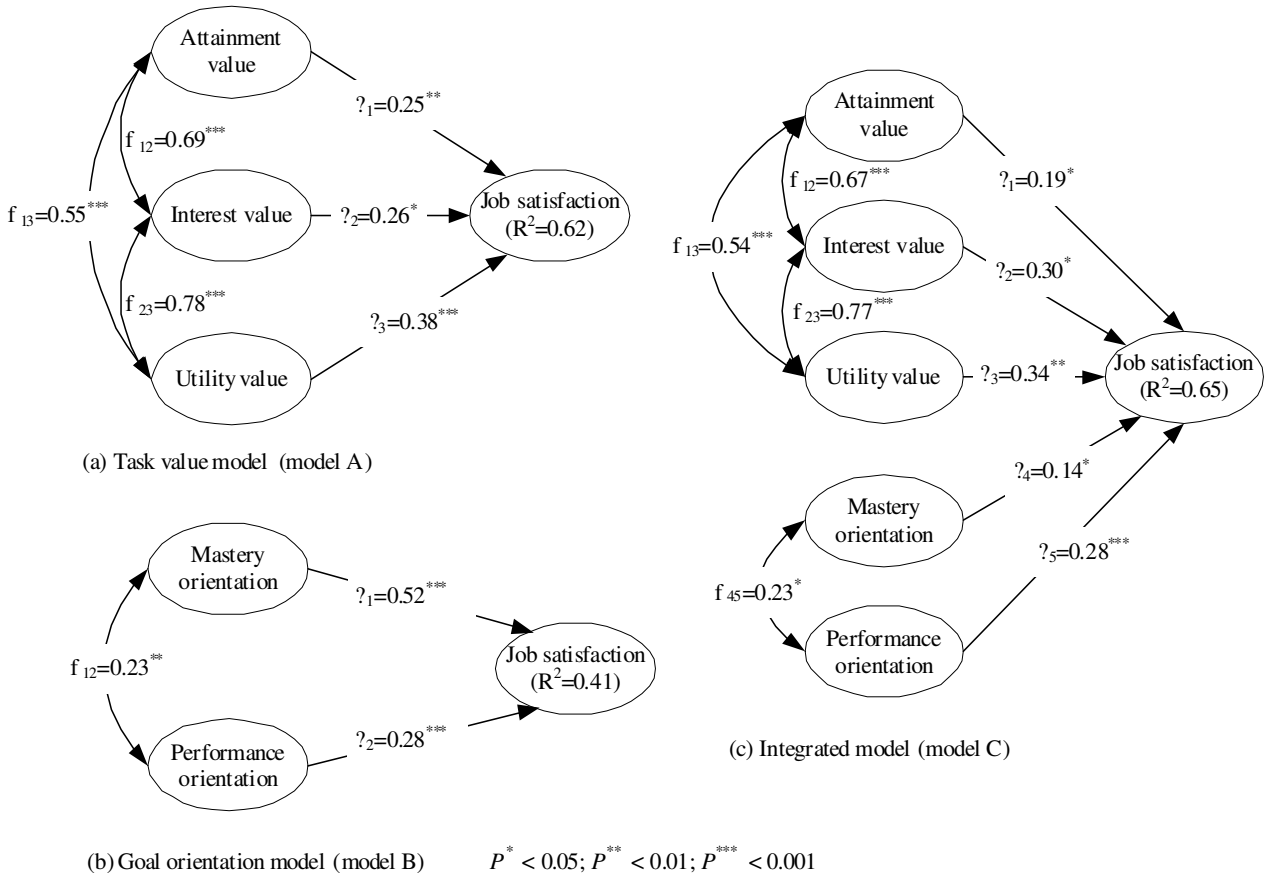

Figure 3. Model testing results.

Table 2. Reliability, convergent validity, and discriminant validity.

Construct	CR	AVE	Correlation coefficients among constructs					
			AV	IV	UV	MO	PO	JS
AV	0.86	0.67	(0.67)					
IV	0.92	0.79	0.45	(0.79)				
UV	0.89	0.73	0.30	0.60	(0.73)			
MO	0.83	0.54	0.30	0.28	0.37	(0.54)		
PO	0.88	0.66	0.05	0.02	0.01	0.06	(0.66)	
JS	0.85	0.59	0.41	0.53	0.51	0.35	0.16	(0.59)

CR = Composite reliability; AVE = average variance extracted (also in parentheses); AV: Attainment value; IV: Interest value; UV: Utility value; MO: Mastery orientation; PO: Performance orientation; JS: Job satisfaction.

and comparative-fit index (CFI) (Bentler, 1990); measure of parsimonious fit: normed chi-square (Hair et al., 1998). Values better than 0.90 for GFI, CFI, NFI and NNFI and 0.80 for AGFI indicate good fit (Bentler, 1990; Bentler and Bonnet, 1980). Fit indices for each model are listed in Table 3. All indices of task value, goal orientation, and the integrated model indicated model fit to be acceptable for assessing structural model results. Explanations of casual path properties (standardized path coefficients, P-values, and variance) for three models are given in Figure 3.

In model A, three correlations amongst the three variables of attainment value, interest value, and utility value were added based on CFA results. Further, all task value factors were found to have positive effects on job satisfaction. Consistent with hypotheses, job satisfaction was affected by attainment value (γ = 0.25, P < 0.01), interest value (γ = 0.26, P < 0.05), and utility value (γ = 0.38, P < 0.001). Hence, hypotheses H_1, H_2, H_3 were supported. Further, correlation coefficients for attainment–interest, interest–utility, attainment–utility were 0.69 (P <

Table 3. Goodness-of-fit measures of the three models.

Goodness-of-fit measure	Recommended value	Model statistics		
		Model A	Model B	Model C
Goodness-of-fit index (GFI)	≥0.90	0.92*	0.92*	0.85[m]
Adjusted Goodness-of-fit (AGFI)	≥0.80	0.87*	0.87*	0.80*
Normalized fit index (NFI)	≥0.90	0.94*	0.91*	0.86[m]
Non-normalized fit index (NNFI)	≥0.90	0.97*	0.94*	0.92*
Comparative fit index (CFI)	≥0.90	0.98*	0.96*	0.93*
Normed Chi-square	≤3.00	1.62*	1.77*	1.82*

*: acceptable fit; m: mediocre fit; AV: Attainment value; IV: Interest value; UV: Utility value; MO: Mastery orientation; PO: Performance orientation; JS: Job satisfaction.

Table 4. Effects of dominants on job satisfaction in three models.

	Model A					Model B					Model C				
	AV	IV	UV	MO	PO	AV	IV	UV	MO	PO	AV	IV	UV	MO	PO
JS	0.25***	0.26*	0.38***	0.52***	0.28***	0.19*	0.30*	0.34**	0.14*	0.28***					

AV: Attainment value; IV: Interest value; UV: Utility value; MO: Mastery orientation; PO: Performance orientation; JS: Job satisfaction.

0.001), 0.78 (P < 0.001), and 0.55 (P < 0.001), respectively. Model A explained nearly 62% of job satisfaction variance.

In model B, one correlation between mastery orientation and performance orientation was added based on CFA results. As expected, job satisfaction was influenced by mastery orientation (γ = 0.52, P < 0.001) and performance orientation (γ = 0.28, P < 0.001). Thus, hypotheses H_4 and H_5 were supported. The correlation coefficient between mastery orientation and performance was 0.23 (P < 0.01). The proposed model accounted for 41% of total variance in job satisfaction. Model C integrated two models, including five independent variables and one dependent variable. As shown, all task value and goal orientation factors have significant positive effects on job satisfaction. The path coefficients of attainment value, interest value, and utility value on job satisfaction measured 0.19 (P < 0.05), 0.30 (P < 0.05) and 0.34 (P < 0.01), respectively. Further, the path coefficients of mastery orientation and performance orientation on job satisfaction were 0.14 (P < 0.05) and 0.28 (P < 0.001), respectively. The correlation coefficients of attainment–interest, interest–utility, attainment–utility, and mastery–performance were .67 (P < 0.001), 0.77 (P < 0.001), 0.54 (P < 0.001), and 0.23 (P < 0.05), respectively. Model C explained nearly 65% of job satisfaction variance.

In terms of obtained results, the utility value effect on job satisfaction (0.38) was greater than that of either attainment value or interest value in the task value model. The effect of mastery orientation on job satisfaction (0.52) was found to be stronger than that of performance orientation on job satisfaction in goal orientation. Finally, the effect of utility value on job satisfaction (0.34) exceeded that of other factors in the integrated model. The effects in each model are summarized in Table 4.

Table 5 shows the respondent demographics with corresponding task values, goal orientations and job satisfaction. Task value, goal orientation, and job satisfaction were determined comparable, albeit with minor differences across demographic dimensions. Overall, it seems likely that demographic characteristics influence task value, goal orientation and job satisfaction in Taiwan high-tech firms. For example, task value and goal orientation influenced job satisfaction slightly more strongly in male than in female respondents; master degree holders were found to have comparatively higher task value and job satisfaction compared to their bachelor degreed peers; managers showed a slightly higher percentage of task value goal orientation; and general staffs showed a slightly higher percentage of job satisfaction. In terms of professional expertise, percentage of task value and goal orientation was found relatively higher among R&D, manufacturing and IT professionals, while job satisfaction was found comparatively higher among manufacturing professionals.

DISCUSSION

Findings

This study, designed to examine relationships amongst task value, goal orientation, and job satisfaction, demonstrated positive relationships among the three. In the task

Table 5. Analyses of demographics as compared against task value, goal orientation, and job satisfaction.

		AV	IV	UV	TV	MO	PO	GO	TAL	JS
Gender	Male	4.11	3.69	3.88	11.68	3.95	3.42	7.37	19.05	3.51
	Female	4.19	3.59	3.62	11.40	3.92	3.32	7.24	18.64	3.45
Education	≤ Bachelor	4.14	3.65	3.78	11.57	3.97	3.46	7.43	19.00	3.46
	Master	4.14	3.72	3.89	11.75	3.96	3.35	7.31	19.06	3.55
Position	General staff	4.11	3.63	3.78	11.52	3.95	3.37	7.32	18.84	3.51
	Manager	4.22	3.80	3.93	11.95	3.88	3.48	7.36	19.31	3.44
Professional expertise	P&M	4.04	3.88	3.83	11.75	4.03	3.03	7.06	18.81	3.59
	PP	3.98	3.43	3.75	11.16	3.98	3.35	7.33	18.49	3.27
	IT	4.25	3.84	3.83	11.92	4.06	3.46	7.52	19.44	3.65
	MFG	4.33	3.78	4.06	12.17	3.77	3.33	7.10	19.27	3.73
	QC	3.94	3.55	3.82	11.31	3.75	3.64	7.39	18.7	3.41
	R&D	4.14	3.69	3.92	11.75	3.94	3.51	7.45	19.2	3.49
	ADM	4.18	3.49	3.49	11.16	3.69	3.29	6.98	19.05	3.46

*TV=AV+IV+UV; GO=MO+PO; TAL=AV+IV+UV+MO+PO; P&M=procurement and marketing; PP=production planning; IT=information technology; MFG=manufacturing; QC=quality control; R&D=research and development; ADM=administration. AV: Attainment value; IV: Interest value; UV: Utility value; MO: Mastery orientation; PO: Performance orientation; JS: Job satisfaction.

the task value model, this study found that the three factors of attainment value, interest value, and utility value, all affect job satisfaction positively. Interestingly, results show utility value to have the largest effect on job satisfaction, indicating that tasks with high utility values contribute most significantly to employee job satisfaction in high-tech firms. Consistent with prior research (Wigfield and Eccles, 2002), this study found positive correlations among the three factors. The correlation coefficient between interest value and utility value was largest, suggesting that high-tech employee interest in a task rises with its usefulness. On the other hand, results of the goal orientation model found both mastery orientation and performance orientation to be significant determinants of job satisfaction, indicating mastery orientation as another crucial determinant of job satisfaction. In addition, positive correlation between the two factors implies that the two different orientations tend to coexist in an individual. Finally, in the integrated model, all factors were shown to affect job satisfaction significantly, particularly in terms of utility value. Moreover, the integrated model explained 65% of job satisfaction, a percentage higher than that achieved by either sub model. Thus, managers may find the integrated model useful to address a broader swath of employee experience to help employees attain a higher level of job satisfaction. In sum, this study found that high-tech employees will be more satisfied with their jobs when tasks performed are important, interesting, and useful to them.

Implications for research and management

Echoing the finding that employee job satisfaction facilitates job performance (Judge et al., 2001; Nerkar et al., 1996), managers may work to improve the effectiveness of operations and enhance profits by increasing job satisfaction. This study suggests that increasing employee perceptions of task value can improve job satisfaction. First, fostering employee attainment value can raise employee awareness of the importance of performed tasks and increase job enthusiasm. For example, employees should understand that even single, small tasks can help firms grow. Second, assigning tasks to employees based on individual employee interest can increase interest value. Fabes (1987) indicated that decreasing external controls may enhance task interest. Hence, managers may adjust their level of control over employees to increase employee interest in tasks. Third, Pazy (1988) suggested the effectiveness of individual career management to be less than organizational career management. Hence, implementing personal career planning consistent with organizational goals is essential. Managers may improve employee perception of utility value by assigning *"useful"* tasks intended to teach new skills and invest advanced experience, enabling organizations to create competitive advantage through workforce upgrades.

This study further suggested that, when initializing an employee job satisfaction strategy, companies should consider the goal vs. performance orientation of each employee. Job satisfaction for mastery-oriented employees is more likely to be raised through the performance of complex and challenging tasks, which require greater investment and engagement. For instance, companies can provide advanced training programs for outstanding and aggressive employees, who may be further encouraged

encouraged to take up more complex tasks. By the same token, as performance-oriented employees tend to feel higher performance, promotion, rewards, and outperforming others increase job satisfaction, companies can provide a harmonious, competitive environment and fair reward system to target their needs and increase job performance. However, managers must take measures to avoid mutually competitive conditions.

Our study found task value and goal orientation to influence positively job satisfaction in Taiwan, a developed country. As such, study findings may also be extrapolated to other developed countries and regions, e.g., Japan, Canada, the United States, Australia, New Zealand, Europe, and Southern African Customs Union. However, degree of task value and goal orientation may vary according to individual ability, profession and age. Moreover, cultural influence may also influence task value and job orientation, and, ultimately, job satisfaction. For instance, relationship networks that is, Guanxi, positively affect team member effectiveness and job satisfaction (Chou et al., 2006). Also, mutual competition and clustering behavior are critical to maintaining and extending innovativeness, R&D activities, entrepreneurship and investments of high-tech companies (Bresnahan and Gambardella, 2004). Clustering influences organizational culture, which is an important element that ensures a necessary level of commitment from employees and managers that, in turn, establishes successful implementation of organizational strategies and action plans (Rashid et al., 2003). Hence, cluster characteristics, organization culture and cultural value play important roles in task value and goal orientation, which may serve as important indicators to the degree of success achieved in implementing the recommendations of this research in different countries and regions.

LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

Several limitations of this study should be noted. First, while cost is an element of task value, its relationship with job satisfaction was not examined in this study. Exploration of this relationship by future researchers is encouraged. Second, although this study conducted confirmatory factor analysis and structural equation modeling to examine measurement and causal models, a larger sample is required to achieve more appropriate levels of precision. Third, employees in mid to low ranking positions represented the majority of respondents in this study. Future efforts can focus on differences amongst various subject groups (e.g., managers). Also, research models in this study addressed phenomenon in the context of high-tech manufacturing firms only. Future studies may generalize these findings by conducting investigations across sectors. Fourth, in-depth investigation that integrates more expectancy-value model variables (e.g., expectancies for success) (Wigfield and Eccles, 2002) or demographics (e.g., gender and education level) into the research model may provide a better understanding of which factors most influence job satisfaction. Fifth, this study did not assess the effect of local culture on such constructs as mastery and performance orientation. Future researchers may consider extrapolating the results of this study in other cultural environments.

ACKNOWLEDGEMENTS

The authors thank the Editor-in-Chief, Prof. De la Rey van der Waldt, and anonymous reviewers for their assistance in editing the paper. Moreover, the author would like to thank the National Science Council of Taiwan for financially supporting this research under Contract No.: NSC 96-2416-H-005-008-MY3.

REFERENCES

Acuna ST, Gomez M, Juristo N (2009). How do personality, team processes and task characteristics relate to job satisfaction and software quality? Info. Softw. Technol., 51(3): 627-639.

Adebi P (2008). Middle management's role in managing change. Aug. 26, 2010, http://ezinearticles.com/?Middle-Managements-Role-in-Managing-Change&id=1378513

Ames C (1992). Classrooms: Goals, structures, and student motivation. J. Educ. Psychol. 84(3): 261-271.

Ames C, Archer J (1988). Achievement goals in the classroom: Students' learning strategies and motivation processes. J. Educ. Psychol. 80(3): 260 - 267.

Aryee S, Debrah YA (1993). A cross-cultural application of a career planning model. J. Organ. Behav., 14(2): 119-127.

Bagozzi RP, Yi Y (1988). On the evaluation of structural equation models. J. Acad. Mark. Sci., 16(1): 74-94.

Barak A, Meir EI (1974). The predictive validity of a vocational interest inventory- "Ramak": Seven year follow-up. J. Vocat. Behav., 4(3): 377-387.

Baruch Y (1997). High technology organization-what it is, what it isn't. Int. J. Technol. Manage., 13(2): 179-195.

Bentler PM (1990). Comparative fit indices in structural models. PsyB, 107(2): 238-246.

Bentler PM, Bonnet DG (1980). Significance tests and goodness of fit in the analysis of covariance structures. PsyB, 88(3): 588–606.

Berdie RF (1955). Aptitude, achievement, interest, and personality tests: A longitudinal comparison. J. Appl. Psychol. 39(2): 103-114.

Bresnahan T, Gambardella A (2004). Introduction, In Bresnahan T, Gambardella A, eds. Building high-tech clusters: Silicon valley and beyond. Cambridge, UK: Cambridge University Press, pp. 1-7.

Brief AP, Aldag RJ (1976). Correlates of role indices. J. Appl. Psychol. 61(4): 468-472.

Campbell DT, Fiske DW (1959). Convergent and discriminant validation by multitrait-multimethod matrix. PsyB, 56(2): 81-105.

Cascio WF (1990) Strategic human resource management in high technology industry, In Gomez-Mejia LR, Lawless MV, eds. Organizational issues in high technology management. London: JAI Press., pp. 179-198.

Chartrand J, Walsh WB (1999). What should we expect from congruence. J. Vocat. Behav., 55(1): 136-146.

Chiu CM, Wang ETG (2008). Understanding web-based learning continuance intention: The role of subjective task value. Info. Manage., 45(3): 194-201.

Chou LF, Cheng BS, Huang MP, Cheng HY (2006). Guanxi networks and members' effectiveness in Chinese work teams: Mediating effects of trust networks. Asian J. Soc. Psychol., 9: 79-95.

Cox AE, Whaley DE (2004). The influence of task value, expectancies for success, and identity on athletes' achievement behaviors. J. Appl. Sport Psychol., 16(2): 103-117.
Crites JO (1973). Theory and research handbook, career maturity inventory, Monterey, CA: McGraw-Hill.
Cronbach LJ (1970). Essentials of psychological testing, 3 ed., New York: Harper and Row.
Davies W, Brush KE (1997). High-tech industry marketing: The elements of a sophisticated global strategy. Ind. Mark. Manage., 26(1): 1-13.
Deci EL, Ryan RM (1985). Intrinsic motivation and self-determination in human behavior, New York: Plenum Publishing.
Donavan DT, Brown TJ, Mowen JC (2004). Internal benefits of service-worker customer orientation: Job satisfaction, commitment, and organizational citizenship behaviors. J. Mark., 68(1): 128-146.
Dweck CS (1999) Self-theories: Their role in motivation, personality, and development, Ann Arbor, MI: Psychology Press, Taylor and Francis Group.
Dweck CS, Leggett EL (1988). A social cognitive approach to motivation and personality. PsychologR, 95(2): 256 - 273.
Eccles JS, Adler TF, Futterman R, Goff SB, Kaczala CM, Meece JL, Midgley C (1983) Expectancies, values and academic behaviors, In Spence JT, ed., Achievement and achievement motives: Psychological and sociological approaches. San Francisco: Freeman, pp. 75-146.
Eccles JS, Harold RD (1991). Gender differences in sport involvement: Applying the Eccles' expectancy-value model. J. Appl. Sport Psychol., 3(1): 7-35.
Elliot AJ (1999). Approach and avoidance motivation and achievement goal. Educ. Psychol., 34(3): 169 - 189.
Elliott ES, Dweck CS (1988). Goals: An approach to motivation and achievement. JPSP, 54(1): 5-12.
Fabes RA (1987). Effects of reward contexts on young children's task. Interest J. Psychol., 121(1): 5-19.
Fornell CL, Larcker DF (1981). Evaluating structural equation models with unobservable variables and measurement error. J. Mark. Res., 18(1): 39-50.
George JM, Jones GR (2004). Understanding and managing organizational behavior, 4 ed., Upper Saddle River, NJ: Prentice-Hall.
Glinow MAV, Mohrman SA (1990). Managing complexity in high technology organizations., New York: Oxford University Press.
Godshalk VM, Sosik JJ (2003). Aiming for career success: The role of learning goal orientation in mentoring relationships. J. Vocat. Behav., 63(3): 417- 437.
Gould S (1979). Characteristics of career planners in upwardly mobile occupations. Acad. Manage. J. 22(3): 539-550.
Hair JE, Anderson RL, Tatham WC, Black WC (1998). Multivariate data analysis, 5 ed., Upper Saddle River, NJ: Prentice-Hall.
Harris EG, Mowen JC, Brown TJ (2005). Re-examining salesperson goal orientations: Personality influencers, customer orientation, and work satisfaction. J. Acad. Mark. Sci., 33(1): 19-35.
Holland JL (1985) Making vocational choices, 2 ed., Englewood Cliffs, NJ: Prentice-Hall.
Hoppock R (1935) Job satisfaction, New York: Harper and Row.
Janssen O, Yperen NWV (2004). Employees' goal orientations, the quality of leader-member exchange, and the outcomes of job performance and job satisfaction. Acad. Manage. J. 47(3): 368-384.
Jin M, Wu SD (2007). Capacity reservation contracts for high-tech industry. Eur. J. Oper. Res., 176(3): 1659-1677.
Judge TA, Thoresen CJ, Bono JE, Patton GK (2001). The job satisfaction-job performance relationship: A qualitative and quantitative review. PsyB, 127(3): 376-407.
Klein KL, Wiener Y (1977). Interest congruency as a moderator of the relationships between job tenure and job satisfaction and mental health. J. Vocat. Behav., 10(1): 92-98.
Lassen AH (2009). Re-orienting the corporate entrepreneurial journey: Exploring the role of middle management. Creat. Innov. Manage., 18(1): 16-23.
Liem AD, Lau S, Nie Y (2008). The role of self-efficacy, task value, and achievement goals in predicting learning strategies, task disengagement, peer relationship, and achievement outcome. Contemp. Educ. Psychol. 33(4): 486-512.
Littler D, Sweeting RC (1990). The management of new technology based business: The existentialist firm. Omega. 18(3): 231-240.
Locke EA (1976). The nature and causes of job satisfaction, In Dunnette MD, ed., Handbook of industrial and organizational psychology. Chicago, IL: Rand McNally, pp. 1297-1349.
Lodahl TM, Kejner M (1965). The definition and measurement of job involvement. J. Appl. Psychol. 49(1): 24-33.
Lord JE (1982). A study of career goal setting, job satisfaction, career commitment, and supervisor support in nursing, University of Texas, Austin:
Mar BW, Newell WT, Saxberg BO (1985). Managing high technology: An interdisciplinary perspective, North-Holland, Amsterdam: Elsevier Science Publishing.
Maruyana GM (1998). Basics of structural equation modeling, Beverly Hills, CA: Sage Publications.
Miller DB (1978). Career planning and management in organizations. Adv. Manage. J., 43(2): 33-43.
Mobley WH, Locke EA (1970). The relationship of value importance to satisfaction. Organ. Behav. Hum. Perform. 5(5): 463-483.
Moriarty RT, Kosnik TJ (1989). High-tech marketing: Concepts, continuity, and change. Sloan Manage. Rev. 30(4): 7-17.
Nafziger DH, Holland JL, Gottfredson GD (1975). Student-college congruency as a predictor of satisfaction. J. Counsel. Psychol., 22(2): 132-139.
Nerkar AA, McGrath RG, MacMillan IC (1996). Three facets of satisfaction and their influence on the performance of innovation teams. J. Bus. Ventur., 11(3): 167-188.
Nicholls JG (1979). Quality and equality in intellectual development: The role of motivation in education. AmP, 34(11): 1071-1084.
Nicholls JG (1989). The competitive ethos and democratic education. Cambridge, MA: Harvard University Press.
Nicholls JG, Cheung P, Lauer J, Patashnick M (1989). Individual differences in academic motivation: Perceived ability, goals, beliefs, and values. Learn. Individ. Differ., 1(1): 63-84.
Noe RA (1996). Is career management related to employee development and performance. J. Organ. Behav., 17(2): 119-133.
Parasuraman S, Simmers CA (2001). Type of employment, work-family conflict and well-being: A comparative study. J. Organ. Behav., 22(3): 551-568.
Parker CP, Baltes BB, Young SA, Huff JW, Altmann RA, LaCost HA (2003). Relationships between psychological climate perceptions and work outcomes: A meta-analytic review. J. Organ. Behav., 24(4): 389-416.
Pazy A (1988). Joint responsibility: The relationships between organizational and individual career management and the effectiveness of careers. Group Organ. Stud., 13(3): 311-331.
Phillips JM, Gully SM (1997). Role of goal orientation, ability, need for achievement, and locus of control in the self-efficacy and goal-setting process. J. Appl. Psychol. 82(5): 792-802.
Pintrich PR (2000a). An achievement goal theory perspective on issues in motivation terminology, theory, and research. Contemp. Educ. Psychol. 25(1): 92-104.
Pintrich PR (2000b). The role of goal orientation in self-regulated learning, In Boekaerts M, Pintrich PR, Zeidner M, eds. Handbook of self-regulation. San Diego: Academic Press, 451-502.
Pintrich PR, Schunk D (1996). Motivation in education: Theory, research and applications, Englewood Cliffs, NJ: Prentice-Hall.
Rashid MZA, Sambasivan M, Johri J (2003). The influence of corporate and organizational commitment on performance. J. Manage. Dev., 22(8): 708-728.
Schmitt N, Pulakos ED (1985). Predicting job satisfaction from life satisfaction: Is there a general satisfaction factor? Int. J. Psychol., 20(2): 155-167.
Schuler RS (1975). "Determinants of job involvement: Individual vs. Organizational: An extension of the literature." In: Proceedings of Thirty-Fifth Annual Meeting of the Academy of Management, New Orleans.
Sharf R (1970). Relative importance of interest and ability in vocational decision making. J. Counsel. Psychol., 17(3): 258-262.
Shore LM, Martin HJ (1989). Job satisfaction and organizational commitment in relation to work performance and turnover intentions. Hum. Relat., 42(7): 625-638.

Skaalvik EM (1997). Self-enhancing and self-defeating ego orientation: Relations with task and avoidance orientation, achievement, self-perceptions, and anxiety. J. Educ. Psychol. 89(1): 71-81.
Steele-Johnson D, Beauregard RS, Hoover PB, Schmidt AM (2000). Goal orientation and task demand effects on motivation, affect, and performance. J. Appl. Psychol. 85(5): 724-738.
Swaney K, Prediger D (1985). The relationship between interest-occupation congruence and job satisfaction. J. Vocat. Behav., 26(1): 13-24.
Vroom VH (1964). Work and motivation, NY: Wiley.
Walker JW (1980). Human resource planning, New York: McGraw-Hill.
Walsh WB, Lewis RO (1972). Consistent, inconsistent, and undecided career preferences and personality. J. Vocat. Behav., 2(3): 309-316.
Wang D, Guo B, "A mediating model of employee retention for high tech firms in the PRC," in Proceedings of International Engineering Management Society Conference, Albany, New York, 2003, IEEE Society, pp. 585-589.
Warr P, Cook J, Wall T (1979). Scales for the measurement of some work attitudes and aspects of psychological well-being. J. Occup. Psychol., 52(2): 129-148.
Weissenberg P, Gruenfeld LW (1968). Relationship between job satisfaction and job involvement. J. Appl. Psychol. 52(6): 469-473.
Wigfield A (1994). Expectancy-value theory of achievement motivation: A developmental perspective. Educ. Psychol. Rev., 6(1): 49-78.
Wigfield A, Eccles JS (1992). The development of achievement task values: A theoretical analysis. Dev. Rev. 12(3): 265-310.
Wigfield A, Eccles JS (2000). Expectancy-value theory of motivation. Contemp. Educ. Psychol. 25(1): 68-81.
Wigfield A, Eccles JS (2002). The development of competence beliefs, expectancies for success, and achievement values from childhood through adolescence. In: Wigfield A, Eccles JS, eds. The development of achievement motivation. San Diego, CA: Academic Press, pp. 91-120.
Yperen NWV, Janssen O (2002). Feeling fatigued and dissatisfied or feeling fatigued but satisfied? Employees' goal orientations and their responses to high job demands. Acad. Manage. J. 45(6): 1161-1171.

APPENDIX

Questionnaire items surveyed in this study

Strongly agree; Strongly disagree.

Attainment value (AV)	
AV1. It is important for me to perform well on the task.	1 2 3 4 5
AV2. It is important for me to master the present task.	1 2 3 4 5
AV3. The present task is important for me.	1 2 3 4 5
Interest value (IV)	
IV1. The present task is interesting.	1 2 3 4 5
IV2. I like present task very much.	1 2 3 4 5
IV3. I am very interested in the content of the present task.	1 2 3 4 5
Utility value (UV)	
UV1. The present task is useful for my goal.	1 2 3 4 5
UV2. The present task is useful for my future task.	1 2 3 4 5
UV3. The present task is useful in my future career planning.	1 2 3 4 5
Mastery orientation (MO)	
I feel successful on my job when…	
MO1. I feel I am improving.	1 2 3 4 5
MO2. I acquire new knowledge or master a new skill which was difficult for me in the past.	1 2 3 4 5
MO3. I learn something new that is fun to do.	1 2 3 4 5
MO4. I perform to my potential.	1 2 3 4 5
Performance orientation (PO)	
I feel successful on my job when…	
PO1. I perform better than my colleagues.	1 2 3 4 5
PO2. Nobody can do as well as me.	1 2 3 4 5
PO3. I accomplish some tasks that others failed to perform.	1 2 3 4 5
PO4. I am the only one who knows about particular things or who has a particular skill.	1 2 3 4 5
Job satisfaction (JS)	
I feel satisfied with my job because…	
JS1. In comparison with other companies.	1 2 3 4 5
JS2. It gives me an opportunity to do what I am best at.	1 2 3 4 5
JS3. It is in light of my career expectations.	1 2 3 4 5
JS4. I can make the work progress suitable for my own goal.	1 2 3 4 5