Emotional Dissonance and the Information Technology Professional
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MIS Quarterly

RESEARCH NOTE

# EMOTIONAL DISSONANCE AND THE INFORMATION TECHNOLOGY PROFESSIONAL[1]

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## Abstract

*The information technology professional is regularly expected to work with colleagues in both IT and other areas of the organization. During these interactions, the IT employee is expected to conform to occupational or organizational norms regarding the display of emotion. How do these display norms affect the IT professional? This study examines an IT professional's emotional dissonance, the conflict between norms of emotional display and an employee's felt emotion. Emotional dissonance is studied as a factor of IT professionals' work exhaustion, job satisfaction, and turnover intention, modeled as an extension to the work of Moore (2000a). The results indicate emotional dissonance predicts work exhaustion better than do perceived workload, role conflict, or role ambiguity, constructs which have long been associated with work exhaustion. Job satisfaction is influenced directly by role ambiguity and work exhaustion. In turn, job satisfaction influences employee turnover intention. We discuss implications of these findings for both IT management and future research.*

**Keywords**: IT workforce, emotional dissonance, work exhaustion, turnover intention, job satisfaction

## Introduction

Today's information technology professionals shoulder a heavy load. Spending cuts and changes in IT implementation have forced these employees to work longer hours and take on expanded organizational roles (Hoffman 2003). IT workers are experiencing increased complexity in both the underlying technology and its creative use. Hence, firms today demand

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not only technical skills but also problem solving and customer service expertise (Pawlowski and Robey 2004; Thibodeau 2004). A byproduct of these demands may be increased levels of exhaustion and burnout (Moore 2000a). Work exhaustion, defined as the depletion of one's emotional, mental, and physical resources (Moore 2000a), often leads IT professionals to such outcomes as reduced job satisfaction (Burke and Greenglass 1995), employee withdrawal (Deery et al. 2002), and increased turnover (Moore 2000a).

IT professionals are also being asked to expend more interpersonal effort at work. The importance of business and interpersonal skills for IT professionals is well-established. Many stakeholders, including IT customers (Bostrom 1984; Nelson and Cooprider 1996), IT managers (Leitheiser 1992; Lee et al. 1995), and other IT professionals (Bailey and Stefaniak 1999; Green 1989; Khan and Kukalis 1990; Yen et al. 2001) prescribe that IT people must understand the business and communicate effectively with organizational counterparts.

The impact of these added expectations on the IT professional is not well understood. This study begins to address this issue by examining the emotional dissonance IT professionals may feel as they interface with others on the job. ***Emotional dissonance*** means the felt conflict between the way one feels toward interaction partners and the emotion one feels compelled to display toward those individuals. For example, even when annoyed by customers or coworkers, one may feel a strong need to mask those feelings.

Researchers have examined emotional dissonance and its source theory, emotional labor, in the context of human service professions such as flight attendant (Hochschild 1983), convenience store clerk (Sutton and Rafaeli 1988), bank teller (Pugh 2001), and bill collector (Sutton 1991). Employees in these jobs are often expected to present a desired emotional demeanor at work. The organization may explicitly mandate these expectations, termed ***display rules***, to further organizational goals such as increased sales or good customer relations. Socialization tactics or industry norms may also convey implicit display rules regarding appropriate emotional displays. Since IT professionals often interface with customers, display rules may apply to them. However, one's felt emotions do not always match desirable emotional displays (Rafaeli and Sutton 1987), thus inducing emotional dissonance (Ashforth and Humphrey 1993; Morris and Feldman 1996).

The current study examines whether emotional dissonance (ED) affects IT professionals' work exhaustion and job satisfaction, and, through them, turnover intention. Moore (2000a) previously studied how work exhaustion and role stressors (workload, role conflict, and role ambiguity) affect turnover intention. In order to position emotional dissonance among other turnover factors, this study extends Moore by incorporating emotional dissonance and job satisfaction.

## Emotional Dissonance and the Role of the IT Professional

We expect flight attendants and sales clerks to be cheerful, police officers to be authoritative, and nurses to be compassionate. Although no one has studied display rules in an IT context, one can infer emotional display expectations from the nature of the IT function. For example, as business partners, IT personnel need to show concern for business, rather than just technical, functions. A technically focused IT professional who conveys an attitude of indifference toward business outcomes may suffer a lack of credibility in the eyes of IT users and management (Markus and Benjamin 1996). While systems development often involves conflict (Barki and Hartwick 2001), IT professionals may feel they should not display anger when conflict arises. Computer support personnel may be expected to display concern for those seeking technical assistance rather than exasperation for their technical naïveté. IT managers and project leaders may be expected to display neutrality when making work assignments or sternness when dealing with underperforming subordinates. These examples illustrate a few possible IT-related display rule expectations. This study helps elucidate how these demands impact IT professionals.

### *Emotional Dissonance Theory and Hypotheses*

Emotional dissonance stems from emotional labor theory. Emotional labor describes the effort required to create and maintain a desired emotional demeanor (Hochschild 1983). Researchers have conceptualized several components of emotional labor, including the frequency of emotional display, the required degree of attentiveness to display rules, the variety of emotions expected, and emotional dissonance (Morris and Feldman 1996). Greater frequency and variety of display, levels of attentiveness, and emotional dissonance require energy, which can increase worker stress.

Empirical work comparing the effects of different emotional labor dimensions on stress-related outcomes has found that the dissonance dimension has the strongest and most consistent relationship with work exhaustion and job satisfaction. Morris and Feldman (1997) find emotional dissonance relates



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positively to work exhaustion and negatively to job satisfaction; they find other emotional labor dimensions (e.g., interaction frequency and duration) do not. Likewise, Lewig and Dollard (2003) find emotional dissonance predicts exhaustion and satisfaction, while other dimensions do not. Thus, we focus on emotional dissonance.

Employees may cope with display rule requirements in different ways. In her seminal work on flight attendants and bill collectors, Hochschild (1983) describes "deep acting," in which an employee tries to regulate felt emotions in order to comply with accepted norms. Deep acting contrasts with "surface acting," in which an employee presents an emotional facade that complies with norms but still conflicts with felt emotions. Surface acting produces emotional dissonance, while deep acting relieves dissonance. The resulting emotional dissonance creates employee strain which may lead to lowered self-esteem, alienation from work, emotional exhaustion, cynicism, and depression (Ashforth and Humphrey 1993; Grandey 2003).

More recent emotional dissonance research distinguishes between suppressing negative emotions and amplifying positive emotions (e.g., Côté and Morgan 2002; Diefendorff and Richard 2003; Schaubroeck and Jones 2000). This distinction is important because the two types of dissonance may have different outcomes.

Employees who need to suppress the display of anger or irritation (negative emotional dissonance) may feel they have lost some control over their emotional expression. The intrusion of professional requirements upon personal expressions may create negative reactions in employees which may be amplified by being unexpressed. In other words, not only may one be annoyed at a customer, but one may also be angry about the need to suppress that emotion. The effort required to deal with this display expectation may deplete one's emotional resources, thus increasing work exhaustion. Also, an employee who cannot display felt negative emotion may find that this experience colors his or her attitude toward the job itself, resulting in lower job satisfaction. Finally, negative emotional dissonance (NED) induces employee strain (Morris and Feldman 1996) and should, therefore, decrease job satisfaction.

***Hypothesis 1a**: Negative emotional dissonance is positively related to work exhaustion.*

***Hypothesis 1b**: Negative emotional dissonance is negatively related to job satisfaction.*

By contrast, positive emotional dissonance (PED) may produce positive outcomes. Whereas NED involves choking back felt emotion, PED involves simulating a positive emotional display that conforms to a display norm. This emotional facade may lead employees to experience the emotion displayed. Researchers suggest that facial expressions involved with emotional display may affect the experience of emotion (Adelmann and Zajonc 1989; Buck 1980; Izard 1990; McIntosh 1996). These studies provide evidence that those who feign the expression of positive emotion report more positive mood than those who maintain a neutral display. In addition, emotional contagion theory suggests that individuals will tend to mimic one another's affective displays, thereby influencing partners' felt emotions (Pugh 2001). One who makes a convincing positive emotional display may obtain feedback from others that reinforces the positive emotion (Côté and Morgan 2002). The display of positive emotion often leads to the experience of positive emotion. This is important, because positive affect can influence one's perceptions of the job, thus increasing job satisfaction (Isen and Baron 1991). Positive affect has also been prescribed to counter workplace stress, which may lead to burnout (Isen and Baron 1991). The links from emotional dissonance to work exhaustion and job satisfaction have received some empirical support (e.g., Côté and Morgan 2002; Erickson and Ritter 2001).

**Hypothesis 2a**: Positive emotional dissonance is negatively related to work exhaustion.

**Hypothesis 2b**: Positive emotional dissonance is positively related to job satisfaction.

## Base Model

Emotional dissonance is not the only stressor expected to affect IT professionals. In order to study NED and PED in context, we chose to examine these constructs by extending an existing base model. Moore's (2000a) model examines the effects of perceived workload, role ambiguity, role conflict, autonomy, and fairness of rewards on work exhaustion and turnover intention. We use this base model because it presents a parsimonious set of stressors and clearly establishes the importance of work exhaustion in IT. The base model (see Figure 1) incorporates Moore's original conceptual model (p. 146) along with two paths that Moore also found significant: perceived workload to turnover intention and fairness of rewards to turnover intention. Though we will test these relationships, no theoretical rationale or formal hypotheses will be presented, since these are elaborated in Moore.



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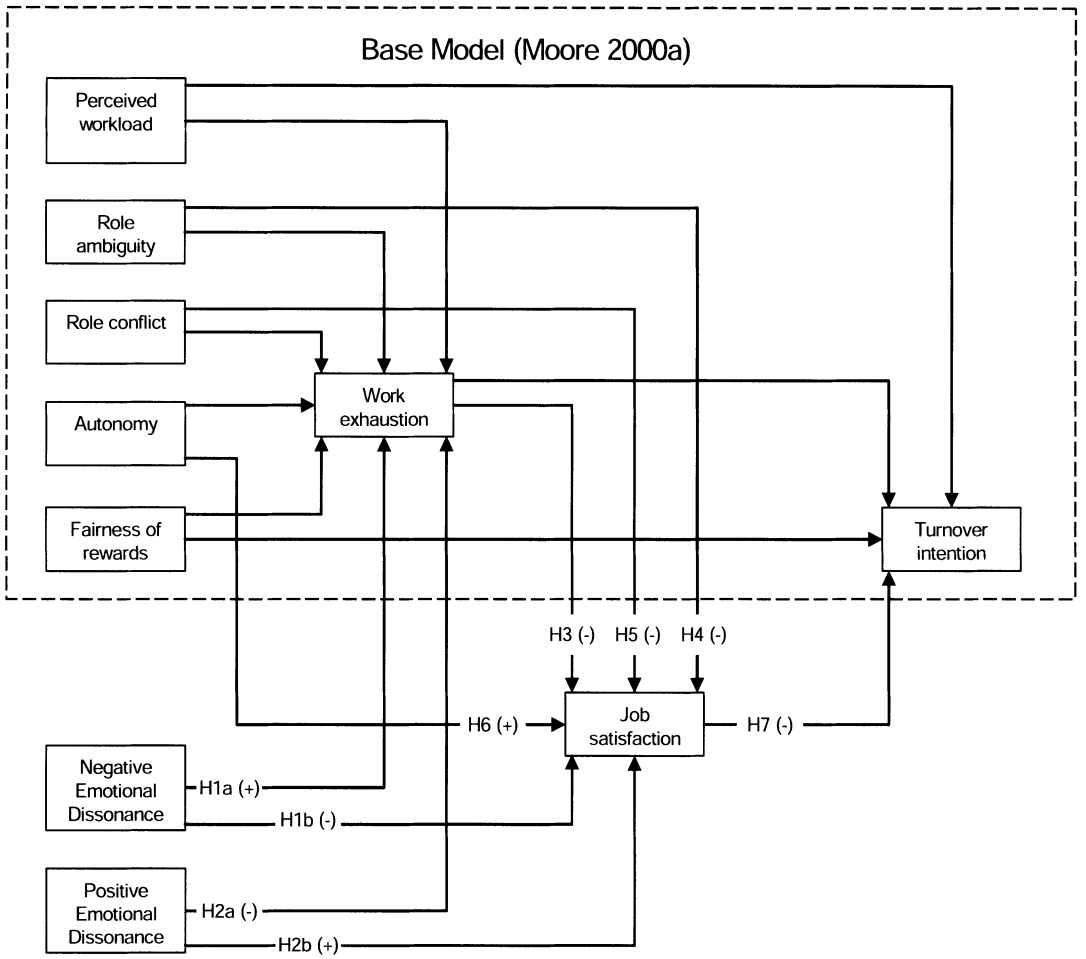


**Note:** Negative affectivity and organizational tenure were used as control variables.

**Figure 1. Theoretical Model**

## *Job Satisfaction Hypotheses*

We also include employee job satisfaction in the model. Adding job satisfaction (Igbaria and Greenhaus 1992) to Moore's base model provides an additional way to anchor emotional dissonance in the IT turnover literature. While we could include other constructs (e.g., organizational commitment), these constructs are not as well grounded in the emotional labor literature. Juxtaposing job satisfaction and emotional dissonance is appropriate because job satisfaction is inherently affective. Weiss and Cropanzano (1996) suggest "satisfaction is an evaluative judgment about one's job that partly, but not entirely, results from emotional experiences at work" (p. 2).

Job satisfaction is also important because it relates to work exhaustion. Work exhaustion is expected to produce lower job satisfaction. IT professionals who feel overwhelmed by job demands are unlikely to be satisfied with that job. Although one could argue the direction of causality, both longitudinal work (Wolpin et al. 1991) and meta-analysis (Lee and Ashforth 1996) provide evidence that work exhaustion negatively affects job satisfaction.

> ***Hypothesis 3:*** *Work exhaustion is negatively related to job satisfaction.*

Role ambiguity and role conflict both relate to job expectations. Role ambiguity is a sense of uncertainty about what is



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expected, how to achieve expectations, or the consequences of job performance. Each aspect of uncertainty could lower job satisfaction. Role conflict is an incompatibility between job expectations that may originate from one or more individuals with whom an employee interacts (Van Sell et al. 1981). Role conflict often reduces job satisfaction. An employee who experiences high role ambiguity or role conflict is less likely to evaluate the job positively (Baroudi 1985; Guimaraes and Igbaria 1992; Igbaria and Greenhaus 1992).

*Hypothesis 4: Role ambiguity is negatively related to job satisfaction.*

*Hypothesis 5: Role conflict is negatively related to job satisfaction.*

An employee with a high degree of autonomy has discretion over how to perform work responsibilities and should experience greater felt responsibility for the work, leading to increased job satisfaction (Hackman and Oldham 1976). This relationship has received extensive empirical support (e.g., Cheney 1984; Thatcher et al. 2003).

*Hypothesis 6: Autonomy is positively related to job satisfaction.*

Employees who experience job dissatisfaction are more likely to leave those jobs. Numerous studies have identified job satisfaction as a key factor of turnover intention (e.g., Hackman 1980; Igbaria and Greenhaus 1992).

*Hypothesis 7: Job satisfaction is negatively related to turnover intention.*

Figure 1 depicts these hypotheses. We include negative affectivity and organizational tenure as control variables. Turnover studies traditionally use organizational tenure as a control variable, and Moore employs negative affectivity to control for respondent mood.

## Methodology

The data for this study were collected through a questionnaire administered to IT employees of a Fortune 100 company (see Appendix for measures). From the 225 IT employees, 161 usable responses were obtained (72 percent). Respondent positions ranged from managers (20) to programmers/analysts (82) to systems support/customer support specialists (40), with 19 roles not reported. Unless otherwise noted, we analyzed the data using AMOS 5.0, a structural equation modeling (SEM) tool.

### Construct Measures

#### Emotional Dissonance

Scientists have largely settled on the definition of emotional dissonance, but not on its measurement (e.g., Hochschild 1983; Morris and Feldman 1996; Rafaeli and Sutton 1987). For example, Morris and Feldman (1997) capture emotional dissonance with three items (e.g., "Most of the time, the way I act and speak with patients matches how I feel anyway") that differ from the Pugliesi and Shook (1997) measures (e.g., "I am required to be 'artificially friendly' to clients or students"). Mann (1999) also uses a different scale. Abraham (1998, 1999) assesses the difference score between a set of parallel items developed by Adelmann (1989) (e.g., "To what degree do you think each of the following is expected of you as part of your job?" or "To what degree do you think you actually do each of the following as part of your job?").

Other studies use separate positive and negative emotional dissonance measures (Côté and Morgan 2002; Erickson and Ritter 2001; Schaubroeck and Jones 2000), although few have adopted these measures (for exceptions, see Schaubroeck and Jones 2000; Zapf et al. 1999). We felt it important to separate the positive and negative emotional dissonance variables because of the theoretical reasons stated earlier. Based on several sources (e.g., Côté and Morgan 2002; Erickson and Ritter 2001; Schaubroeck and Jones 2000), we developed five positive and five negative items. The wording most closely resembles the Schaubroeck and Jones scale (2000). We chose a direct perceived measure instead of difference scores, first, because of well-known difficulties with difference score measures (Edwards 1996, 2001); second, because direct scores tap into memorable suppressing or amplifying experiences; and third, to make our results comparable to the majority of studies. We also chose to orient the questions toward IT professionals' interactions with customers or clients, as opposed to coworkers, since client exchanges are more likely to trigger emotional dissonance (Tschan et al. 2005).

#### Other Measures

Where possible, we used or adapted existing measurement scales. Our research site asked that we limit the number of survey questions. To comply with this request, some items were eliminated. Within this constraint, the scales were either adopted or closely adapted, as Table 1 explains.



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**Table 1. Measurement Items**

| Construct | Source of Measures | Modifications/Rationale |
|---|---|---|
| Perceived workload | Kirmeyer and Dougherty 1988<br>Moore 2000a | No modifications |
| Role ambiguity | Rizzo, House, and Lirtzman 1970<br>Moore 2000a | This scale was modified to reduce its length and to clarify certain items. One item is retained intact ("I know exactly what is expected of me") and one is modified slightly ("Each assignment has a clear objective"). A third item ("I have a defined role in my workgroup") is included to capture the overall intent of the scale. |
| Role conflict | Rizzo, House, and Lirtzman 1970<br>Moore 2000a | A modifier (sometimes, frequently, often) was added to soften some items. One item was modified slightly to improves its clarity ("In my work, I have to try to balance two or more conflicting preferences"). |
| Autonomy | McKnight 1997 | No modifications |
| Fairness of rewards | Niehoff and Moorman 1993<br>Moore 2000a | No modifications |
| Negative affectivity | Watson, Clark, and Tellegen 1988 | Three items (scared, jittery, guilty) were omitted to reduce the length of the scale. |
| Work exhaustion | Schaufeli, Leither, and Kalimo 1995<br>Moore 2000a | One item ("Working all day is really a strain for me") was omitted to reduce the length of the scale. |
| Job satisfaction | McKnight 1997 | No modifications |
| Turnover intention | Moore 2000a | Minor modification was made to one item; the phrase "with this company" was substituted for "at the same company" in item 2. |

## *Psychometrics*

We analyzed and validated the constructs using two sequential methods: item culling and confirmatory factor analysis (CFA). First, for variable purification, we took item culling steps, as recommended by Churchill (1979). We examined item skewness to assess normality. Negative affectivity items 5 and 7 showed values of 4.2 and 3.1, exceeding the < 3.0 standard for acceptable skewness (Kline 1998). Kurtosis also exceeded Kline's standard of 10 (item 5: 20; item 7: 12). These items were therefore dropped. As a second item culling step, we performed a principal components factor analysis and, consequently, eliminated (1) items loading more on another construct than on their own construct, and (2) items not loading at least 0.50 on their own construct (Cheon and Stylianou 2001). Table 2 shows the result. The first and second perceived workload items loaded more on role conflict than on workload, so they were dropped. Role conflict item 2 and negative affectivity item 6 loaded at less than 0.50, so they too were removed. The positive and negative emotional dissonance items all loaded together, but since they did not cross-load on other factors, we left them in the model pending further testing of their discriminant validity.

After item culling, a confirmatory factor analysis (CFA) was conducted. CFA tests how well the proposed factor structure fits the data, as measured through the maximum likelihood (ML) function. Fit is evaluated using the RMSEA, CFI, and Bollen IFI fit statistics, per Bentler (1990). CFI and Bollen IFI fit indices report the relative fit of the model versus the null model and are preferred over absolute fit indices (Bollen 1989a). RMSEA penalizes lack of model parsimony, making it a robust index. Model CFI and IFI should exceed 0.90 and RMSEA should be between 0.05 and 0.08 to demonstrate good fit (Bentler 1990). The results of our measurement model suggest that the proposed factor structure has a good fit with the data (CFI = 0.91, IFI = 0.91, and RMSEA = 0.064).

We next examined the reliability and convergent and discriminant validity of each latent factor. Reliability assesses the consistency of subjects' responses to a scale. Fornell and Larcker (1981) suggest composite reliability should be greater



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**Table 2. Principal Components Analysis (Note: loadings below 0.30 excluded)**

| | ED | TO | NA | RC | WE | AUT | RA | JS | PWL | FAIR |
|---|---|---|---|---|---|---|---|---|---|---|
| Ned1 | **0.69** | | | | | | | | | |
| Ned2 | **0.85** | | | | | | | | | |
| Ned3 | **0.82** | | | | | | | | | |
| Ned4 | **0.88** | | | | | | | | | |
| Ned5 | **0.84** | | | | | | | | | |
| Ped1 | **0.81** | | | | | | | | | |
| Ped2 | **0.92** | | | | | | | | | |
| Ped3 | **0.95** | | | | | | | | | |
| Ped4 | **0.95** | | | | | | | | | |
| Ped5 | **0.92** | | | | | | | | | |
| to1 | | **-0.82** | | | | | | | | |
| to2 | | **-0.89** | | | | | | | | |
| to3 | | **-0.85** | | | | | | | | |
| to4 | | **-0.81** | | | | | | | | |
| na1 | | | **0.90** | | | | | | | |
| na2 | | | **0.69** | | | | | | | |
| na3 | | | **0.85** | | | | | | | |
| na4 | | | **0.62** | | | | | | | |
| na6 | | | **0.49** | | | | | | | |
| rc1 | | | | **0.50** | | | | | | 0.34 |
| rc2 | | | | **0.49** | | | | | | 0.35 |
| rc3 | | | | **0.82** | | | | | | |
| rc4 | | | | **0.78** | | | | | | |
| rc5 | | | | **0.82** | | | | | | |
| we1 | | | | | **-0.88** | | | | | |
| we2 | | | | | **-0.87** | | | | | |
| we3 | | | | | **-0.84** | | | | | |
| we4 | | | | | **-0.86** | | | | | |
| aut1 | | | | | | **0.84** | | | | |
| aut2 | | | | | | **0.87** | | | | |
| aut3 | | | | | | **0.88** | | | | |
| aut4 | | | | | | **0.86** | | | | |
| ra1 | | | | | | | **-0.82** | | | |
| ra2 | | | | | | | **-0.80** | | | |
| ra3 | | | | | | | **-0.75** | | | |
| js1 | | | | | | | 0.34 | **0.55** | | |
| js2 | | | | | | | 0.33 | **0.56** | | |
| js3 | | | | | | | 0.37 | **0.67** | | |
| pwl1 | | | | 0.58 | | | | | | |
| pwl2 | | | | 0.45 | | | | 0.40 | | |
| pwl3 | | | | | | | | | **0.87** | |
| pwl4 | | | | | | | | | **0.87** | |
| fair1 | | | | | | | | | | **0.90** |
| fair2 | | | | | | | | | | **0.80** |
| Eigen value | 10.00 | 6.63 | 3.61 | 3.56 | 2.33 | 1.96 | 1.74 | 1.55 | 1.40 | 1.12 |
| % of variance | 21.75 | 14.42 | 7.84 | 7.74 | 5.06 | 4.26 | 3.79 | 3.36 | 3.04 | 2.44 |

**Notes:** PCA conducted using an oblique rotation, as recommended by Fabrigar et al. (1999).
NED–negative emotional dissonance; PED–positive emotional dissonance; PWL–perceived workload; RA–role ambiguity; RC–role conflict; AUT–autonomy; FAIR–fairness of rewards; NA–negative affectivity; WE–work exhaustion; JS–job satisfaction; TO–turnover intention



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**Table 3. Descriptive Statistics**

| | Mean | SD | α | NED | PED | PWL | RA | RC | Aut | Fair | NA | WE | JS | TO |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NED | 2.8 | 1.00 | 0.93 | **0.89** | | | | | | | | | | |
| PED | 2.6 | 1.09 | 0.95 | 0.90 | **0.87** | | | | | | | | | |
| PWL | 4.2 | 1.13 | 0.72 | 0.32 | 0.24 | **0.91** | | | | | | | | |
| RA | 2.9 | 1.22 | 0.84 | 0.09 | 0.00 | 0.16 | **0.81** | | | | | | | |
| RC | 3.9 | 1.27 | 0.81 | 0.28 | 0.19 | 0.18 | 0.23 | **0.74** | | | | | | |
| Aut | 5.0 | 1.21 | 0.89 | 0.02 | 0.00 | 0.12 | -0.17 | 0.17 | **0.82** | | | | | |
| Fair | 4.6 | 1.43 | 0.85 | -0.19 | -0.15 | 0.11 | -0.17 | -0.16 | -0.02 | **0.88** | | | | |
| NA | 1.7 | 0.80 | 0.84 | 0.21 | 0.13 | 0.13 | 0.48 | 0.28 | -0.20 | -0.07 | **0.75** | | | |
| WE | 3.4 | 1.37 | 0.89 | 0.40 | 0.27 | 0.26 | 0.25 | 0.28 | 0.03 | -0.20 | 0.29 | **0.81** | | |
| JS | 5.1 | 1.16 | 0.86 | -0.14 | -0.12 | 0.16 | -0.57 | -0.20 | 0.07 | 0.29 | -0.38 | -0.32 | **0.83** | |
| TO | 2.5 | 1.52 | 0.93 | 0.02 | 0.03 | -0.18 | 0.27 | 0.16 | -0.01 | -0.40 | 0.25 | 0.07 | -0.43 | **0.88** |

**Notes:** 1. The diagonal reports the square roots of the average variance extracted (AVE).
2. Correlations over 0.20 are significant at $p < 0.01$; those from 0.16 to 0.20 at $p < 0.05$.
3. α refers to Cronbach's alpha.

NED – negative emotional dissonance; PWL – perceived workload; RA – role ambiguity; RC – role conflict; AUT – autonomy; FAIR – fairness of rewards; NA – negative affectivity; WE – work exhaustion; JS – job satisfaction; TO – turnover intention

than 0.70. In our sample, composite reliability ranged from 0.82 (role conflict) to 0.95 (positive emotional dissonance). Reliability was also assessed using Cronbach's α. The measures for all constructs exceed the 0.70 standard (see Table 3).

Convergent validity indicates how well the measures share variance in representing the construct. Unidimensionality, a necessary condition for convergent validity (Anderson and Gerbing 1988), is assessed by testing item loading significance. All loadings were significant at $p < 0.01$. Convergent validity requires that each construct's average variance extracted (AVE) must exceed 0.50. The measurement model AVEs ranged from 0.55 for role conflict to 0.82 for perceived workload, satisfying this requirement. These tests suggest adequate convergent validity.

Discriminant validity was examined next. Discriminant validity means the degree to which the measures of two constructs are empirically distinct. We first tested discriminant validity by fixing the correlation between construct pairs at 1.0 and then reestimating the modified model (Segars and Grover 1993). Significant $\chi^2$ differences suggest discriminant validity. We tested all 55 pairwise combinations among the eleven constructs, finding all the $\chi^2$ differences to be significant at $p < .001$. The smallest difference occurred when constraining PED ←→ NED ($\chi^2$ difference = 110.4; $p < .001$). These results support discriminant validity. A more stringent test suggests discriminant validity exists if the correlations between a pair of variables are all less than the square root of the AVEs for those variables (Fornell and Larcker 1981). Table 3 shows that all constructs easily pass this test except positive and negative emotional dissonance. They correlate at 0.90, while the square roots of their AVEs are 0.89 and 0.87 (Table 2). Thus, the two tests give conflicting results for NED/PED discriminant validity.

The NED and PED correlation is higher than typically reported (e.g., Côté and Morgan 2002; Schaubroeck and Jones 2000). This may result from a presentation order effect. Our instrument listed the positive and negative items in alternating order, which likely increased response similarity. The high NED/PED correlation suggests multicollinearity is present, which may create instability in the matrix inversion required in SEM (Tabachnik and Fidell 2001). To further diagnose multicollinearity, we computed variance inflation factors (VIFs) for NED at 4.6 and PED at 4.2. While these are below the standard 10.0 cutoff (Tabachnik and Fidell 2001), others report multicollinearity with VIFs below 10.0 (e.g., Bare and Hann 1981; Kim et al. 1999).

To deal with multicollinearity, scholars suggest eliminating one of the highly correlated variables or combining them into a single variable (Kline 1998). Faced with conflicting discriminant validity test results and the high NED/PED correlation, we chose to present NED and PED as reflective first order factors of a second order emotional dissonance variable. This approach allows us to keep both NED and PED in the model and to evaluate their relative influence in the model.



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## Model Testing Results

The hypotheses are evaluated by examining the significance of the relationships in the SEM model. Results are reported in Table 4 and in Figure 2. Both NED and PED load strongly and significantly on the second order emotional dissonance factor. Emotional dissonance is positively related to work exhaustion and is not significantly related to job satisfaction. Thus, H1 and H2 receive partial support. H3, H4, and H7 are supported, in that work exhaustion and role ambiguity predict job satisfaction, which predicts turnover intention. However, H5 and H6 are not supported, in that role conflict and autonomy do not predict job satisfaction.

## Discussion

### Emotional Dissonance Hypotheses

This study finds that both NED and PED, through the second order emotional dissonance construct, predict IT employee work exhaustion. Emotional dissonance exerts a significant effect even in the presence of other predictors long associated with work exhaustion (Moore 2000a; Sethi et al. 1999). This extends the Moore research stream by identifying an additional antecedent to work exhaustion. We find that IT workers feel compelled to maintain appropriate emotional displays on the job, and that they suffer associated ill effects. This finding is important in light of increased concern about IT workforce exhaustion and burnout (Moore 2000a, 2000b; Sethi et al. 2004).

Contrary to prior findings (Abraham 1998; Côté and Morgan 2002), emotional dissonance did not directly affect job satisfaction. This may have occurred because work exhaustion mediates emotional dissonance's effect on job satisfaction. A *post hoc* analysis using the Baron and Kenny (1986) procedure lends some support. Emotional dissonance exerts a near significant direct effect on job satisfaction ($\beta = -.13$, $p = 0.06$) when work exhaustion is removed (note that other antecedent variables were also removed from the model for the purpose of this test). When the emotional dissonance → work exhaustion and work exhaustion → job satisfaction paths are added (both significant), the effect of emotional dissonance on job satisfaction falls to $-0.03$ ($p = 0.35$), supporting full mediation.

Positive emotional dissonance did not have the effects expected. Although we were not able to test the direct effect of PED on other variables due to the revised second order factor structure, evidence suggests two interpretable relationships. First, PED is positively related to the second order ED factor which is, in turn, positively associated with work exhaustion. This relationship is further supported by the positive correlation between PED and work exhaustion. The suggested positive relationship between PED and work exhaustion is contrary to hypothesis H2a. Second, the path from emotional dissonance to job satisfaction is not significant, nor is the correlation between PED and job satisfaction, thus contradicting H2b.

One possible explanation is that IT professionals perceive positive emotional dissonance differently than do human service workers. Previous studies like that of Schaubroeck and Jones (2000) examine employees that had a "fairly high incidence of emotional labor" (p. 170). Côté and Morgan (2002) use working students primarily employed in the service industry. It may be that these employees view the display of positive emotion as a normal job requirement. By contrast, if IT professionals do not view positive emotional displays as a typical job requirement, positive emotional dissonance may tax them more than it taxes other types of service employees.

The PED findings may also be influenced by the method used to measure it. The theoretical arguments for positive effects of PED suggest that employees feigning a positive emotional demeanor may move along a spectrum from surface acting to deep acting to genuine experience of the emotion. However, our measure only captures surface acting (i.e., a sense of putting on the mask to display unfelt positive emotion). Future research should also identify positive outcomes associated with deep acting.

### Base Model Relationships

Some of our findings echo those of Moore (2000a). We find that fairness of rewards negatively affects both work exhaustion and turnover intention and that negative affectivity positively relates to work exhaustion. Also consistent with Moore's findings, role conflict does not affect work exhaustion.

Some differences also exist between our findings and Moore's. In our study, role ambiguity positively predicts work exhaustion, while it does not in Moore's. Also, in Moore's study, perceived workload is the strongest predictor of work exhaustion. Although we find perceived workload to positively correlate with work exhaustion (see Table 3), the relationship is not significant (Figure 2). This may be due to the strong effects of emotional dissonance on work exhaustion.



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**Table 4. Results of Hypothesis Tests**

| Hypotheses | | | | β |
|---|---|---|---|---|
| **Emotional Dissonance Hypotheses (H1a, H1b, H2a, H2b)** | | | | |
| | NED loading on ED | | | 0.97*** |
| | PED loading on ED | | | 0.92*** |
| | | | | |
| H1a, H2a | ED | → | WE | 0.21* |
| H1b, H2b | ED | → | JS | 0.01 |
| **Base Model Relationships** | | | | |
| | PWL | → | WE | 0.00 |
| | PWL | → | TO | -0.13* |
| | RA | → | WE | 0.17* |
| | RC | → | WE | 0.08 |
| | Aut | → | WE | 0.02 |
| | Fair | → | WE | -0.19* |
| | Fair | → | TO | -0.32*** |
| | WE | → | TO | -0.04 |
| **Job Satisfaction Hypotheses** | | | | |
| H3 | WE | → | JS | -0.35*** |
| H4 | RA | → | JS | -0.42*** |
| H5 | RC | → | JS | 0.02 |
| H6 | Aut | → | JS | -0.05 |
| H7 | JS | → | TO | -0.29*** |
| **Control Variables** | | | | |
| | NA | → | WE | 0.20* |
| | NA | → | JS | -0.10 |
| | NA | → | TO | 0.15* |
| | OT | → | WE | 0.01 |
| | OT | → | JS | 0.12* |
| | OT | → | TO | -0.01 |
| $R^2$ – TO | | | | 0.28 |
| $R^2$ – JS | | | | 0.44 |
| $R^2$ – WE | | | | 0.27 |

NED – negative emotional dissonance; PED – positive emotional dissonance;
PWL – perceived workload; RA – role ambiguity; RC – role conflict; AUT – autonomy;
FAIR – fairness of rewards; NA – negative affectivity; WE – work exhaustion;
JS – job satisfaction; TO – turnover intention; OT – organizational tenure

*p value < 0.05 *p value < 0.01 ***p value < 0.001



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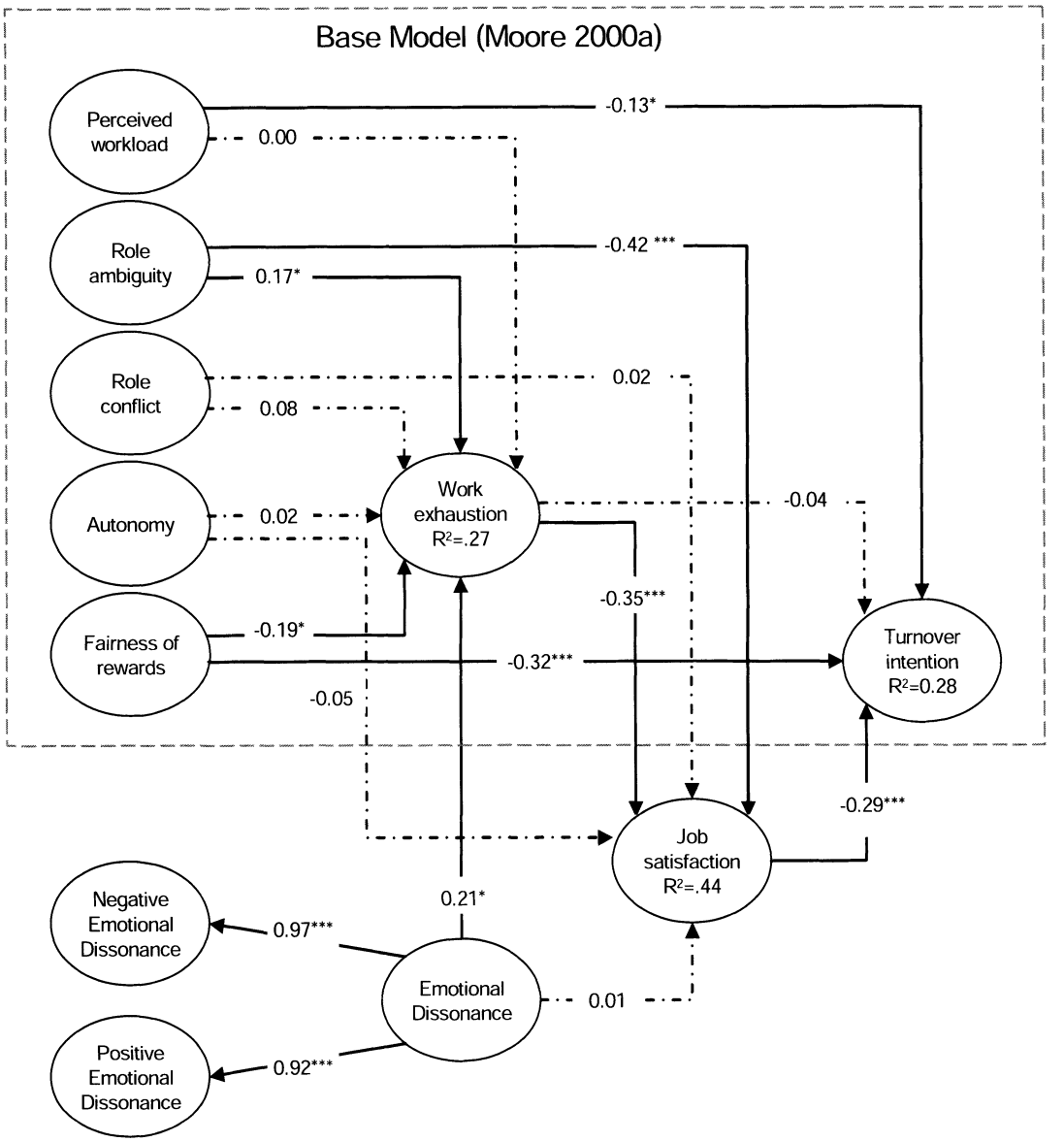


Model fit: IFI – 0.90, TLI – 0.89, CFI = 0.90, RMSEA = 0.07, SRMR = 0.07

Notes:

1. Manifest variables are omitted from the diagram to enhance clarity and readability.
2. Nonsignificant relationships are indicated by dashed lines.
3. Effects of the control variables are shown in Table 4.

*p value < 0.05 **p value < 0.01 ***p value < 0.001

**Figure 2. Results of Model Testing**



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### Job Satisfaction Hypotheses

The paper also increments the Moore (2000a) model by showing that work exhaustion may operate on turnover intention through job satisfaction. This finding links the Moore model, which predicts turnover intention via work exhaustion, and the work of Igbaria and Greenhaus (1992), who use job satisfaction.

Role conflict and role ambiguity have been linked to job satisfaction in the IT turnover literature (Baroudi 1985; Guimaraes and Igbaria 1992; Igbaria and Greenhaus 1992; Thatcher et al. 2003). We find that role conflict does not significantly influence job satisfaction, while role ambiguity does. It may be that IT professionals, with their characteristic preference for logic and conservatism (Lyons 1985; Wynekoop and Walz 1998), are more susceptible to the uncertainty associated with role ambiguity than the incompatible expectations associated with role conflict.

### Antecedents to Emotional Dissonance: An Analysis

In the spirit of Bollen's (1989b) advice to compare several possible SEM models, we also examine an alternative model.[2] Work stressors such as role conflict, role ambiguity, and heavy perceived workloads may increase levels of negative emotion. Yet IT professionals are still subject to display rules when dealing with others. If this emotion cannot be displayed on the job, negative emotional dissonance may result. By contrast, autonomy and fairness of rewards may lessen felt negative emotion, decreasing the opportunity for NED. Also, role stressors probably decrease the degree to which one experiences genuine positive emotion on the job, suggesting that when positive displays must be made, those emotional displays more likely produce dissonance.

A *post hoc* analysis supports such a model. We positioned perceived workload, role conflict, role ambiguity, autonomy, and fairness of rewards as antecedents to ED while retaining all other hypothesized relationships. The resulting model exhibits good fit (IFI = .90, CFI = .90, RMSEA = .067). Perceived workload ($\beta = .29$, $p < .001$), role conflict ($\beta = .18$, $p < .05$), and fairness of rewards ($\beta = -.17$, $p < .01$) emerge as significant antecedents to emotional dissonance. Emotional dissonance retains its significant relationship with work exhaustion ($\beta = .22$, $p < .01$) as do role ambiguity ($\beta = .18$, $p < .05$), fairness of rewards ($\beta = -.18$, $p < .01$), and negative affectivity ($\beta = .20$, $p < .05$). Work exhaustion impacts job satisfaction ($\beta = -.32$, $p < .01$) as do role ambiguity ($\beta = -.40$, $p < .001$), fairness of rewards ($\beta = .14$, $p < .05$), and organizational tenure ($\beta = .12$, $p < .05$). Job satisfaction likewise impacts turnover intentions ($\beta = -.40$, $p < .001$). These results suggest that higher levels of work stressors may impact employees' felt negative emotion, thus increasing the need to suppress its display and increasing the difficulty of feigning positive display. Additional work should examine whether other work characteristics have similar impacts on emotional dissonance.

### Summary of Findings

In summary, this study indicates that the effect of emotional dissonance on job satisfaction is felt through work exhaustion. This finding suggests that as IT professionals are increasingly subject to display rules and the associated emotional dissonance, they must devote mental resources toward coping with that dissonance. This leads to work exhaustion and thus to reduced job satisfaction, which in turn impacts turnover intention.

## Limitations and Directions for Future Research

Several different measures for emotional dissonance have been proposed in the literature, but only a few have been adopted in subsequent works (e.g., Schaubroeck and Jones 2000; Zapf et al. 1999). Such measurement variety reduces the comparability of the findings. Our emotional dissonance measure limitations also suggest a need for more research. Specifically, because NED and PED were highly correlated, we were unable to test a model that proposed separate effects. Although theory suggests that PED and NED are separate and distinct constructs, we could not demonstrate this empirically. Future research should reexamine both the structure (whether or not it represents a superordinate construct) and dimensionality of ED.

The high NED/PED correlation in our study may have been influenced by the alternating positive and negative items on our survey instrument. Future researchers should consider separating the NED and PED items on the survey. Also, these variables may operate differently in an IT context than in a human service worker context. Perhaps IT professionals do not relate as well to positive emotional display expectations as do other service workers.

[2]We are indebted to an anonymous reviewer and the associate editor for pointing out these possible relationships.



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An additional measurement issue relates to our direct perceived measure of NED and PED. As an alternative, it may be desirable to measure both the experience of emotion and the management of that emotion. Erickson and Ritter (2001) use this approach, capturing both the experience of emotion and the degree to which it was suppressed. They evaluate the interaction between the experience and suppression of emotion, finding that the suppression of high levels of agitation relate to greater feelings of inauthenticity. Future research should consider a similar approach to examine the interplay between the experience and expression of emotion on the job.

Our sample of IT professionals represents various job types. It is possible that display rules and the effects of emotional dissonance may vary by job type. For example, programmers may spend little time interacting with others (Gallivan et al. 2004; Todd et al. 1995) and may be less likely to feel emotional dissonance effects. On the other hand, systems analysts and technical support personnel are regularly required to interact with system users (Guimaraes and Igbaria 1992) and may have greater need for emotion regulation. We explore this conjecture by examining the interaction of job type and the model antecedents.[3] No significant changes in $R^2$ are observed when the interaction terms are added to the model, suggesting job type has no effect. However, job type may not reflect the actual degree of customer interactions. Future research may wish to directly assess this variable in the form of a boundary spanning measure. Future studies should also assess the emotional dissonance impacts when interacting with internal versus external clients. In addition, our participants were all employed within a single organization. Future researchers will likely wish to follow Moore's example and include multiple organizations in their studies.

Researchers should also study how emotional dissonance affects other outcome variables. Some studies (e.g., Abraham 1999) use organizational commitment as an outcome variable. Organizational commitment is important because it relates to turnover intention (Igbaria and Greenhaus 1992). Future studies should incorporate commitment because emotional dissonance might affect how one feels toward the organization. Also, emotional dissonance might affect customer satisfaction or perceived IT department effectiveness or service quality (Pugh 2001). Thus, emotional dissonance presents many research opportunities.

[3]Because some job types had small numbers (e.g., 20 in the managerial group), a multigroup analysis of the full structural model was not practical. Therefore, this analysis was performed using the Aiken and West (1991) procedures for interaction between a categorical variable (such as job type) and a continuous variable in a regression equation. Note that we were not able to split programmers from analysts for this analysis.

## Practical Implications

IT managers need to recognize that while IT professionals become exhausted due to work overload (e.g., Moore 2000a), they also become exhausted because they have to suppress negative emotions or amplify positive emotions. Awareness is an important first step. Further, IT managers can take preventive action as they recruit employees. Researchers have suggested that the fit between an employee's disposition and the display rules produces lower dissonance (Morris and Feldman 1996; Rafaeli and Sutton 1989; Sutton 1991). Managers should try to find employees that fit the desired display rules. Some evidence exists that this practice is not followed in the IT profession. For example, exceptional systems analysts are extroverted while exceptional IT student recruits are introverted (Clark et al. 2003). Organizations that recruit top students may not be able to choose from a pool of potential employees with a full set of desirable job skills. During internships and interviews, employers should convey the interpersonal requirements of the job.

Management may also use strategies to help existing employees recognize the value of display rules, thus encouraging them toward deep acting and genuine experience of desired emotions as opposed to the dysfunctional surface acting. Both employee training and socialization may help them adapt to display rule norms (Rafaeli and Sutton 1989). Both formal techniques such as employee orientation and informal techniques such as mentoring might help IT professionals adapt smoothly to their new emotional display requirements. Further, managerial commitment to enact desired display rules may serve as a worthwhile example to follow.

## Conclusion

This study extends the work of Moore (2000a) by adding a new piece to the IT work exhaustion picture: emotional dissonance. Both negative and positive emotional dissonance increased IT professionals' work exhaustion, which reduced job satisfaction and ultimately increased turnover intention. These findings are important because IT professionals are often both overworked and constantly interacting with information system stakeholders regarding increasingly complex and organization-critical systems. In short, the pressures of the job combined with the need to suppress or amplify emotions can result in problems unless steps are taken to address the situation. IT managers should be aware of not only role stressors like role conflict and role ambiguity, but also the incremental tension that emotional dissonance can produce. This study's results suggest the importance of emotional dissonance in understanding the work exhaustion and turnover intention of IT professionals.



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# Appendix

## Measurement Scales

**Negative emotional dissonance** *(scale: 1 = never to 5 = very frequently)*
1. To be effective in my job, I must not demonstrate how agitated I may feel with customers.
2. To do my job well, I must pretend not to be irritated at customers even when I may feel that way.
3. To do my job effectively, I must hide any anger I may feel with customers.
4. To carry out my job, I must try to pretend I am not annoyed with customers when I really am.
5. In interacting with customers, I must suppress irritation I may feel.

**Positive emotional dissonance** *(scale: 1 = never to 5 = very frequently)*
1. To be effective in my job, I must try to be sympathetic with customers even when I am not.
2. In doing my job, I must portray myself as interested in the customers' frustrations even when I don't really care.
3. To do my job effectively, I must act as if I empathize with the customer despite my actual lack of concern.
4. I must act like I care about customers' concerns even when I find it hard to be interested.
5. To be successful in my job, I must pretend to care about customers' problems even when I am indifferent.

**Perceived workload** *(scale: 1 = strongly disagree to 7 = strongly agree)*
1. I feel that the number of requests, problems, or complaints I deal with is more than expected.
2. I feel that the amount of work I do interferes with how well it is done.

*(scale: 1 = daily; 2 = almost every day; 3 = about once a week; 4 = 2-3 times a month; 5 = about once a month; 6 = a few times a year; 7 = once a year or less)*
3. I feel busy or rushed. (R)
4. I feel pressured. (R)

**Role ambiguity** *(scale: 1 = strongly disagree to 7 = strongly agree)*
1. I know exactly what is expected of me. (R)
2. I have a defined role in my workgroup. (R)
3. Each assignment has a clear objective. (R)

**Role conflict** *(scale: 1 = strongly disagree to 7 = strongly agree)*
1. I do things that are apt to be accepted by one person and not accepted by others.
2. I sometimes have to buck a rule or policy in order to carry out an assignment.
3. I frequently receive incompatible requests from two or more parties.
4. I often perform work for two or more parties who operate quite differently
5. In my work, I have to try to balance two or more conflicting preferences.

**Autonomy** *(scale: 1 = strongly disagree to 7 = strongly agree)*
1. In my work, I usually do not have to refer matters to my direct supervisor for a final decision.
2. Usually, my direct supervisor does not have to approve my decisions before I can take action.
3. Rather than asking my direct supervisor, I usually make my own decisions about what to do on a job.
4. I can usually do what I want on this job without consulting my direct supervisor.

**Fairness of rewards** *(scale: 1 = strongly disagree to 7 = strongly agree)*
1. I think my level of pay is fair
2. Overall, the rewards I receive here are quite fair.

**Work exhaustion** *(scale: 1 = strongly disagree to 7 = strongly agree)*
1. I feel emotionally drained from my work.
2. I feel used up at the end of the workday.
3. I feel fatigued when I get up in the morning and have to face another day on the job.
4. I feel burned out from my work.



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**Job satisfaction** *(scale: 1 = strongly disagree to 7 = strongly agree)*
1. Generally speaking, I feel satisfied with this job.
2. Overall, I feel satisfied with the kind of work I do in this job.
3. In general, I feel satisfied with my job.

**Turnover intention** *(scale: 1 = very unlikely to 7 = very likely)*
1. I will be with this company five years from now. (R)
2. How likely is it that you will be working with this company this time next year? (R)
3. I will probably look for a job at a different company in the next year.
4. How likely is it that you will take steps during the next year to secure a job at a different company?

**Negative affectivity** *(scale: 1 = not at all to 7 = extremely)*
Right now, to what extent do you feel:
1. Afraid
2. Distressed
3. Nervous
4. Upset
5. Ashamed
6. Irritable
7. Hostile



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