Transactions on Replication Research

Emotional Dissonance and the Information Technology Professional: A Methodological Replication Study

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Abstract:

This study is a methodological replication of "Emotional Dissonance and the Information Technology Professional" by Rutner, Hardgrave, and McKnight (2008). Though we adopted the original study's hypotheses and research methodology, we add to that research by investigating generational differences, increasing the sample size, and including respondents from multiple firms and industries. In this replication, we were able to 1) establish continued support for the direct impact of emotional dissonance on work exhaustion, 2) increase the explanatory power, and 3) provide broader generalizability through sampling subjects from multiple firms. We discuss both the practical and theoretical implications of these findings.

Keywords: Emotional dissonance, IT professionals, turnover intention, generational differences

1   Introduction

The turnover of information technology (IT) professionals remains one of the primary reasons for IT staffing deficiencies across organizations. Today's workers tend to switch jobs frequently, requiring organizations to develop costly recruiting and on-boarding processes. For instance, the U.S. Bureau of Labor Statistics reports that the median years of tenure for workers in computer and mathematical occupations is only 4.3 years (Bureau of Labor Statistics, 2018). Another trend of the U.S. workforce is an increase of non-standard employment, with some individuals even considering contingent work as a proper career (Spreitzer, Cameron, & Garrett, 2017; Mao, Capra, Harman, & Jia, 2017). At the same time, the supply of new IT professionals is not expected to keep pace with the projected growth of the profession and current retirement rates (National Science Board, 2018).

Over the last four decades, there have been over 200 studies published seeking to understand and identify the drivers for IT professionals' turnover intentions. (e.g., Baroudi, 1985; Igbaria & Greenhaus, 1992; Igbaria & Siegel, 1992; Dinger, Thatcher, Treadway, Stepina, & Breland, 2015; Jiang, Huang, Klein, & Tsai, 2020). Information systems (IS) scholars have examined the following antecedents' effects on IT professionals' turnover intention: affective commitment, defined as the employee's emotional attachment to the organization (e.g., Dinger et al., 2015); job satisfaction, defined as the employee's enjoyment derived from the job (e.g., McKnight, Phillips, & Hardgrave, 2009); work exhaustion, defined as the emotional aspect of burnout (e.g., Shih, Jiang, Klein, & Wang, 2011); perceived job alternatives, defined as the job availability or offers in the job market (e.g., Zhang, Ryan, Prybutok, & Kappelman, 2012); job autonomy, defined as the employee's control on how to do the job (e.g., Ahuja, Chudoba, Kacmar, McKnight, & George, 2007); role ambiguity, defined as the employee's uncertainty about how to do the job (Ahuja et al., 2007); role conflict, defined as the employee's requirement to perform multiple roles that may be incompatible (e.g., Joseph, Ng, Koh, & Ang, 2007); perceived workload, defined as the employee's amount of work and deadlines to meet (e.g., Zaza, Armstrong, & Riemenschneider, 2015); fairness of rewards, defined as the employee's perception of fairness in terms of pay and rewards received from an organization (e.g., Weinert, Maier, Laumer, & Weitzel, 2015); pay and benefits (e.g., Murrar & Hamad, 2013); and promotability (e.g., Kim, 2012), to name a few.

Despite the numerous IT turnover intention studies, a holistic understanding of this phenomenon is still missing because these studies treat IT professionals as a homogeneous group (Prasad, Enns, & Ferratt, 2007; Lo & Riemenschneider, 2011). Treating all IT professionals as a single group overlooks potential differences caused by individual attributes such as personality or job type. Lo and Riemenschneider feel that "by combining all IT employees together in our analyses, we may forego some of the unique insights about these employees that we can otherwise cultivate to strengthen the bond between the organization and its employees and to enhance our existing IT turnover literature" (2011; p. 91). Thus, in the last decade, IS researchers have started to shift their attention to the heterogeneity of IT professionals and investigated individual attributes, such as personality (Wynekoop & Walz, 1998; Eckhardt, Laumer, Maier, & Weitzel, 2016) and job type (Enns, Ferratt, & Prasad, 2006; Ahuja et al., 2007; Prasad et al., 2007; Lo & Riemenschneider, 2011), on turnover intention.

Rutner et al. (2008) introduced emotional dissonance as a new construct to the IS field to contribute to an explanation of work exhaustion. Stemming from the emotional labor theory (Hochschild, 1983; Ashforth & Humphrey, 1993), emotional dissonance describes the degree that an individuals' efforts to cope with emotional displays in compliance with norms in a specific context that are incongruent with their actual emotional response (Rutner et al., 2008). As an emotional coping strategy, individuals can either engage in positive emotional dissonance (PED) where positive emotions are evinced, or in negative emotional dissonance (NED) where genuine negative emotions are masked. Additional studies examined emotional dissonance and found it to be related to work exhaustion (Rutner et al., 2008; Rutner, Riemenschneider, O'Leary-Kelly, & Hardgrave, 2011), work motivation and well-being (Wegge, Van Dick, & Von Bernstorff, 2010), and psychological contract breach (Moquin, Riemenschneider, & Wakefield, 2019).

Rutner et al. (2008) extended the Moore (2000) model by including emotional dissonance and job satisfaction and found that emotional dissonance influences work exhaustion but not job satisfaction. Also, they did not find support for the direct effect of perceived workload on work exhaustion even though that relationship was supported in Moore's (2000) study. To contribute to the ongoing debate regarding individual attributes, we chose to replicate Rutner et al. (2008) across two generational groups as such groups are thought to have different expectations and preferences in regards to their job (Martin, 2005). Therefore, to identify the individual attributes that contribute to the boundary conditions to the model proposed by Rutner

et al. (2008), we performed a methodological replication of that study using both a millennial and a non-millennial sample of respondents.

The structure of the paper is as follows. We first describe *a priori* theory, then specify the research method, data collection, and analysis, followed by a comparison of our results to those of Rutner et al. (2008). Finally, we close with a discussion of the implications arising from our study, limitations, and suggestions for future research.

2   Research Hypotheses

We conducted a methodological replication of the research model developed by Rutner et al. (2008), which we refer to as the original study. This original study adopted Moore's (2000) model and hypotheses. Moreover, Rutner et al. (2008) extended Moore (2000) by formally hypothesizing seven new paths, with a focus on examining the effects of emotional dissonance on job satisfaction and work exhaustion, as shown in Table 1 and Figure 1. For clarity, we show Moore's (2000) hypotheses as single-line arrows and Rutner et al. 's (2008) hypotheses as double-line arrows in Figure 1.

| Table 1. Tested Paths	
Rutner et al.'s (2008) Hypotheses	
H1a	Negative emotional dissonance is positively related to work exhaustion.
H1b	Negative emotional dissonance is negatively related to job satisfaction.
H2a	Positive emotional dissonance is negatively related to work exhaustion.
H2b	Positive emotional dissonance is positively related to job satisfaction.
H3	Work exhaustion is negatively related to job satisfaction.
H4	Role ambiguity is negatively related to job satisfaction.
H5	Role conflict is negatively related to job satisfaction.
Moore's (2000) Hypotheses	
MH1	Technology professionals experiencing higher levels of work exhaustion report higher intentions for turnover.
MH2	Relative to other workplace contributors to work exhaustion identified in the research literature (role ambiguity, role conflict, lack of autonomy, lack of rewards), work overload is the strongest contributor to work exhaustion in technology professionals.
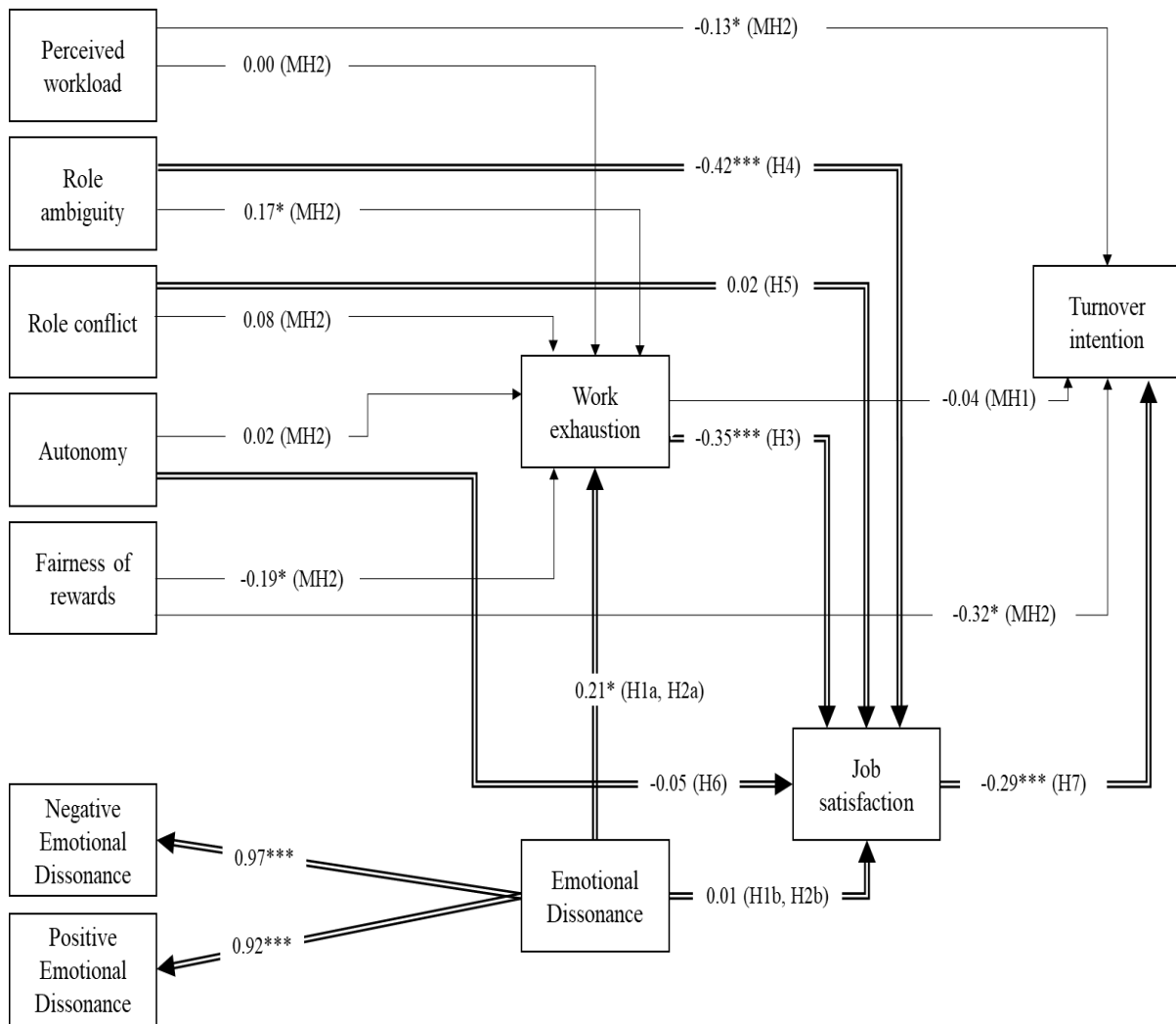
Figure 1. Rutner et al. (2008) Model and Findings

3   Replication Method

This methodological replication tests whether similar results persist in today's IT workforce. We adopted the methodological steps followed in the original study. However, we collected data from respondents across multiple organizations as opposed to sampling within a single organization, as was done in the original study. Furthermore, we collected data from IT professionals working in various workplace arrangements, such as contingent IT professionals. We used Qualtrics Panels to recruit respondents. Our selection criteria included IT professionals/workers based in the United States with jobs as software developers, IT directors, IT project managers, technical support staff, business analysts, and database administrators.

As it is thought that the millennial generation has specific workplace needs and desires, we felt that it was important to determine how well the original study replicates with this sample. Given that more than ten years have passed since Rutner et al. (2008) collected their data, we can specifically sample millennials as this generational group is now commonplace in the IT workplace. Therefore, we gathered a sample from millennial and non-millennial IT professionals to examine the effects of generational differences in our model. We adopt the widely accepted Pew Research Center definition of "millennials" that includes individuals born in 1981 through 1996 (Bialik & Fry, 2019).

We collected a total of 508 valid responses (257 millennials and 251 non-millennials). All questionnaire items were from the original study, except for the marker variable, as shown in Appendix A. We separated

the items measuring negative emotional dissonance from those measuring positive emotional dissonance per the recommendation given by the authors of the original study. To address the potential threat of common method bias, we used well-established scales, included "attention check" questions, and incorporated scale items for the theoretically unrelated construct of "integrity" as a marker variable (Lindell & Whitney, 2001). As a dimension of disposition to trust (McKnight, Cummings, & Chervany, 1998), the integrity scale included three items 1) In general, most folks keep their promises, 2) I think people generally try to back up their words with their actions, and 3) Most people are honest in their dealings with others.

4   Results

By collecting self-reported data and the independent and dependent variables from the same survey instrument, the dataset may suffer from common method bias (Doty & Glick, 1998). Therefore, we assessed the extent of the common method variance with three tests, as shown in Appendix B. All three tests indicate that common method bias is not a severe concern in our dataset.

Five hundred eight respondents completed the survey. Three hundred and fourteen of the respondents are male, 193 are female, and one preferred not to disclose the gender with which they identify. Fifty percent of our respondents completed four-year university education, and approximately five percent attained a graduate degree. Respondents reported their jobs as a software developer (9.3%), IT director (57.1%), IT project manager (9.1%), technical support staff (12.2%), business analyst (5.5%), and database administrator (4.1%). The respondents indicated an average of twelve years of professional work experience and had worked for three organizations as an IT professional. In regards to the industry of employment, 66.1% of respondents were in IT services, 4.3% in healthcare, 2.2% in transportation, 2.8% in government, 4.1% in retail, 3.1% in education, and 10.4% in manufacturing. Demographically, respondents indicated their ethnicity as 63.6% white, 15.7% black, 10.4% Asian, and 8.7% Hispanic/Latin. Organizational tenure was reported as six to ten years for non-millennial respondents and one to five years for millennial respondents. Position tenure at their current organization was indicated as between one to five years for both generational groups. The average IT work experience was 15.6 years for non-millennial respondents and 8.5 years for millennial respondents. Noteworthy, millennials are more likely to be in IT director positions than non-millennials, as shown in Table 2.

Table 2. Frequencies of Job Types by Generation

	Non-millennials		Millennials	
	Frequency	Percent	Frequency	Percent
Software Developer	20	8.0	27	10.5
IT Director	132	52.6	158	61.5
Project Manager	21	8.4	25	9.7
Technical Support	33	13.1	29	11.3
Business Analyst	20	8.0	8	3.1
Database Admin	13	5.2	8	3.1
Other	12	4.8	2	.8
Total	251	100.0	257	100.0

To parallel the original study, we used IBM AMOS v26 to analyze the data. We eliminated any items that loaded below 0.70 on their own construct or higher on any other construct after making sure that doing so would not impact the content validity of the construct (Gefen, Straub, & Boudreau, 2000). Expressly, we eliminated the first and second perceived workload items, the first three role conflict items, the first two items of turnover intention, and the last three items of negative affectivity loaded below 0.7, as shown in Table 3. Although we separated items measuring PED and NED, just as in the original study, these items load onto a single factor. Thus, PED and NED are highly correlated, and their correlation is higher than the average variance extracted (AVE), as shown in Table 4. Although the variance inflation factor (VIF) values for PED and NED are below the standard 10.0 cutoff, as in the original study, collinearity still is an issue. To address the issue of multicollinearity, we followed the original study approach and modeled NED and PED as dimensions of a second-order reflective emotional dissonance construct. Our measurement model fit indices are CFI = 0.90, IFI = 0.90, RMSEA = 0.065, compared to the original study values of CFI = 0.91, IFI = 0.91, and RMSEA = 0.064.

	ED	PWL	RA	RC	AUT	FAIR	JS	WE	TO	NA
Ped1	0.75									
Ped2	0.80									
Ped3	0.81									
Ped4	0.78									
Ped5	0.80									
Ned1	0.70									
Ned2	0.76									
Ned3	0.75									
Ned4	0.75									
Ned5	0.78									
pwl1		0.64								0.41
pwl2		0.57								0.51
pwl3		0.70								
pwl4		0.73								
ra1			0.75							
ra2			0.72							-0.33
ra3			0.70							
rc1	0.33	0.32		0.53						
rc2				0.57						
rc3		0.38		0.53						0.35
rc4				0.77						
rc5				0.78						
aut1					0.77					
aut2					0.82					
aut3					0.83					
aut4					0.85					
fair1						0.98				
fair2						0.98				
we1							0.77			
we2							0.76			
we3							0.73		0.30	
we4							0.71		0.32	
js1								0.79		
js2								0.76		
js3								0.79		
to1			0.49						-0.38	
to2			0.42						-0.47	
to3		0.37							-0.74	
to4		0.34							-0.75	
na1										0.82
na2										0.84
na3										0.80

Table 3. Factor Analysis

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na4											0.82
na5											0.58
na6											0.57
na7											0.68
Replicating the original study, PCA was conducted using an oblique rotation; Bold values indicated highest item loading; 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.											

As indicated in Table 4, for the replication study using the complete dataset, reliability ranged from 0.86 (turnover intention) to 0.98 (work exhaustion), exceeding the cutoff point of 0.7 (Fornell & Larcker, 1981). The measurement model average variance extracted (AVE) ranged from 0.61 (turnover intention) to 0.96 (fairness of rewards), satisfying the cutoff point of 0.5 for convergent validity (Hair, Hult, Ringle, & Sarstedt, 2017).

When only including the sample of non-millennials, reliability ranged from 0.88 (turnover intention) to 0.96 (work exhaustion), and the measurement model AVE ranged from 0.65 (turnover intention) to 0.93 (fairness of rewards). As for the replication study sampling only millennials, reliability ranged from 0.84 (turnover intention) to 0.95 (work exhaustion). The measurement model AVE for the millennial sample ranged from 0.58 (turnover intention) to 0.88 (perceived workload). These tests suggest adequate convergent validity for the combined sample, as well as the millennial and non-millennial samples.

	Table 4. Comparative Descriptive Statistics					
	Study	**Mean**	**S.D.**	**α**	**ICR**	**AVE**
NED	Original study	2.80	1.00	0.93		
	Replication study	3.33	1.23	0.92	0.92	0.70
	Replication with millennials	3.26	1.22	0.92	0.91	0.68
	Replication with non-millennials	3.40	1.23	0.91	0.92	0.72
PED	Original study	2.60	1.09	0.95		
	Replication study	3.32	1.21	0.93	0.93	0.75
	Replication with millennials	3.22	1.19	0.94	0.92	0.72
	Replication with non-millennials	3.41	1.22	0.92	0.94	0.78
PWL	Original study	4.20	1.13	0.72		
	Replication study	4.17	1.77	0.94	0.94	0.90
	Replication with millennials	4.06	1.76	0.95	0.93	0.88
	Replication with non-millennials	3.89	1.78	0.93	0.95	0.90
RA	Original study	2.90	1.22	0.84		
	Replication study	4.55	1.68	0.89	0.90	0.75
	Replication with millennials	4.45	1.69	0.91	0.88	0.71
	Replication with non-millennials	4.64	1.65	0.87	0.92	0.78
Fair	Original study	4.60	1.43	0.85		
	Replication study	5.45	1.31	0.96	0.98	0.97
	Replication with millennials	5.40	1.32	0.96	0.89	0.81
	Replication with non-millennials	5.50	1.29	0.89	0.96	0.93
WE	Original study	3.40	1.37	0.89		
	Replication study	3.94	1.91	0.95	0.96	0.85
	Replication with millennials	3.79	1.87	0.96	0.95	0.84

Table 4. Comparative Descriptive Statistics						
	Replication with non-millennials	4.09	1.94	0.95	0.96	0.86
JS	Original study	5.10	1.16	0.86		
	Replication study	5.84	1.15	0.93	0.94	0.83
	Replication with millennials	5.81	1.22	0.95	0.92	0.79
	Replication with non-millennials	5.86	1.08	0.91	0.95	0.87
TO	Original study	2.50	1.52	0.93		
	Replication study	3.12	1.68	0.86	0.86	0.61
	Replication with millennials	2.99	1.73	0.88	0.84	0.58
	Replication with non-millennials	3.25	1.61	0.84	0.88	0.65
NA	Original study	1.70	0.80	0.84		
	Replication study	2.90	1.77	0.95	0.95	0.74
	Replication with millennials	2.83	1.74	0.95	0.95	0.72
	Replication with non-millennials	2.97	1.80	0.94	0.95	0.75
RC	Original study	3.90	1.27	0.81		
	Replication study	4.55	1.68	0.89	0.89	0.67
	Replication with millennials	4.45	1.69	0.90	0.87	0.62
	Replication with non-millennials	4.64	1.65	0.86	0.90	0.71
Aut	Original study	5.00	1.21	0.89		
	Replication study	5.07	1.53	0.90	0.89	0.78
	Replication with millennials	5.07	1.56	0.93	0.87	0.64
	Replication with non-millennials	5.07	1.50	0.87	0.90	0.78
α refers to Cronbach's alpha; ICR refers to internal composite reliability; AVE refers to the average variance extracted Aut = autonomy; Fair = fairness of rewards; JS = job satisfaction; NA = negative affectivity; NED = negative emotional dissonance; PED = positive emotional dissonance; PWL = perceived workload; RA = role ambiguity; RC = role conflict; TO = turnover intention; WE = work exhaustion						

Table 5 shows the correlations and the square root of AVE for each of the constructs. The first column in Table 4 identifies the study: 1 = original study, 2 = current study with complete dataset, 3 = current study with millennials sample, 4 = current study with non-millennials sample. Furthermore, Table 4 indicates that the square root of the AVE for all constructs is greater than the correlation between any pair of variables indicating discriminant validity of the constructs (except for PED and NED as discussed earlier) of our measurement model (Fornell & Larcker, 1981).

Table 5. Comparative Correlations												
	Stu	AUT	FAIR	JS	NA	NED	PED	PWL	RA	RC	TOI	WE
Aut	1	0.82										
	2	0.84										
	3	0.88										
	4	0.80										
Fair	1	-0.02	0.88									
	2	0.15	0.94									
	3	0.11	0.96									
	4	0.19	0.91									
JS	1	0.07	0.29	0.83								
	2	0.19	0.55	0.91								

Table 5. Comparative Correlations

	Stu	Aut	Fair	JS	NA	NED	PED	PWL	RA	RC	TO	WE
	3	0.22	0.56	0.93								
	4	0.16	0.54	0.89								
NA	1	-0.20	-0.07	-0.38	0.75							
	2	0.05	-0.17	-0.32	0.86							
	3	0.05	-0.14	-0.32	0.87							
	4	0.04	-0.20	-0.32	0.85							
NED	1	0.02	-0.19	-0.14	0.21	0.89						
	2	0.18	-0.01	-0.07	0.30	0.84						
	3	0.12	-0.07	-0.11	0.31	0.85						
	4	0.25	0.06	-0.04	0.27	0.82						
PED	1	0.00	-0.15	-0.12	0.13	0.90	0.87					
	2	0.15	0.00	-0.01	0.26	0.89	0.87					
	3	0.18	-0.08	-0.06	0.25	0.89	0.88					
	4	0.12	0.09	0.05	0.26	0.89	0.85					
PWL	1	0.12	0.11	0.16	0.13	0.32	0.24	0.91				
	2	0.25	-0.11	-0.23	0.47	0.40	0.36	0.94				
	3	0.20	-0.11	-0.28	0.45	0.39	0.36	0.95				
	4	0.30	-0.11	-0.17	0.49	0.41	0.35	0.94				
RA	1	-0.17	-0.17	-0.57	0.48	0.09	0.00	0.16	0.81			
	2	-0.22	-0.42	-0.57	0.25	-0.01	-0.07	0.13	0.86			
	3	-0.21	-0.39	-0.56	0.26	0.02	-0.04	0.11	0.89			
	4	-0.25	-0.45	-0.59	0.25	-0.03	-0.09	0.16	0.84			
RC	1	0.17	-0.16	-0.20	0.28	0.28	0.19	0.18	0.23	0.74		
	2	0.37	0.07	0.02	0.32	0.50	0.51	0.50	0.06	0.82		
	3	0.38	0.11	0.03	0.28	0.44	0.44	0.44	0.10	0.84		
	4	0.35	0.03	0.01	0.35	0.57	0.57	0.56	0.02	0.79		
TO	1	-0.01	-0.40	-0.43	0.25	0.02	0.03	-0.18	0.27	0.16	0.88	
	2	-0.07	-0.23	-0.50	0.37	0.30	0.27	0.30	0.34	0.33	0.78	
	3	-0.13	-0.24	-0.53	0.38	0.33	0.22	0.31	0.36	0.28	0.81	
	4	0.00	-0.26	-0.49	0.36	0.25	0.30	0.28	0.33	0.37	0.76	
WE	1	0.03	-0.20	-0.32	0.29	0.40	0.27	0.26	0.25	0.28	0.07	0.81
	2	0.17	-0.17	-0.28	0.54	0.48	0.43	0.65	0.14	0.53	0.54	0.92
	3	0.12	-0.17	-0.37	0.56	0.46	0.41	0.62	0.19	0.40	0.55	0.93
	4	0.23	-0.18	-0.20	0.52	0.50	0.45	0.67	0.09	0.66	0.50	0.92

The bold numbers reported diagonally indicate the square root of the average variance extracted (AVE).
Correlations over 0.15 are significant at p < 0.001; those from 0.12 to 0.14 at p < 0.01; those from 0.09 to 0.11 at p < 0.05.
Aut = autonomy; Fair = fairness of rewards; JS = job satisfaction; NA = negative affectivity; NED = negative emotional dissonance; PED = positive emotional dissonance; PWL = perceived workload; RA = role ambiguity; RC = role conflict; TO –= turnover intention; WE = work exhaustion; Stu = the study (i.e., 1 = original study; 2 = replication study with complete dataset; 3 = replication study with millennials; 4 = replication study with non-millennials).

After evaluating our measurement model, we tested the structural model. The results are shown in Figure 2.
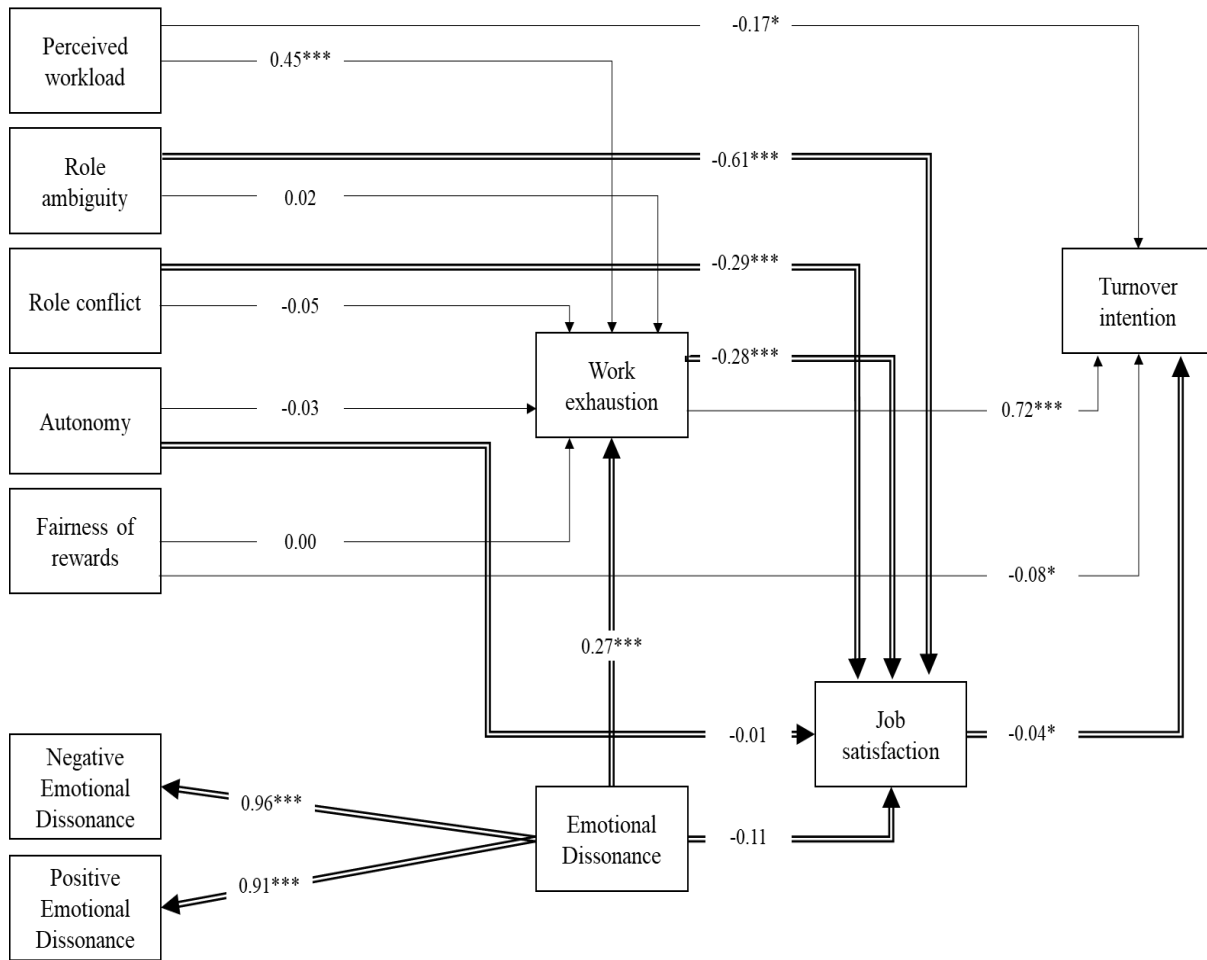

Figure 2. Testing Results of Replicated Model with Complete Dataset

We assessed the between-group differences between millennials and non-millennials by conducting a multigroup analysis (MGA) in AMOS 26 (Byrne, 2004; Qureshi & Compeau, 2009). To automate the analysis, we installed the "multigroup" plugin (Gaskin & Lim, 2018). The results of the multigroup analysis revealed no statistical difference between the two groups and indicated that we need to interpret path coefficient discrepancies with caution (Gaskin & Lim, 2018). For comparison, in Table 6, we report the results of the original study along with the results of the replication study, the replication study with only the millennial sample, and the replication study with only the non-millennial sample.

Table 6. Comparative Results of Hypothesis Tests						
Hypotheses				β of original study	β of replication study	β of replication with millennials sample	β of replication with non-millennials sample
Emotional Dissonance Hypotheses (H1a, H1b, H2a, H2b)							
	NED loading on ED			0.97***	0.96***	0.92***	0.95***
	PED loading on ED			0.92***	0.91***	0.90***	0.92***
H1a, H2a	ED	→	WE	0.21*	0.27***	0.26**	0.26***
H1b, H2b	ED	→	JS	0.01	-0.11	-0.08	-0.20*

Table 6. Comparative Results of Hypothesis Tests							
Base Model Relationships							
H1	WE	→	TOI	-0.04	0.72***	0.71***	0.65***
H2	PWL	→	WE	0.00	0.45***	0.43***	0.42***
H2	RA	→	WE	0.17*	0.02	0.19**	0.07
H2	RC	→	WE	0.08	-0.05	0.05	0.00
H2	Aut	→	WE	0.02	-0.03	-0.03	-0.01
H2	Fair	→	WE	-0.19*	0.00	-0.10*	-0.03
H2	PWL	→	TOI	-0.13*	-0.17*	-0.25**	-0.14
H2	Fair	→	TOI	-0.32***	-0.08*	-0.31***	-0.10*
Job Satisfaction Hypotheses							
H3	WE	→	JS	-0.35***	-0.28**	-0.24**	-0.27**
H4	RA	→	JS	-0.42***	-0.61***	-0.69***	-0.61***
H5	RC	→	JS	0.02	-0.29***	-0.31*	-0.36***
H6	Aut	→	JS	-0.05	-0.01	-0.05	-0.02
H7	JS	→	TOI	-0.29***	-0.04*	-0.19**	-0.15**
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							

As shown in Table 7, most of the hypotheses that were not supported in the original study are also not supported in the replication study.

Table 7. The Replicated Hypotheses				
Original Study Hypotheses	Original study results	Replication study results	Replication with millennials sample results	Replication with non-millennials sample results
H1a: Negative emotional dissonance is positively related to work exhaustion.	Supported	Supported	Supported	Supported
H1b: Negative emotional dissonance is negatively related to job satisfaction.	Not Supported	Not Supported	Not Supported	Supported[1]
H2a: Positive emotional dissonance is negatively related to work exhaustion.	Supported	Supported	Supported	Supported
H2b: Positive emotional dissonance is positively related to job satisfaction.	Not Supported	Not Supported	Not Supported	Supported[1]
H3: Work exhaustion is negatively related to job satisfaction.	Supported	Supported	Supported	Supported
H4: Role ambiguity is negatively related to job satisfaction.	Supported	Supported	Supported	Supported
H5: Role conflict is negatively related to job satisfaction.	Not Supported	Supported[1]	Supported[1]	Supported[1]
H6: Autonomy is positively related to job satisfaction.	Not Supported	Not Supported	Not Supported	Not Supported

H7: Job satisfaction is negatively related to turnover intention.	Supported	Supported	Supported	Supported
MH1: Technology professionals experiencing higher levels of work exhaustion report higher intentions for turnover	Not Supported	Supported[1]	Supported[1]	Supported[1]
MH2: Relative to other workplace contributors to work exhaustion identified in the research literature (role ambiguity, role conflict, lack of autonomy, lack of rewards), work overload is the strongest contributor to work exhaustion in technology professionals	Not Supported	Supported[1]	Supported[1]	Supported[1]
[1] indicates results that are different from the original study.				

5   Discussion

Rutner et al. (2008) developed and tested positive and negative emotional dissonance in the IT context. They were the first to introduce and independently examine positive and negative emotional dissonance for IT professionals in the context of job turnover. Before Rutner et al. (2008), IS researchers considered workload, role conflict, and role ambiguity as prominent antecedents to exhaustion (e.g., Moore, 2000). Therefore, finding that emotional dissonance is the most impactful antecedent of work exhaustion, compared to that of perceived workload, role ambiguity, role conflict, autonomy, and fairness of rewards, is a major theoretical contribution to the work exhaustion and turnover streams of research.

When replicating the original study, we considered the suggestions provided by the original authors. For instance, Rutner et al. (2008) suggested separating the negative emotional dissonance and positive emotional dissonance measurement items on the survey. Testing for emotional dissonance across multiple organizations and different job types was also recommended.

As research had indicated the importance of taking into consideration the IT professionals' heterogeneity as a group (e.g., Enns et al., 2006; Ahuja et al., 2007; Prasad et al., 2007; Lo & Riemenschneider, 2011; Eckhardt et al., 2016), we tested the model developed in the original study in the context of millennials and non-millennials respondents. We hoped that addressing generational differences of mindsets could be useful in explaining why those belonging to different generations differ in their reactions. As mindsets include the beliefs and dogmas with which we interpret our perceptions, mindsets can serve to explain why, for instance, baby boomers act differently than millennials when experiencing feelings such as emotional dissonance (Lu & Gursoy, 2016; Arsenault, 2004). When discussing our results, we are comparing the original study to the whole dataset since we did not detect statistically significant differences between millennials and the non-millennial sample.

It is important to note that the majority of our respondents are from the IT services industry and hold a managerial position. Specifically, in our sample, millennials were more likely to report holding a managerial job type than non-millennials. The original study evaluated a single organization, with the industry type not reported, and the majority of respondents held a technical position. These two criteria of our sample may have affected our findings for the replication study.

Since our sample was mainly managerial with a disproportion between millennials and non-millennials, and the original study was primarily technical, we conducted a *post hoc* analysis to explore the impact of job type and generation group. We ran the chi-square test of independence between the generation group and job type. We found that the two dimensions are dependent (chi-square = 17.38, df = 6, p < .01). Therefore, the generation group and job type are confounded. Due to sample size limitations, we could not perform a multigroup analysis of all the job types across generation status. Therefore, we grouped and compared managerial roles (IT Director, Project Manager) with technical roles (Software Developer, Business Analyst, Database Administrator, Technical Support). Also, after grouping the dataset by job type, we could not conduct a *post hoc* analysis of job type and generation group since we had 98 non-millennials and 74 millennials holding technical jobs. As a result, the analysis focused on the relationship of emotional dissonance with work exhaustion and job satisfaction. We detected a significant difference for the emotional dissonance-work exhaustion relationship when comparing managerial ($\beta = 0.42$, $p < 0.001$) with technical

job types (β = 0.01, p > 0.05). We encourage future research to explore further the potential influence of specific job types on the emotional dissonance to work exhaustion and job satisfaction relationship.

The original study identified the importance of assessing the effects of negative and positive emotional dissonance in the context of IT professionals. This replication confirmed that IT professionals' emotional display significantly increased their work exhaustion regardless of generation but depended on the job type.

Interestingly, when testing the model with just the sample of non-millennial IT professionals, we observed the negative influence of emotional dissonance on job satisfaction. This exciting finding might be due to non-millennials having been in the IT field for an extended period, which may have built up a level of emotional dissonance to the point that it is now affecting their job dissatisfaction. Also, this finding is consistent with the research in fields such as psychology, which suggests that as individuals age, they tend to have strong emotional reactions to stimuli (Fajula, Bonin-Guillaume, Jouve, & Blin, 2013) and experience greater emotional cohesion across emotional and physiological channels (Lohani, Payne, & Isaacowitz, 2018).

Interestingly, contrary to the theoretical support, but in agreement with the original study findings, we found a lack of discriminant validity between PED and NED. Rutner et al. (2008) suggested that the lack of distinction could be an artifact of measurement bias. Therefore, our measurement instrument separated the PED and NED items. Yet, the high correlation remains, suggesting that the convergence of PED and NED is not an issue of the instrument structure. Rutner et al. (2008) also proposed that the lack of discrimination could be due to differences among context, with IT workers responding differently to the types of emotional dissonance than other human service workers. This could be due to differences in the expectations for positive emotional displays by IT workers, or the perception of IT workers as being a form of skilled professionals, which is not necessarily the case for all service workers.

Another possible explanation lies in the degree of positivity, which could suggest that a third type of emotional dissonance exists. Within the context of PED and NED, emotional responses can be conceptualized as three tiers: negative emotion, neutral emotion, and positive emotion. PED is described as experiencing neutral emotion while displaying positive emotion. NED is described as experiencing negative emotion while displaying neutral emotion. In both cases, PED and NED are based on displaying emotion at one degree of greater positivity than the experienced emotion. It is possible that in the context of IT workers, PED and NED are indiscriminate because they both represent a shift in emotion of one degree in positivity. However, some contexts may require experiencing negative emotion while displaying positive emotion, or an emotional shift of two degrees of positivity. Future research should attempt to distinguish if the assessed NED is a one-degree or a two-degree shift in the positivity of the emotional dissonance. Regardless, the continued lack of discrimination between PED and NED suggests that further examination of emotional dissonance is required. Additional research into contextual and conceptual aspects of emotional dissonance needs to consider whether emotional dissonance is a single-factor construct, a two-factor construct, or potentially a three-factor construct.

In this replication study, perceived workload significantly impacts work exhaustion providing support to extent IS literature (e.g., Moore 2000, Kim & Wright, 2007; Zaza et al., 2015; Harden, Boakye, & Ryan, 2018). The remaining well-established relationships between work exhaustion and its drivers are nonsignificant, which could be attributed to the significant impact of perceived workload and emotional dissonance. Another thought-provoking finding is that the effect of role ambiguity and role conflict on job satisfaction is higher compared to the original study.

Explanation of the discrepancies in the findings between the original study and this replication could be attributed to the changing nature of the workplace. IT professionals are increasingly asked to switch roles and expected to embrace a wider variety of work responsibilities (Donovan & Benko, 2016; Jiang et al., 2020). While this change may contribute to broader knowledge and improved chances of promotion, it also increases role ambiguity and role conflict.

Contrary to the original study, work exhaustion was significant on turnover intention and hence consistent with Moore (2000). This is noteworthy as empirical evidence suggests that the relationship between work exhaustion and turnover intention for technical IT professionals is nonsignificant (McKnight et al., 2009). This conflicting finding presents an opportunity for future research to reveal potential moderators of this relationship.

For practical implications, managers need to be aware of the IT professionals' exhaustion due to emotional dissonance. A manager may address this issue by developing a quality leader-member exchange

relationship (Wayne, Shore, & Liden, 1997; Wayne, Shore, Bommer, & Tetrick, 2002; Lo & Riemenschneider, 2011) and lending a supportive hand and proper guidance on how to cope with how they feel. This research can further inform hiring practices to clearly state the interpersonal requirements and the emotional display norms in the organization when recruiting an IT professional. As for existing IT professionals, human resources professionals can tailor strategies that alleviate the effect of suppressing real emotions by teaching and guiding IT professionals through the process of adaptation to the work demands. Human resource managers should also be aware of the growing influence of role ambiguity and role conflict on job satisfaction. They should ensure the development of accurate and detailed IT job descriptions and set clear expectations for incoming IT professionals.

6   Limitations and Future Research

This study has limitations. First, this study follows a cross-sectional research design. Therefore, causality cannot be inferred from our model (Neuman, 2003). Future research may conduct a longitudinal study to capture the process through which emotional dissonance develops and what can moderate that process. Second, the majority of our respondents are IT directors working in IT services. While in the original study research was limited to one company, this research seems to be limited to information technology professionals having a position as IT directors. Specifically, millennials were more likely to report being in an IT Director or Project Manager job type than non-millennials. This unexpected finding indicates that our sample contains a bias toward subjects in the millennial generation that were in a director or managerial role. The discrepancies between our results and the original study could be attributed to the heterogeneity of the samples used since we did not replicate the exact job type distribution of the original study. Therefore, any inferences of our findings in this study should be made in the context of a population similar to our respondents, specifically, IT professionals holding managerial positions (millennials more than non-millennials). As job type and generation group were confounded in our sample, future research investigating these areas in depth, for instance, by capturing more variability in generation group, job types, and industries. By exploring various contexts, the generalizability of Rutner et al. 's (2008) turnover intention model and boundary conditions can be better understood. This is especially important since emotional dissonance is studied in various IS research streams, such as in IT professional's psychological contract (e.g., Moquin et al., 2019). Yet, a holistic view of this construct is not complete. Also, future research should further explore the effects of the demographic differences on emotional dissonance. While this research has focused on millennial and non-millennial groups, continued research may reveal nuanced differences among specific generational groups (e.g., baby boomers, generation X). Regarding the understanding of turnover, we respond to a recent call to address the "urgent need for the field… to begin to think differently about many of the topics in our field in light of the changes that are occurring in the nature of work, organizations, and employment relationships" (Barley, Bechky, & Milliken, 2017, p. 115).

7   Conclusion

This research sought to replicate Rutner et al.'s (2008) study on emotional dissonance, job satisfaction, work exhaustion, and turnover intention of IT professionals who work in a single-firm. Considering the theoretical importance of the original study, we conducted a methodological replication of Rutner et al. (2008). Moreover, we followed the original study's method, but added the context of millennials and non-millennials. Also, we collected data from participants across diverse organizations. We purposefully collected data from millennials as the original study did not include millennial participants. Collecting millennial responses allowed us to consider whether any detected changes from the original model could be attributed to generational differences. We did not find any statistical differences between millennials and non-millennials. In the *post hoc* analysis we find discrepancies related to the IT professionals' job types highlighting the heterogeneity of IT professionals and the need to consider job types, among other individual attributes, in ongoing turnover research.

We offer several contributions to the IT literature through this replication study. First, we found support for emotional dissonance to explain the work exhaustion of IT professionals, confirming the original authors' findings. Second, we used a larger sample size to test the model's nomological network and found that the explanatory power was improved. Third, we used respondents from multiple firms that allowed us to access a wide range of IT professionals across these firms, which strengthen the results compared to a single-study firm where the expectations may be unique.

Acknowledgments

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Appendix A: Methodological Details

Measurement Scales of Rutner et al. (2008)

Negative emotional dissonance, developed by Rutner et al. (2008)
(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, developed by Rutner et al. (2008)
(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, Kirmeyer and Dougherty (1988); Moore (2000)
(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, Rizzo et al. (1970); Moore (2000)
(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, Rizzo et al., (1970); Moore (2000)
(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, McKnight (1997)
(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, Niehoff and Moorman (1993); Moore (2000)
(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, Schaufeli et al. (1995); Moore (2000)
(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.

Job satisfaction, McKnight (1997)
(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, Moore (2000)
(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, Watson et al. (1988)
(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

Marker Variable

Integrity, (McKnight et al., 1998)
(scale: 1 = strongly disagree to 7 = strongly agree)
Please indicate your agreement with the following statements:
1. In general, most folks keep their promises.
2. I think people generally try to back up their words with their actions.
3. Most people are honest in their dealings with others.

Appendix B: Common Method Bias

We assessed the extent of the common method variance (CMV) with three tests. First, we followed the procedures by Williams et al. (2010) (Table B1). From Table B1, Method-C is statistically different than the baseline model, providing evidence of shared CMV between the indicators of the substantive variables and the latent marker variable (Integrity). Since Method-U fit significantly better than Method-C, it indicates that CMV is not the same for all indicators. Therefore, we adopted Method-U to proceed with the analysis. Last, since Method-R is not statistically different than Method-U, it suggests that the presence of CMV did not skew the relationships among the substantive variables. Therefore, we did not conduct stage II and stage III of Williams et al. (2010)

Table B1. Chi square, goodness of fit values, model comparison tests					
Model	**chi-square**		**df**		**CFI**
CFA	1368.767		637		0.95
Baseline	1515.134		654		0.941
Method-C	1502.117		653		0.942
Method-U	1256.434		618		0.956
Method-R	1274.701		673		0.959
Chi-square model comparison tests					
Delta models	**delta chi-square**		**delta-df**		**chi-square critical value; .05**
baseline vs Method-C	13.017		1		3.84
Method-C vs Method-U	245.683		35		49.802
Method-U vs Method-R	18.267		55		73.311

Second, we followed the guidelines of Podsakoff et al. (2003) of using a common-method construct in the research model (Table B2). The results reveal that the average variance explained by the substantive constructs is 0.71 whereas that by the common-method construct is 0.27.

Third, we used a marker variable, as suggested by Lindell and Whitney (2001). We included the integrity scale in our model and found that the smallest correlation was 0.07, suggesting that common method bias is not a concern (Richardson, Simmering, & Sturman, 2009).

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