The Relationship Between Technological Self-Efficacy and Organizational Citizenship Behavior During Covid-19: Analyzing the Moderating Role of Trust

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In this study, we examine the intricate relationship between technological self-efficacy, organizational citizenship behavior (OCB), and the moderating influence of trust—a facet largely unexplored in existing literature. The COVID-19 pandemic has intensified the reliance on technologies like Zoom and Microsoft Teams, creating a unique backdrop. Amid the elevated anxiety surrounding the adoption of "new" technology, we hypothesize that trust within the workplace will play a pivotal role in moderating the link between technological self-efficacy and OCB. Our research aims to shed light on this uncharted territory, offering insights into how trust shapes employees' responses to technological challenges, particularly in the context of a global crisis.

Keywords: technological self-efficacy, organizational citizenship behavior, COVID-19, pandemic, white-collar worker, blue-collar worker, trust, cognitive trust, affective trust

INTRODUCTION

The global COVID-19 pandemic not only brought economic activity to a halt worldwide but also left governments with no option but to impose national lockdowns to reduce the proliferation of the virus (Ratham, 2022). Additionally, the pandemic caused significant external force to use technology many workers had not used before. There was a 35% increase in workers who moved to remote work from March 2020 to May 2020 (Brynjolfsson et al., 2020). “Working from Home” (WFH) went from being used by a small niche of workers to the entire country. This development generated new trends in human resource management, with an accelerated need for mechanisms that increased flexibility of work, expanded

technological use within the job, and the need to make operations more global and sustainable (Cooke et al., 2021; Minbaeva, 2021).

This abrupt shift in work modality allowed the economy to function; however, 85% of workers report losing overall well-being, both in work and life, with WFH (Campbell et al., 2021). Increased stress would naturally lead to anxiety and questioning workers' work-life balance. Since trust plays a significant role in creating a quality relationship between a leader and followers (Bhatti et al., 2019), the unprecedented pandemic also leads to examining workers' engagement levels through OCB and their technological self-efficacy. Technological self-efficacy has been widely studied in fields as diverse as telecommunications (McDonald & Siegall, 1992), education (Roney, 2015), knowledge workers (Shu et al., 2011), and sales (Tarafdar et al., 2015). Also, research has shown that high levels of trust in a leader result in followers providing extra effort to reach goals (Burke et al., 2007).

Consequently, this study aims to examine trust's moderation between technology self-efficacy and OCB. From a managerial perspective, this analysis will allow a better understanding of how employees' technological self-confidence affects their overall productivity through the prism of OCB. Managers will gain insight into how to better implement new technology into the lives of their workers.

TECHNOLOGICAL SELF-EFFICACY

Bandura (1987; 1997) heavily researched the concept of self-efficacy and described it as the perception of your ability to perform a task rather than merely having technical skills. McDonald and Siegall (1992) were the first authors to use the term technology self-efficacy in the literature. Technological self-efficacy is defined as: "the belief in one's ability to perform a technologically sophisticated task" (McDonald & Siegall, 1992). The Technological Self-Efficacy Scale survey was first developed for their research. Telecommunication technicians were examined in their study after the implementation of a new computer-aided technology at the workplace. Prior research has found that technological self-efficacy is related to job satisfaction, commitment, and work quality (Roney, 2015).

Additionally, technological self-efficacy was found to be negatively correlated to age and unexcused absences (McDonald & Siegall, 1992).In this study, workers from many various sectors were in the population, ranging from blue-collar workers, service workers, and white-collar workers. After the pandemic, they were subjected to multiple levels of technology-infused shifts of modality and function. This analysis will explore a very pertinent issue during the pandemic and beyond: Are employees' level of extra work engagement affected by the trust in their workplace?

Technological self-efficacy is synonymous with the older construct of Computer Self-Efficacy. Computer self-efficacy has evolved from its inception in 1977 through 2003 (Binyamin et al., 2018; Chuttur, 2009). Computer self-efficacy is defined as the 'belief in one's capabilities to successfully perform a computer-related task' (Shu et al., 2011). The definition is identical to technological self-efficacy; however, tech self-efficacy expands the concept to include all forms of technology instead of limiting it to "computers." For this study, it was imperative to use the updated construct to include all forms of technology, as cellular phones and tablets have become ubiquitous in modern life. Additionally, artificial intelligence and automation are increasingly used across many businesses, necessitating an updated construct of technological self-efficacy to capture more data (Tucker, 2023). The COVID-19 global pandemic required the sudden use of a multitude of technologies; thus, a more expansive instrument was used.

TRUST

Rousseau (1998) defines trust as "A psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another." Trust has a multidisciplinary perspective utilized across disciplines and contexts. In this study, workers' trust was analyzed as it relates to individuals as well as social networks and organizations. Importantly, research has shown that trust in a

leader is positively related to organizational citizenship behavior and negatively associated with turnover intentions (Colquitt et al., 2012).

Trust is separated into two distinct types: cognitive and affective (McAllister, 1995). Cognitive trust involves beliefs about peer/co-worker dependability and reliability and comprises characteristics such as competence, integrity, reliability, honesty, and fairness of a referent (Dirks & Ferrin, 2002). Cognitive trust is a character-based perspective that is based on a leader's character in a work environment. Conversely, affective trust involves interpersonal care and concern that is reciprocated between two parties (McAllister, 1995). Affective trust derives from a relationship-based perspective, while cognitive trust is from a character-based perspective (Dirks & Ferrin, 2002). Though interrelated, both cognitive and affective trust are conceptually independent (Dirks & Ferrin, 2002). For example, a follower may believe a leader has good character, but the follower has not developed a strong relationship with the leader. On the other hand, a worker may have a high-quality relationship with their boss but still have doubts about the boss's overall character. This research will examine whether trust (both cognitive and affective) moderates the relationship between technological self-efficacy and OCB; given the environment of a global pandemic, the study should illuminate how the tenuous nature of modern, technology-laden environments operates.

ORGANIZATIONAL CITIZENSHIP BEHAVIOR

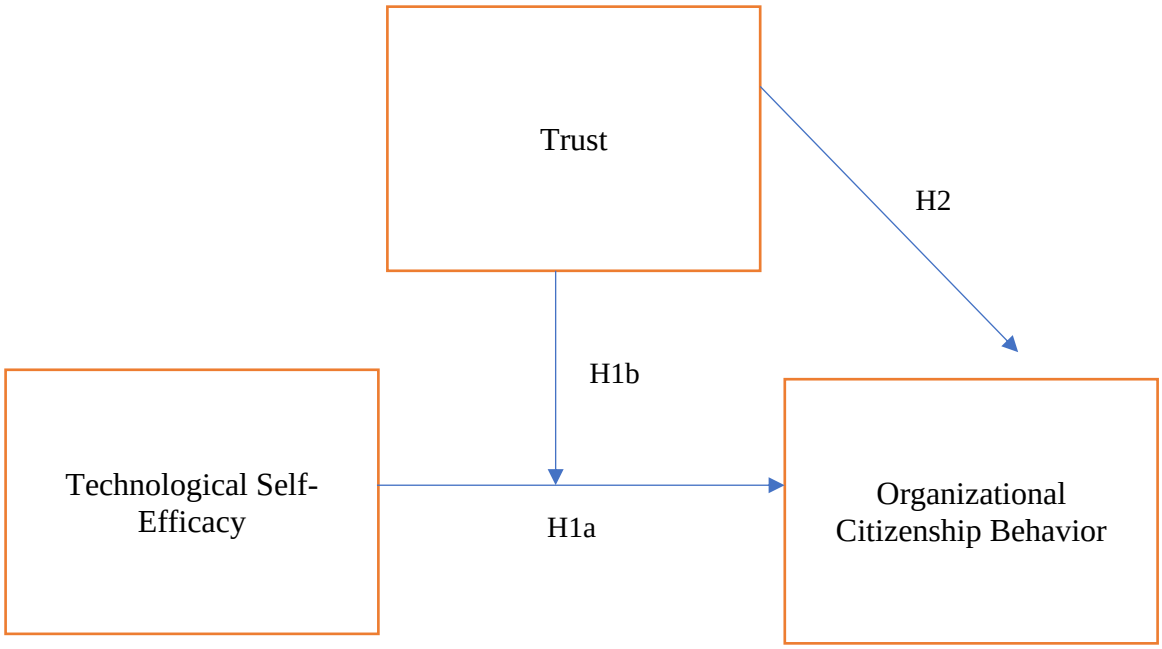
Organizational Citizenship Behavior (OCB) is defined as: "individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization" (Organ, 1988). OCB is a work action that is not required or contractually rewarded (Organ and Ryan, 1995). The concept of OCB has now evolved to represent behavior presented by workers based on social exchange with the belief of "pay me forward" (Bhatti et al., 2019). The employees will look after their interests, contributing to career advancement opportunities (Sagnak, 2016). Therefore, employees show citizenship behavior to gain recognition from their bosses when they are evaluated (Grant & Mayer, 2009). The COVID-19 lockdowns caused massive economic stress and job loss; this refined understanding of OCB allows greater insight into an extreme scenario. The literature has not examined how the sudden technological demands of the pandemic have affected employees' OCB through the relationships of technological self-efficacy and trust.

TRUST AND ORGANIZATIONAL CITIZENSHIP BEHAVIOR

Previous research has shown that trust is positively correlated to OCB; trust plays a prominent position in establishing a quality relationship between a leader and followers (Bhatti et al., 2019). The literature has consistently established the relationship between trust and OCB (e.g., Akram et al., 2018; Brower et al., 2009; Dirks & Ferrin, 2002; Zhu et al., 2021). Indeed, trust has been found to be significantly related to OCB and is negatively associated with turnover intentions (Dirks & Ferrin, 2000; Bhatti et al., 2019). It follows that trust and OCB should be examined in the environment of the global pandemic of COVID-19 facing this study's respondents.

RESEARCH MODEL AND HYPOTHESES

FIGURE 1
RESEARCH MODEL



The research model is presented in Figure 1. The following hypotheses are developed from an extensive literature review of previous research.

H1a: *Technological Self-efficacy is positively related to Organizational Citizenship Behavior*

H1b: *Trust will moderate the relationship between Technological Self-efficacy and Organizational Citizenship Behavior*

H2: *Trust is positively related to Organizational Citizenship Behavior*

METHODOLOGY

The sampling frame for this study comprised of blue- and white-collar employees who were employed during the COVID-19 Public Health Emergency announced by the United States of America. The respondents completed an electronic survey through the Qualtrics online platform. Using Qualtrics to obtain the sample provided a robust set of potential candidates with unique profile features. Qualtrics uses sophisticated screening techniques to ensure appropriate quality levels for social science research. Several research studies have supported the use of data collected from online panels similar to Qualtrics, with findings that align with more conventional data collection procedures (Walter et al., 2019; Belliveau et al., 2022; Tomczak et al., 2023).

There were 322 participants who attempted the survey, and two were incomplete. The final sample was comprised of 320 employees. In this study, the sample size surpassed the threshold minimum for the statistical method utilized, structural equation modeling (Hair et al., 2011).

Illustrated in Table 1 are the descriptive statistics for this research study. There were 155 females (48.44%), 160 males (50%), two trans-females (.63%), and three (.94%) who preferred to self-describe.

Most respondents were White/Caucasian (66.88%) and between the ages of 25-54 (76.56%). Additionally, more than half (56.88%) of the respondents have earned an associate's degree or higher.

TABLE 1
DESCRIPTIVE STATISTICS

Category	Frequency	Percent	Category	Frequency	Percent
Age			**Race/Ethnicity**		
18 - 24	33	10.3125	White/Caucasian	214	66.875
25 - 34	96	30.0	Black or African-American	38	11.875
35 - 44	102	31.875	Hispanic	36	11.25
45 - 54	47	14.6875	American Indian or Alaska Native	4	1.25
55 - 64	29	9.0625	Asian	20	6.25
65 - 74	10	3.125	Other	4	1.25
75 - 84	1	.3125	Prefer not to say	4	1.25
85 or older	2	.625	Total	**320**	**100**
Total	**320**	**100**			
Gender			**Education**		
Female	155	48.4375	Less than high school	4	1.25
Male	160	50.0	High school graduate	66	20.625
Trans-female	2	.625	Some college	68	21.25
Prefer to self-describe	3	.9375	Associates degree	49	15.3125
Total	**320**	**100**	Bachelors degree	90	28.125
			Masters degree	36	11.25
			Doctorate or Professional degree	7	2.1875
			Total	**320**	**100**

MEASUREMENT SCALES

The survey instrument utilized in this study was derived from measurement scales validated from previous peer-reviewed research studies. Technological self-efficacy (TECH_SE) employed a five-item scale developed by McDonald and Siegall (1992) using a five-point Likert scale. Organizational citizenship behavior (OCB) was measured with a seven-item scale by Malatesta and Byrne (1997), and a ten-item scale measuring trust (TRUST) by Yang and Mossholder (2006) was adopted. Both OCB and TRUST constructs were measured using a seven-point Likert scale.

DATA ANALYSIS

The structural equation modeling (SEM) technique was used in this study, incorporating partial least squares (PLS) on the research data. The statistical software SmartPLS 4.0 was used to analyze the data in this study. The measurement model was evaluated by analyzing the structural (inner) and outer models. Hair et al. (2014, 2016) recommend that researchers determine the four necessary assessments: composite reliability, indicator reliability, convergent validity, and discriminant validity. It is imperative that the reliability and validity of the constructs are established before assessing the model.

Table 2 shows the results of the outer (factor) loadings, composite reliability, and convergent reliability of the study's measurement model. Factor loadings far exceeded the recommended threshold of loadings

above 0.50 (Truong & McColl, 2011), and Cronbach's Alpha and composite reliability for all constructs were above the recommended minimum of 0.70 (Hair et al., 2016). Convergent validity utilizes the computation of the average variance extracted (AVE) with a threshold of exceeding 0.50 for the factor meeting adequate convergent validity (Cheung & Wang, 2017).

TABLE 2
OUTER LOADINGS, COMPOSITE RELIABILITY, AND CONVERGENT VALIDITY OF THE MEASUREMENT MODEL

Constructs	**Items**	**Outer loadings**	**Cronbach's Alpha**	**Composite Reliability**	**AVE**
Technological Self-efficacy	TECH_SE1	0.745	0.852	0.892	0.623
	TECH_SE2	0.799			
	TECH_SE3	0.794			
	TECH_SE4	0.826			
	TECH_SE5	0.781			
Organizational Citizenship Behavior	OCB1	0.774	0.893	0.915	0.608
	OCB2	0.853			
	OCB3	0.736			
	OCB4	0.793			
	OCB5	0.808			
	OCB6	0.755			
	OCB7	0.731			
Trust	TRUST1	0.880	0.971	0.974	0.791
	TRUST2	0.902			
	TRUST3	0.884			
	TRUST4	0.866			
	TRUST5	0.904			
	TRUST6	0.894			
	TRUST7	0.900			
	TRUST8	0.882			
	TRUST9	0.888			
	TRUST10	0.894			

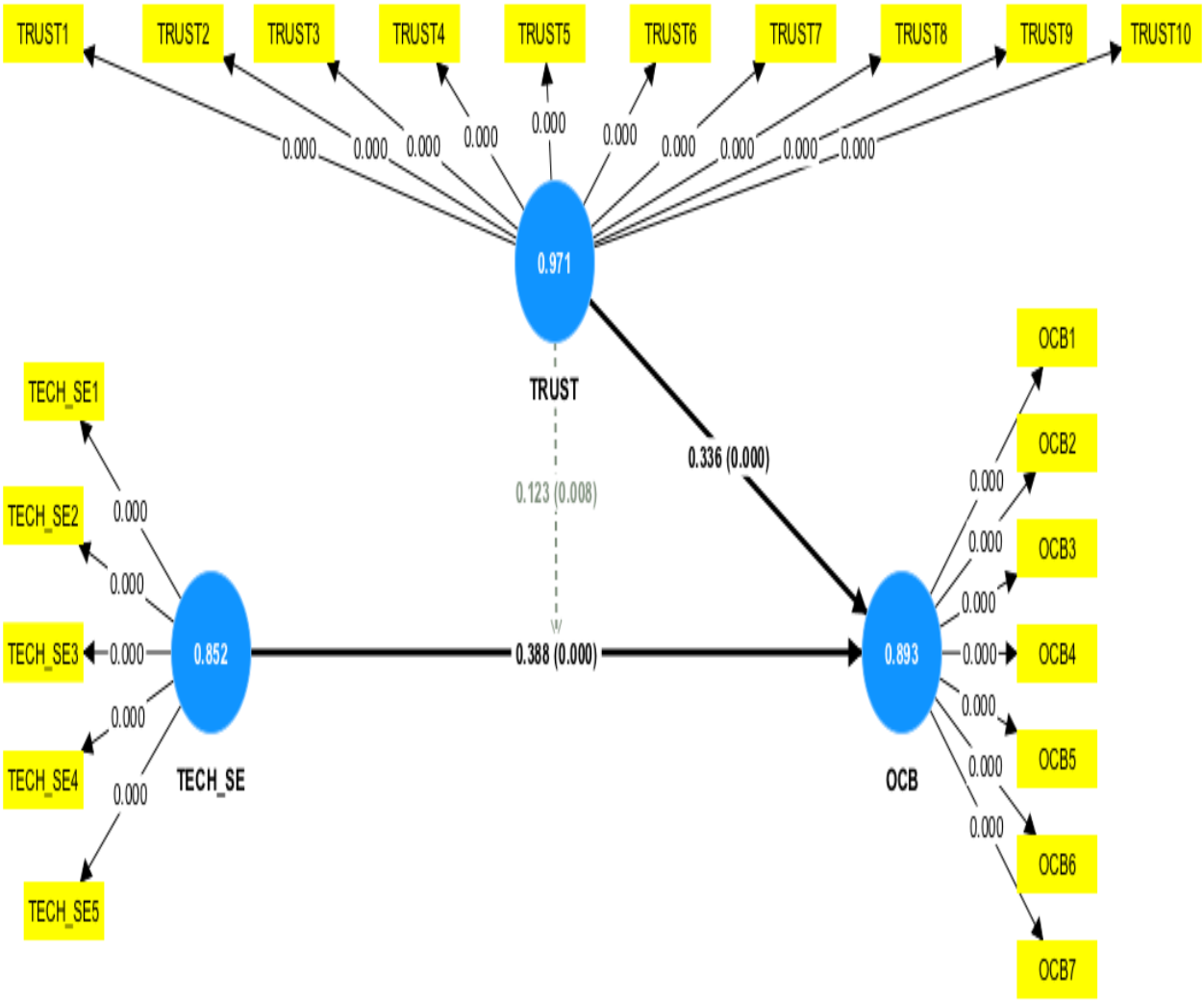
TABLE 3
DISCRIMINANT VALIDITY OF THE MEASUREMENT MODEL

HTMT			
Constructs	OCB	TECH_SE	TRUST
OCB			
TECH_SE	0.522		
TRUST	0.407	0.167	

As indicated in Table 3, all the items of the variable loaded well on the proposed constructs. A heterotrait-monotrait ratio of correlation (HTMT) was conducted to ensure discriminant validity. HTMT values of less than 0.85 are considered adequate to conclude that discriminant validity has been found

(Henseler et al., 2015). All constructs were well below the less than 0.85 recommended threshold. Tables 2 and 3 provided confirmation that the measurement model has met all the criteria necessary to confirm reliability and validity.

FIGURE 2
STRUCTURAL EQUATION MODEL



RESULTS

Hypothesized Direct Relationships

H1a: *Technological Self-efficacy is positively related to Organizational Citizenship Behavior*

The results for hypothesis 1a show a beta value of 0.388, a t-statistic of 8.481, and a significant p-value of 0.000. The results support hypothesis 1a, that technological self-efficacy is positively related to organizational citizenship behavior.

H1b: *Trust will moderate the relationship between Technological Self-efficacy and Organizational Citizenship Behavior*

Results for Hypothesis 1b support the study's hypothesis that trust moderates the relationship between technological self-efficacy and organizational citizenship behavior. The beta value is 0.123, with a t-statistics of 2.650 and a significant p-value of 0.008.

H2: *Trust is positively related to Organizational Citizenship Behavior*

Hypothesis 2 resulted in a beta value of 0.336 and a t-statistic of 6.891. Additionally, the p-value of 0.000 was significant. This supports the hypothesis that trust is positively related to organizational citizenship behavior.

TABLE 4
ASSESSMENT OF THE STRUCTURAL MODEL

Hypothesis	Path	Type	Beta	t-statistic	p-value	Remarks
1a	TECH_SE -> OCB	Direct	0.388	8.481	0.000***	Supported
1b	TECH_SE x TRUST -> OCB	Moderating	0.123	2.650	0.008**	Supported
2	TRUST -> OCB	Direct	0.336	6.891	0.000***	Supported

***Significant at P < .01 ***Significant at P < .001*

DISCUSSION

This research study attempted to scrutinize the role of an employee's trust in their supervisor in determining if technological self-efficacy affects organizational citizenship behaviors. The findings indicate that the workers' trust in their supervisors moderates the relationship between the employees' belief in their ability to do new technological tasks and employees' organizational citizenship behavior. If the employee trusts their supervisor, the probability of their self-efficacy of technological tasks positively affecting the likelihood of working beyond their required daily tasks is increased.

Moreover, the study found that an employee's trust in their supervisor would have a positive impact on their willingness to "go beyond the call of duty" and perform tasks that are voluntary and outside of their contractual responsibilities. This supports previous research utilizing different demographics and research procedures. We are satisfied that this study was able to add to the trust and organizational citizenship behavior literature and provide further support to a well-regarded hypothesis.

MANAGERIAL IMPLICATIONS

This study has given insight into how to introduce technology to employees during the COVID-19 pandemic and into the workplace in general. Managers must create a workplace with trust to facilitate OCB and Technological Self-efficacy. The work environment should be conducive to building trust among managers and supervisors, as this will likely encourage citizenship behaviors. This study has shown that Technological Self-efficacy is positively correlated with OCB. Thus, leaders should ensure proper employee engagement to allow easier technology implementation.

In this analytics/data-driven society, new and advanced technologies are introduced every year. For workplaces to stay current and competitive, managers must routinely "upskill" their workforce to learn new software or platforms to adapt to challenges more quickly (Madonsela, 2022). This study illustrates that jobs that contain citizenship behaviors will have technological self-efficacy; therefore, workers will believe they can accomplish new tasks and goals demanded by the market. In the pandemic, workers were forced to use new technologies many had not used before to continue their jobs. Many workers had to "retrain," which is defined as learning a new vocation or skillset to adapt to new responsibilities, a new role, or a new job or career altogether (Madonsela, 2022). Given the ever-expanding need for both technological

upskilling and retraining, managers should consistently endeavor to create trust with their employees. Workplaces with trusting environments where employees go "above and beyond" are more likely to integrate new technologies successfully. Conversely, if workers do not trust their managers and do the bare minimum to preserve employment, technological self-efficacy will not be present, thus making new technology implementation extremely difficult.

LIMITATIONS

Like many research efforts, this study utilized self-reported data via an electronic survey instrument. Social desirability and common method bias could have occurred. Also, external validity (generalizability) is often a limitation in research due to time and budget constraints. The research endeavor is limited due to examining employees in the United States. External validity could be increased by expanding the study with a more internationally diverse and representative sample.

Additionally, causal inferences or trends cannot be assessed because the research was cross-sectional, and the respondents' survey efforts were collected within a condensed time frame. A longitudinal study that collects data at different points in time would provide a broader and more accurate assessment of the study's objectives.

SUGGESTIONS FOR FUTURE RESEARCH

Regarding future research, expanding the research into new geographic areas could provide interesting findings that would assist in gaining more generalizability. Additionally, researchers should consider using the construct of technological self-efficacy in future studies. Wealth and education gaps, an aging population, and society's resistance to change can affect someone's belief in their ability to perform a novel technological task. This point is even more critical now, with automation and artificial intelligence becoming prevalent in many service-related industries and replacing many workers' routine duties. Looking at technological self-efficacy in specific industries like healthcare, hospitality, manufacturing, and retail could also provide interesting discoveries and comparisons. Furthermore, future research should examine how race/ethnicity, age, or education factor in the impact of an employee's trust in their supervisor and their willingness to perform organizational citizenship behaviors.

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