

## Article

# Performance of Academic Staff during COVID-19 Pandemic-Induced Work Transformations: An IPO Model for Stress Management

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**Abstract:** The COVID-19 pandemic has adversely affected all spheres of services-related business, including the higher education sector. As a pre-emptive measure, almost all traditional educational institutions have been transformed into virtual organizations. This pandemic-induced work transition has created stress among academic staff and has hampered their performance. The present study aims to examine the impact of leadership behaviors, e-training, and employment security on the stress management process, consequently improving employee performance during and after the pandemic. Based on the IPO (input–process–output) model, this study examines the effect of leadership behavior, e-training, and employment security on teaching staff’s tasks and adaptive and contextual performance, mediated by stress management. To test the conceptual model, data were collected from the teaching staff of Malaysian universities. The structural equation modeling technique was used for data analysis, while bootstrapping with the maximum likelihood estimator was used to confirm the mediational role of stress management. The study revealed that task- and relation-oriented leadership behavior, e-training, and employment security positively influence stress management and employee performance in virtual organizations. Moreover, stress management acts as a full mediator in the relationship between leadership behavior and employee performance, while partial mediation occurs between e-training, employment security, and employee performance. This study offers valuable insights into the literature by proposing leadership behavior, e-training, and employment security as input in the stress management process to attain the performance output of teaching staff. Higher education institutions should come forward to assist their teaching employees in managing their stress levels for better outcomes.

**Keywords:** leadership behaviors; e-training; employment security; stress management; employee performance; teaching staff



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## 1. Introduction

During the year 2020, the coronavirus pandemic (COVID-19) outbreak has created unexpected challenges around the globe that has hit the service sector hard (Suneson 2020). This unprecedented global pandemic has caused economic disruptions in different ways (Tuzovic and Kabadayi 2020) that not only influence service organizations (McKinsey 2020) but also transform the ways of performing business services (Finsterwalder and Kuppelwieser 2020). Many organizations providing services, such as airlines, beauty salons, barbershops, hotels, were forced to close their operations during the lockdown. Meanwhile, service organizations involved in providing essential services, including health

care, logistics, and FMCGs retailing, were allowed to partially operate with adequate protection and security measures (Tuzovic and Kabadayi 2020).

Educational institutions were also closed as a preemptive measure against the COVID-19 pandemic. Meanwhile, educational institutions have been transformed into virtual organizations. During the phase of global isolation, the establishment of virtual organizations was the most appropriate option to regulate the functioning of the education system (Duraku and Hoxha 2020; Carnevale and Hatak 2020). Virtual organizations are categorized as sophisticated work arrangements where technology drives the outcomes (Kohntopp and McCann 2021), geographically dispersed employees interact with stakeholders through technology, and all operational activities are performed online (Zafar et al. 2015).

The disrupted outcomes of the pandemic may last longer for the education sector and negatively influence the interest and performance of educators (Onyema et al. 2020). Although the transformation of traditional educational institutions into virtual organizations facilitates teaching and learning practices, at the same time, it poses challenges for leaders (Kohntopp and McCann 2019; Kohntopp and McCann 2021; Bolden and O'Regan 2016; Vial 2019), organizations, and employees. Pandemic-induced work transformations have compelled educational institutions to reconsider their leadership practices toward staff (Wolor et al. 2020), have raised the concern about staff training to cope with the challenges of technological emergence (UNESCO 2020), and have created uncertainty to endure secure employment (Onyema et al. 2020). Besides, the traditional education system's transformation into virtual organizations has increased academic staff stress (García-González et al. 2020) that influenced their performance.

The present study aims to examine the impact of leadership behaviors, e-training, and employment security on the stress management process, consequently improving employee performance during and after the pandemic. Additionally, this study intends to offer insights into the literature by examining different aspects to improve the performance of teaching staff during the phase of pandemic-enforced transformations. First, literature on leadership behavior and its impact on teaching staff performance during pandemic transformations is scarce. This study adopted Hersey–Blanchard's situational leadership style to examine the effect of task-oriented leadership behavior and relation-oriented leadership behavior on stress management and teaching staff performance. Furthermore, the study proposed that e-training and employment security allow employees to manage their stress levels and improve the performance of teaching staff while working in a virtual environment during and after the pandemic. Second, based on the input–process–output model (Dulebohn and Hoch 2017; Bartsch et al. 2020), this study proposed a conceptual framework and examined stress management's mediating effect. Effective leadership behaviors, e-training, and employment security are inputs to the stress management process, consequently improving performance. Third, this study implemented job demands–resources (JD–R) theory to model teaching staff performance. Previously, some studies implemented job demands–resources theory to deal with stress and performance issues in non-crisis situations (Kim and Wang 2018; Bakker and Demerouti 2014; Bakker and de Vries 2020; Al-Homayan et al. 2013). However, applying the JD–R theory to manage stress during the pandemic is scarce (Meirun et al. 2020). No previous studies have used the JD–R theory to manage the stress of academic staff. Finally, this study attempts to integrate the JD–R theory with the input–process–output model to examine the influence on performance.

## 2. Literature Review and Conceptual Background

The pandemic phase has caused fear, stress, anxiety (Sundarasan et al. 2020), and economic instability (Cavallo and Forman 2020) around the world. Academic staff have also been influenced by factors other than the COVID-19 pandemic. Several factors, including leadership styles (Al Khajeh 2018; Abdul Wahab et al. 2014; Ibrahim et al. 2016), economic instability, security, working conditions (Royer 2010) and stress level (Khuong and Yen 2016), influence the performance of academic staff during change implementations. Transformation of the traditional workplace into virtual organizations has created stress

among staff members that harms their productivity, performance, and satisfaction (Gigauro 2020; Anderson 2020). Stress during the pandemic is a crucial occupational issue (Sahni 2020), and its negative impact on job performance has warranted managing stress for sustainable performance.

Stress management is essential for consistent performance, and leaders help staff members cope with stress during uncertain situations (Jyoti and Bhau 2017). The role of leaders influences workplace stress. Supportive leadership behaviors help subordinates manage stress and deal with ambiguous situations (Abbasi 2018). Moreover, training programs enable individuals to shift the mindset for stress management (Jamieson et al. 2018) by being mindful about the current situation rather than reacting emotionally. A “stress optimism mindset” can be developed to positively manage stress level (Crum et al. 2017). Meanwhile, employment insecurity due to the economic crisis during and after the pandemic was observed as a potential stressor (Giorgi et al. 2020; Pacheco et al. 2020; Gasparro et al. 2020; Zhou et al. 2020; Wilson et al. 2020) that adversely affected employee wellbeing (Pacheco et al. 2020) and productivity. These findings underpin the relevance of examining the integrated effect of leadership behaviors, e-training, and employment security to manage academic staff’s stress level and performance during the phase of virtual transformations. However, there is a gap in the current literature on leadership behavior, e-training, and employment security for academic staff during the pandemic crisis.

A review of the available literature revealed that research on leadership behaviors in the educational context is scarce. Most studies have been conducted in traditional and non-virtual scenarios (Marfan and Pascual 2017; Ennis et al. 2016; Hallinger 2016; Hallinger et al. 2020). Rare studies examined different aspects of leadership behaviors and practices in the educational context, for instance, instructional leadership (Liu and Hallinger 2017), contextual leadership (Noman et al. 2016), and the role of leadership in financial management (Myende et al. 2018). Meanwhile, there is a lack of studies, which addressed the role of leaders in managing performance of academic staff at the virtual workplace. Based on the statement of Wieczorek and Manard (2018), more research is required on leadership experience with respect to the challenges posed by emerging policies and economic strains (Klar and Brewer 2013; Parson et al. 2016; Preston and Barnes 2017). Similarly, online training of academic staff and employment security during the pandemic situation are not yet addressed.

Thus, based on the need to examine the role of leadership behavior, training, and employment security, this study intended to offer insights into the influence of leadership behavior, e-training, and employment security on stress management and performance of academic staff. A conceptual framework is developed based on the input–process–output (IPO) model and integrated with the JD–R theory. This conceptual model extends the understanding that tolerance of work transition, complexity, work burden, skill discretion, and the physical environment are job demands during the pandemic crisis that cause employees stress, anxiety, and burnout. Meanwhile, leadership behaviors, e-training, and employment security are some of the job resources that serve as input in the process of stress management; hence, productivity, adaptability, and performance are key outputs.

### 2.1. Input

The transition of the traditional workplace to virtual organizations has created challenges for the systematic procedure of collective task performance. Hersey–Blanchard’s situational leadership style is most appropriate and flexible to examine leadership behaviors in a dynamic work environment (Hersey and Blanchard 1969; McCleskey 2014). Hersey–Blanchard characterizes the task orientation on one side of the continuum, while relationship orientation is on the other side. According to the Hersey–Blanchard leadership model, this study focused on addressing task-related and people-related leadership behaviors.

In the services context, task- and relation-oriented leadership behaviors are key input factors in handling the challenges of virtual organizations (Liao 2017; Bartsch et al. 2020).

Task-oriented leadership behavior is mentioned as “initiating structures” and emphasizes accomplishing organizational objectives by explaining task goals and monitoring the work process (Judge et al. 2004). Meanwhile, relation-oriented leadership behaviors, also termed “consideration”, emphasize enhancing collaboration among staff members and creating a supportive work environment. Leaders with task- and relation-oriented behaviors postulate team structures (task-orientation) and ensure smooth interactions among team members (relationship orientation) (Liao 2017). Leader behaviors are meant to support resources to manage stress in the workplace (Schmidt 2014).

At the same time, of significance is the role of training programs to cope with stress management and performance challenges (Salain 2017). Training programs focusing on improving resilience, relaxation, and mindfulness serve as essential contributors to improving eustress (positive stress management) and performance (Gharib et al. 2016; Botwe et al. 2017; Ismail et al. 2015). Along with training, the assurance of a resilient and sustainable career is indispensable for employees to cope with performance in a consistently dynamic environment (Foy 2015). Employment insecurity is a stressor (Urbanaviciute et al. 2018), and thus employment security can predict stress management. Performance improvement with the parameters of stress management is centered around the necessity to assist employees in managing stress by providing leadership support, secured employment (Katić et al. 2019), and training. Considering these findings, this study proposed that leadership behavior, e-training, and employment security are input factors in the process of stress management to yield better performance.

## 2.2. Process

In the context of services (Abbasi 2018), leadership behaviors improve performance and productivity of employees by managing occupational stress (Davidson 2018) that mediate the relationship between input and output. Supportive leadership behaviors are conducive to managing occupational stress, resulting from globalized radical transitions and technological integration (Jedynak and Bąk 2018). Meanwhile, online training sessions are inclusive for stress management (Heber et al. 2016). Training of managers and employees is a useful coping strategy to enhance resilience and stress management (Brooks et al. 2019). Stress interrelated to employment security and workplace demands can hamper employee performance (Yang et al. 2018). Many studies have stated that individuals with the ability to manage stress levels are happier, more productive, and motivated (Fried et al. 2008). Service personnel suffering from pandemics are more likely to be stressed and emotionally exhausted in personal and professional life, as perceived insecurity could cause behavioral changes toward performance (Bartsch et al. 2020). Therefore, this study proposed that in virtual organizations, employment security (Pacheco et al. 2020), effective leadership behavior, and e-training programs positively influence stress management, which consequently improves performance. This study focused on optimism, mindfulness, coping, and resilience as facets of stress management. Optimism is a psychological trait of positive outcome expectancies. Individuals with an optimistic attitude have a self-regulatory mechanism, positively accept challenges, respond confidently in stressful situations, and believe in the best possible outcomes even in adverse situations (Layard and Sachs 2017).

Mindfulness is a state of mind to deliberately accept the current situation rather than becoming judgmental and emotionally responsive (Zgierska et al. 2009). It is a way to experience reality by incorporating self-reliance, self-compassion, non-judgmental, non-striving, and letting-be attitude (Vanderhoof 2015). Mindfulness is a basis for effective stress management and intervention to develop positive organizational behavior (Aikens et al. 2014). In the organizational context, mindfulness-based stress reduction (MBSR) training allows individuals to recognize stress factors and to respond effectively to manage stress level (Mindfulness Initiative 2016; Carter and Halter 2019). Resilience is a dynamic phenomenon (Weber et al. 2014) and a stable personality trait that influences the self-regulatory process. Resilience is the ability of employees to develop interventions and adjustments

in a highly stressed work environment, thus regarded as a vital of the stress management process (Rees et al. 2015). Likewise, coping is the capability to adjust to a situation following an antagonistic event. Generally, coping abilities facilitate the stress management process in two-folded perspectives: problem-focused strategies emphasized considering the practicalities of circumstances. In contrast, emotion-focused strategies are emphasized to mitigate stressors' psychological and emotional effects (Baqtayan 2015). Therefore, this study proposed that stress management is a process of developing resilience, mindfulness, optimism, and coping behavior among employees during pandemic transformations that positively influence performance.

### 2.3. Output

Output, the final element of the IPO model, is typically denoted as the level to which academic staff accomplishes performance targets (Dulebohn and Hoch 2017). However, employees need to adapt to the dynamic environment in virtual organizations; thus, proactivity is more essential (Griffin et al. 2010). Therefore, proactivity, adaptability, and self-motivated work behaviors are appropriate performance indicators (Bartsch et al. 2020). Pradhan and Jena (2017) mentioned that employee performance combines effective task performance, adaptive performance, and contextual performance. Task performance is denoted as work explicit behavior that incorporates job responsibilities allocated in the job description. Task performance needs employees' cognitive skills, task knowledge (required technical knowledge to perform a task and ability to accomplish multiple assignments), task skill (implementation of technical knowledge to effectively accomplish the task with little or no supervision), and task habit (inner derive to respond the assigned task) (Conway 1999). Adaptive performance is the ability to acclimatize in dynamic situations and to adapt behaviors according to the varied job requirements in volatile circumstances, such as during technological transformations (Ilgen and Pulakos 1999). Contextual performance is the conduct of unstated prosocial or extra-role behaviors that are expected but not overtly stated in the job description (Bateman and Organ 1963). Referring to the above-mentioned references, this study considered task performance, adaptive performance, and contextual performance as outcome aspects of the input–process–output model.

### 2.4. Integration of Job Demands–Resources Theory

Demerouti et al. (2001) introduced the JD–R model that gained prominence as one of the leading occupational stress models (Hu et al. 2013). The JD–R model assumes that the balance between job demands and job resources influences the level of stress, wellbeing and productivity of employees. Bakker and Demerouti (2014) defined job demand as physically, psychologically, socially, and organizationally challenging aspects of a job that are potential stressors and require continuous psychological and physical costs. At the same time, job resources are physical, social, or organizational aspects that facilitate meeting job demands and reducing stress to facilitate goal accomplishments. Bakker et al. (2014) discussed two potential burnout processes. First, job demands, including workload, physical work environment, work transitions, and time pressure, lead to stress and exhaustion. Second, the lack of resources such as job control, employment security, rewards, leadership support, autonomy, and feedback are potential stressors and reasons for burnout. Likewise, two processes function independently: energy-driven process (job demand → Burnout → negative performance) and motivation-driven process (job resources → Engagement → positive performance) (Bakker and de Vries 2020). The integration of job demands–resources theory and performance is presented in Figure 1.

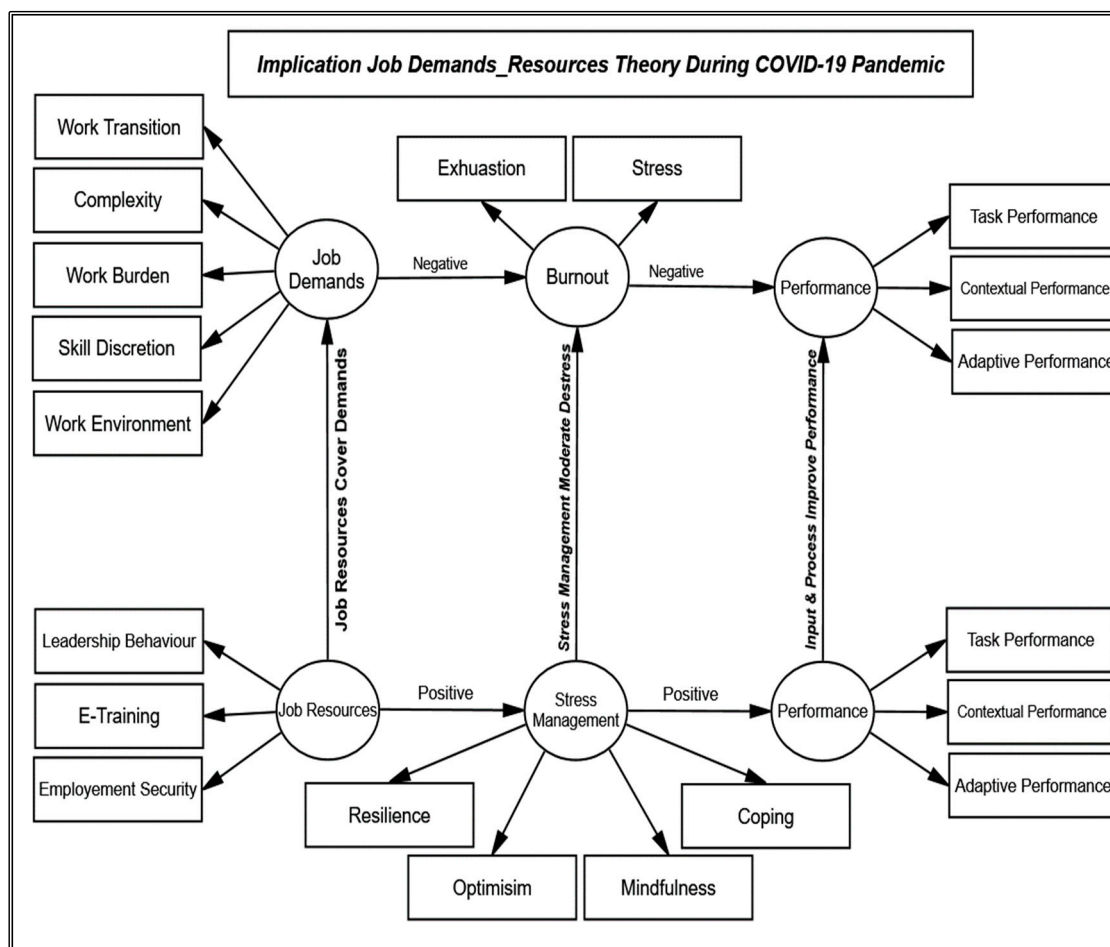


Figure 1. Integration of job demands–resources theory and performance.

### 3. Hypotheses Development

#### 3.1. Impact of Leadership Behavior on Stress Management

The existing and post-pandemic transformations endured a huge impact on organizations and spotlighted the role of leaders in reshaping organizations for survival and better performance (Dirani et al. 2020). The prevailing pandemic crisis created stress among employees. Moreover, lack of job clarity during pandemic work transitions, unexpected workload, perception of being detached, and inadequate knowledge about the processes to perform assigned jobs caused stress among employees (Sahni 2020). Appropriate leadership behaviors support subordinates to reduce their stress in the workplace (Schmidt 2014). Supportive leadership behaviors encourage employees to positively deal with occupational stress (Schaufeli 2015; Bahkia et al. 2020). Leadership with an agile and adaptive mindset induces optimism and promotes resilience among employees (Dirani et al. 2020). Proactive and supportive leaders, through idealized influence, reinforce desired behaviors and perceptions among employees.

Virtual transformations challenge leaders to motivate and manage geographically dispersed employees (Cascio and Montealegre 2016). Thus, due to flexibility, Hersey–Blanchard’s situational leadership behavior model (task and relation-oriented leadership behaviors) is appropriate to deal with employee stress in dynamic and uncertain situations (Katić et al. 2019). Virtual organizations, specifically during the pandemic crisis, challenged leaders to simultaneously practice task-oriented and relation-oriented behaviors (Bartsch et al. 2020). Task-oriented leaders encourage self-management abilities among employees (Carte et al. 2006) and enable them to manage task-related stress (Sonnentag and Schiffrer 2019). Task-oriented leadership helps to cope with job-related stress by providing clear

structure, instructions, rules, and processes to accomplish the task, while relation-oriented leaders focus on developing team structure and facilitating team cohesiveness (Liao 2017).

Leaders continuously engage in direct interactions with employees (relation-oriented), tactically recognize potential stressors, and adopt behavioral patterns to facilitate the stress management process (Schmidt 2014). In a work environment where leaders are engaged with subordinates (relation-oriented), employees exhibit less stress, more energy, more enthusiasm, and greater focus (Zafar et al. 2015). Leaders incorporate influential behaviors to develop optimism, resilience, relaxation, and mindfulness among employees (Boyatzis et al. 2013; Roche et al. 2014), conducive to reducing stress (Kozusznik et al. 2015). Organizations focused on supportive leadership behaviors as essential phenomena within stress management since it is an influential aspect to deal with workplace stressors (Quick and Henderson 2016). Considering these findings, this study proposed that task-oriented and relation-oriented leadership behaviors facilitate academic staff in managing stress by encouraging optimism, resilience, mindful and coping behavior. Therefore, we hypothesized:

**H1:** *Leadership behavior has a positive influence on stress management.*

### 3.2. Impact of E-Training on Stress Management

E-training is a process to provide online training sessions to employees through the internet (Amara and Atia 2016). Training programs for employee growth and development essentially contribute to managing stress level. Organizations offer training programs to develop required skills among employees to effectively manage their stress (Grawitch et al. 2015). Training focused on stress management programs (SMPs) enhances employees' resilience, mindfulness, and relaxation (Van Wingerden and Derks 2018; Sahlin et al. 2014; Van der Riet et al. 2014). The definitions of resilience encapsulated the understanding that resilience has both aspects; one is more fixed and stable related to the personality of the individuals, while the other is flexible and changeable as a consequence of interactions with the environment (Fletcher and Sarkar 2012; Sarkar and Fletcher 2014) that consider the influence of well-designed training programs (Wagstaff et al. 2017). Thus, continuous training and learning develop resilience, adaptability, and coping behavior to effectively manage stress in dynamic situations (Grawitch et al. 2015). Mindfulness is also mental training to be aware and calmly accept the current situation rather than to be involved in adverse emotional reactions (Sahni 2020). Organizational leaders provide training programs for employees about coping and stress management strategies (Lacerenza et al. 2017). Training programs during uncertain situations develop relaxation, motivation and positive coping mechanisms skills among employees that are helpful for stress management by providing awareness of the situation and action plans to reduce the impact of stressors. Referring to the above presented insights, this study proposed that e-training facilitate academic staff in managing stress by encouraging optimism, resilience, mindful and coping behavior. Therefore, we hypothesized:

**H2:** *E-training has a positive influence on stress management.*

### 3.3. Impact of Employment Security on Stress Management

The current economic crisis due to the pandemic is a challenge for employment security (Sanchez et al. 2020). However, the impact of employment security on the psychological health and wellbeing of employees during the COVID pandemic and similar crises has been overlooked in previous literature (Pacheco et al. 2020). Employment security is referred to employees' expectations of enduring stable and long-lasting jobs in the organization (Piccoli et al. 2017). Employment insecurity during the pandemic is a potential stressor (Pacheco et al. 2020) that causes stress, anxiety, and depression among employees (Wang et al. 2018). The majority of previous studies stated employment insecurity as a predictor of distress and examined its influence on employee wellbeing (Blom et al. 2015). However, few studies addressed the role of job control, training, social support, and organizational

support to manage occupational stress (ILO 2016). Career uncertainty intensified stress and psychological hazards of employees (ILO 2016). On the contrary, this study argues that employment security has a positive influence on stress management. Therefore, we hypothesized:

**H3:** *Employment security has a positive influence on stress management.*

### 3.4. Impact of Stress Management on Employee Performance

Effective stress management influences employee productivity, task performance, efficiency, and daily functionality (Adim et al. 2018). Although the abundant literature on stress revealed the negative influence of stress on performance, Selye (1993) stated that stress (positively managed stress) is essential to achieve better performance. Adim et al. (2018) examined the impact of stress management on employee performance and concluded that stress management improves employee efficiency, effectiveness, and performance. Altindag (2020) investigated the impact of stress management on performance and stated that individuals who can manage stress level perform better. In addition, positive stress triggers employee performance and goal achievement. Optimism is a source to develop a favorable environment for accomplishing organizational objectives and positively influences work motivation and employee performance (Strauss et al. 2014; Jabbar et al. 2019). Besides, Zehir et al. (2016) examined the influence of resilience on productivity and concluded that resilience mediated the relationship between leadership and productivity. Employees' mindful behaviors enhance task accomplishment and adaptive performance in dynamic situations (Dane and Brummel 2015). In line with these findings, this study proposed that stress management (optimism, resilience, mindfulness, and coping behavior) during uncertain circumstances positively influences employee performance. Therefore, we hypothesized:

**H4:** *Stress management has a positive influence on employee performance.*

The IPO model refers to the specific potential to examine the moderating effect of context-related constructs (Dulebohn and Hoch 2017). However, by implementing the IPO model, this study intends to examine the mediational influence of stress management between leadership behavior, e-training, employment security, and employee performance. The dominant influence of leadership (Katić et al. 2019), training programs (Grawitch et al. 2015), and employment security on stress cannot be overlooked. Supportive leadership behaviors encourage optimism and resilience among employees (Dirani et al. 2020) that facilitate employee stress management (Schaufeli 2015). Leadership behavior, e-training, and employment security positively influence stress management, while stress management increases employee performance (Altindag 2020). Thus, this proposed that stress management acts as a mediator in the relationship of leadership behavior, e-training, employment security, and employee performance. Therefore, we hypothesized:

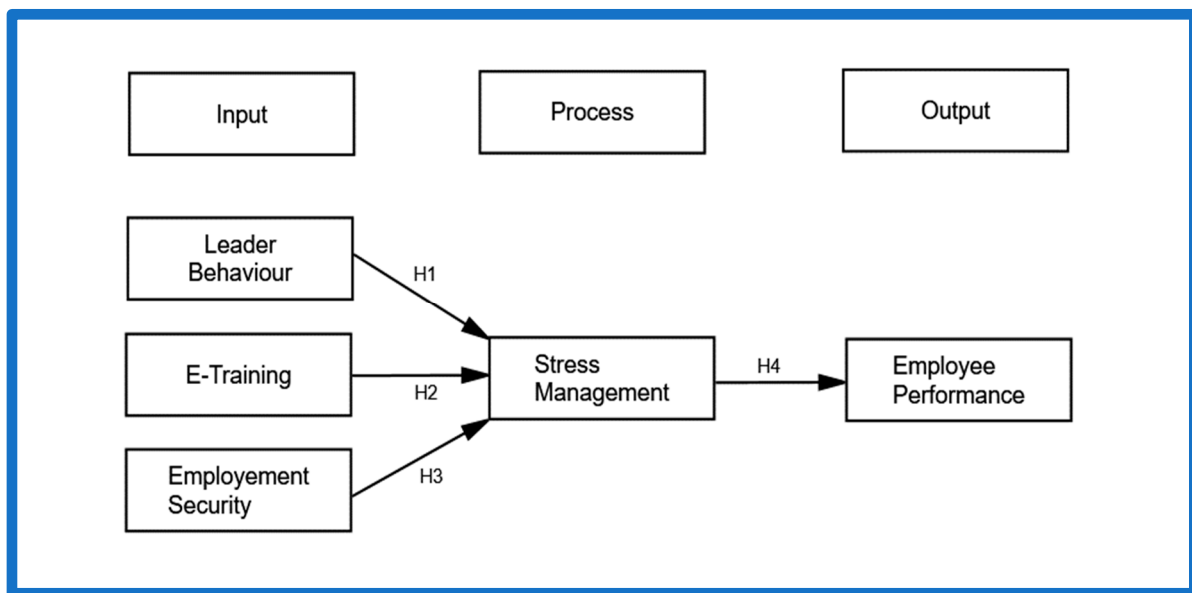
**H5a:** *Stress management mediates the relationship between leadership behavior and employee performance.*

**H5b:** *Stress management mediates the relationship between e-training and employee performance.*

**H5c:** *Stress management mediates the relationship between employment security and employee performance.*

The conceptual framework is presented in Figure 2.





**Figure 2.** Conceptual framework.

#### 4. Material and Methods

Based on the positivist research philosophy, this study is quantitative, with a deductive research approach and a cross-sectional time horizon. Structured close-ended questionnaires were used to collect data from respondents.

##### 4.1. Study Context and Sample

Data were collected from teaching staff working in Malaysian universities. The data collection process was conducted during the phase of movement control order (MCO, January 2021–March 2021). The online survey was conducted, and a questionnaire was sent to academic staff (teaching) by email. The Malaysian higher education sector is based on four categories of institutions, including 20 public universities, 47 private universities, 34 university colleges, and 10 foreign university campuses in Malaysia (Webway e-Services 2020). In total, 56,235 of the teaching staff work in Malaysian universities (Department of Statistics Malaysia 2021). By using cluster random sampling technique, 5 universities were randomly selected from the 4 categories. After selecting 20 universities, 20 questionnaires were randomly sent to the teaching staff members of each selected university. In total, 400 questionnaires were sent by e-mail, and 279 questionnaires were returned. After data collection, analyses were performed, and 7 questionnaires were removed from the data set due to incomplete responses. Subsequently, multivariate outliers were checked for data preparation and cleaning, and 4 questionnaires were eliminated. In total, 268 questionnaires remained for the final analysis. In particular, 200 sample sizes appeared to be appropriate for SEM data analysis (Awang 2015). However, we distributed 400 questionnaires to improve the generalizability of the research sample. Therefore, the sample size of 268 was appropriate for the statistically significant findings of the study (Awang 2015). The response rate to the survey was 69.75%.

##### 4.2. Measures

All constructs of this study were measured using the 10-point interval rating scale. Thus, “1” refers to “strongly disagree” and “10” refers to “strongly agree”. The measurement instruments used in this study were validated in previous studies. Explicitly conferring to the pandemic-induced work transformations, the six-item scale of Weber et al. (2019) was used to measure relation-oriented leadership behavior, including items such as, “Being a leader, he/she enables non-hierarchical teamwork”, and considering the context of virtual organizations, one item was added from the work of Bartsch et al. (2020),

“Being a leader, he/she enables virtual teamwork”. Similarly, task-oriented leadership behavior was also measured using a six-item scale of [Weber et al. \(2019\)](#), including items such as, “Being a leader, he/she effectively pre-structure the tasks”. The four-item scale validated by [Quansah \(2013\)](#) was used to measure the e-training construct, the sample item was, “There are training strategies and coherent training programs”. Meanwhile one item, “Organization offers online training programs”, was added to account for the context of virtual organizations. Similarly, a five-item scale validated by [Quansah \(2013\)](#) was used to measure the construct of employment security. The sample item was, “If the organization was facing economic problems, employees would be the last to downsize”.

A scale developed and validated by [Pradhan and Jena \(2017\)](#) was used to measure the construct of employee performance. The scale comprised forty-two items; however, in this study, six items were used to measure task performance, such as, “I am capable of handling my assignments without much supervision”. The adaptive performance was measured with six items, including, “I could manage change in my job very well whenever the situation demands”, and six items were used to measure contextual performance, such as, “I extend my sympathy and empathy to my co-workers when they are in trouble”. The stress management construct was measured with four dimensions: optimism, resilience, mindfulness, and coping behavior. [Scheier and Carver \(1985\)](#) measured optimism with a ten-item scale, including, “In uncertain times, I usually expect the best”. The ten-item scale of Connor Davidson was used to measure resilience, including, “I am able to adapt to change” ([Kašpárková et al. 2018](#)). To assess mindfulness, a three-item Southampton Mindfulness Questionnaire (SMQ) was used ([Baer 2011](#)). Referring to [Glazer and Liu \(2017\)](#), coping was measured with a three-item scale. The sample item included, “Do you cope up with stress?”.

## 5. Results

The final sample included 185 (69%) female academic staff and 83 (31%) male academic staff. The majority of staff were over 45 years old. Furthermore, 85.5 % of staff members were married, 26.8% of staff were working as lecturers and 32.5% as senior lecturers. The teachers received training in improving IT skills required for online classes. Demographic characteristics of the respondents are presented in Table 1.

**Table 1.** Demographic characteristics of academic staff.

Demographics	N (%)
Gender	
Male	83 (31)
Female	185 (69)
Age	
≤30	32 (11.9)
31–45	100 (37.4)
>45	136 (50.7)
Marital Status	
Single	39 (14.5)
Married	229 (85.5)
Job title	
Lecturer	72 (26.8)
Senior Lecturer	87 (32.5)
Associate Professor	76 (28.4)
Professor	33 (12.3)
IT skills training with regard to online classes	
Yes	268 (100)
No	0

### Multivariate Data Analysis

The study employed structural equation modeling (SEM) in IBM-SPSS Amos 24.0. Before modeling the structural model and performing the SEM procedure, the confirmatory factor analysis (CFA) procedure to validate the measurement model of all the constructs in the model was conducted. The CFA procedure would assess the latent constructs for unidimensionality, validity and reliability (Raza and Awang 2020). The bootstrapping technique with the maximum likelihood method was used to analyze the mediational effect.

The reliability of the scales was tested by calculating the Cronbach alpha. The values obtained suggest that the items have a relatively high internal consistency. Descriptive statistics and discriminant validity of the constructs are presented in Table 2.

**Table 2.** Descriptive statistics and discriminant validity of constructs.

Construct	Mean	SD	Cronbach Alpha	VIF	LB	ET	ES	SM	EP
LB	9.076	0.936	0.875	1.221	<b>0.74</b>				
ET	8.943	0.913	0.922	1.453	0.61	<b>0.77</b>			
ES	8.771	0.966	0.786	1.113	0.51	0.64	<b>0.78</b>		
SM	8.734	0.937	0.883	1.765	0.56	0.59	0.55	<b>0.84</b>	
EP	8.852	0.960	0.845	1.232	0.54	0.58	0.56	0.65	<b>0.86</b>

The construct validity of the measurement model was assessed by comparing the fit indices categories. RMSEA value 0.044, CFI 0.974, TLI 0.969, ChiSq/df 1.694 and  $p$  value = 0.000 indicated the goodness of measurement model (Hair et al. 2014; Awang 2015). Table 3 indicates that the CR (composite reliability) of constructs ranged from 0.71 to 0.90, which ensured that measuring items were reliable for assessing the respective constructs. The average variance extracted (AVE) values fairly met the threshold (above 0.50), denoted as a satisfactory level of variance among underlying constructs (Hair et al. 2014).

**Table 3.** AVE and CR Values of Constructs.

Construct	Item	Factor Loading	CR (above 0.6)	AVE (above 0.5)
Leadership Behavior	T-Oriented	0.72	0.714	0.556
	R-Oriented	0.77		
E Training	ETR1	0.64	0.850	0.589
	ETR2	0.86		
	ETR3	0.72		
	ETR4	0.83		
	ETR5	0.82		
Employment Security	ES1	0.79	0.886	0.610
	ES2	0.82		
	ES3	0.82		
	ES4	0.74		
	ES5	0.73		
Stress Management	Optimism	0.84	0.908	0.711
	Resilience	0.88		
	Mindfulness	0.78		
	Coping	0.87		
Employee Performance	Contextual	0.84	0.892	0.734
	Adaptive	0.87		
	Task	0.86		

Discriminant validity was calculated by taking the square root of AVE values to assess differentiation among constructs (Fornell and Larcker 1981). It specified that the underlying constructs were not correlated with each other (Shah and Brown 2020). Values

of discriminant validity shown in Table 3 revealed that correlation among underlying constructs is less than the value of variance extracted that adequately meets the suggested criteria (Fornell and Larcker 1981).

The results of the structural model presented in Table 4 and Figure 3 indicated the significant positive effect of leadership behavior on stress management ( $\beta = 0.429$ ,  $\rho < 0.001$ ), thus supporting H1. E-training positively affects stress management ( $\beta = 0.306$ ,  $\rho < 0.001$ ), thus supporting H2. Employment security significantly affects stress management ( $\beta = 0.212$ ,  $\rho < 0.001$ ), thus supporting H3. Stress management positively influences employee performance ( $\beta = 0.256$ ,  $\rho < 0.001$ ), consequently supporting H4. The results of the mediational analysis revealed that stress management fully mediates the relationship between leadership behavior and employee performance, as the indirect effect is significant. However, the direct effect is not significant ( $p$  value = 0.146). Meanwhile stress management acts as a partial mediator between the relationship of e-training, employment security and employee performance, which is significant as both a direct and indirect effect.

**Table 4.** Unstandardized, standardized and mediational analyses.

Unstandardized Estimations							
Endogenous Construct	Path	Exogenous Construct	Estimate	S.E.	C.R.	<i>P</i>	Result
Stress Management	←	Leadership Behavior	0.429	0.066	6.520	***	Significant
Stress Management	←	Employment Security	0.212	0.091	2.342	0.019	Significant
Stress Management	←	E Training	0.306	0.087	3.506	***	Significant
Employee Performance	←	Stress Management	0.256	0.061	4.162	***	Significant
Standardized Estimations							
Endogenous Construct	Path	Exogenous Constructs	R2	Result			
Stress Management	←	Leadership Behavior, Employment Security and E-Training	0.74	Leadership Behavior, Employment Security and e-Training contribute 74 percent in Stress Management			
Employee Performance	←	Leadership Behavior, Employment Security, E-Training and Stress Management	0.52	Leadership Behavior, Employment Security, e-Training and Stress Management contribute 52 percent in Employee Performance			
Mediational Path Analysis							
Mediational Path		$\beta$ (Indirect Path) a	$\beta$ (Indirect Path) b	$\beta$ (Direct Path) c	<i>p</i> value	Result	
Employee Performance ← Stress Management ← Leadership Behavior		0.429	0.256	0.090	0.146	Full mediation	
Employee Performance ← Stress Management ← e-Training		0.306	0.256	0.394	0.001	Partial mediation	
Employee Performance ← Stress Management ← Employment Security		0.212	0.256	0.229	0.004	Partial mediation	

Notes: n = 268, \*\*\* Significant at 5%, 1% or 0.1% respectively.

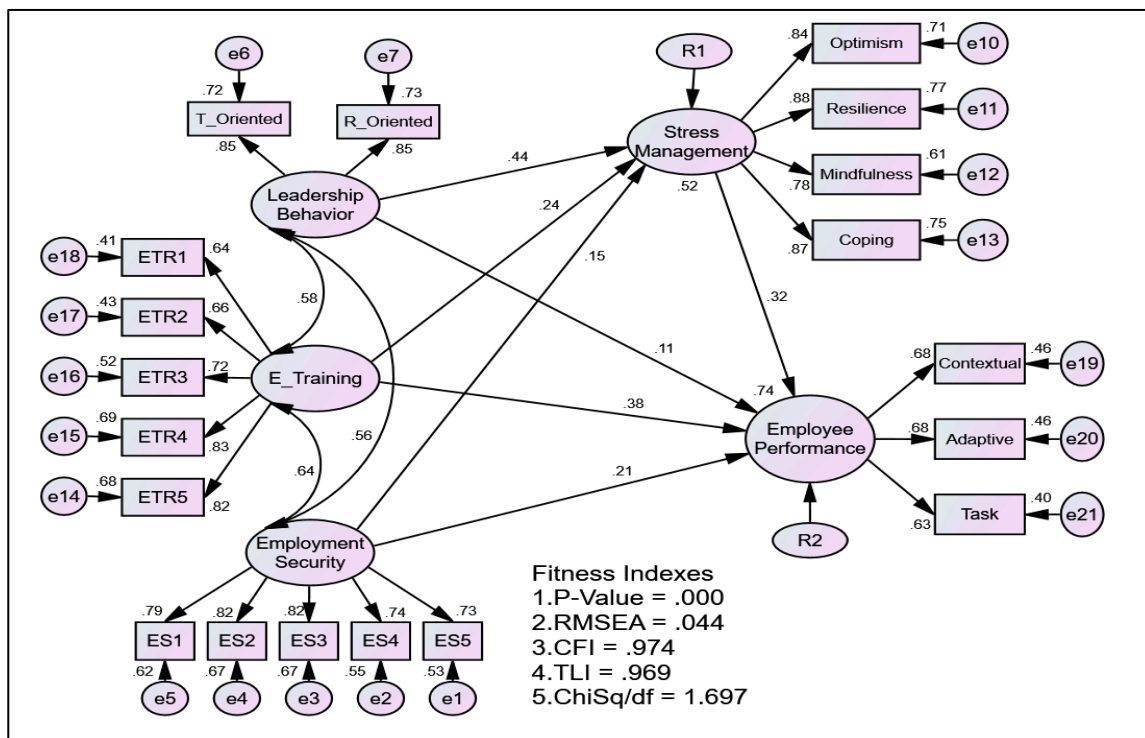


Figure 3. Structural model.

### 6. Discussion

This study aimed to investigate the influence of leadership behavior, e-training, and the effect of employment security on employee performance mediated by stress management while working in a virtual environment during the pandemic. The input–process–output model was adapted to measure the relationships among the constructs under the lens of job demands–resources (JD–R) theory implementation to measure the performance of academic staff. Due to pandemic transformation, the role of leadership, reshaping the organization for survival and better performance appeared to be significant (Dirani et al. 2020). Therefore, the appropriate behavior of the leader helped to manage the stress level of employees in the workplace (Schmidt 2014; Schaufeli 2015; Bahkia et al. 2020). The findings of this study are consistent with previous studies, emphasizing that the behavior of leaders had a significant positive effect on stress management during the COVID-19 pandemic (Dirani et al. 2020). A rapid virtual transformation had triggered challenges for managers on how to manage dispersed employees (Cascio and Montealegre 2016), and thus the appropriate leadership behavior contributed to the lower stress level during the pandemic (Katić et al. 2019; Bartsch et al. 2020).

Second, training is an important component in managing stress during unprecedented times. This study revealed that e-training sessions for teaching staff during the pandemic help to reduce their stress level and increase their resilience, optimism and make them more mindful during the major transformations from teaching in physical facilities to online classes. Our findings are similar to the studies, emphasizing that training sessions are helpful in developing skills of employees and managing stress effectively (Grawitch et al. 2015). Additionally, training helps to improve employee resilience and mindfulness (Van Wingerden and Derks 2018; Sahlin et al. 2014; Van der Riet et al. 2014). Furthermore, training programs lead to improved employee coping behavior (Lacerenza et al. 2017).

Third, the study examines that the security of the employees during the pandemic improves the management of stress level. The emergence of the COVID-19 pandemic exposed various employment security challenges (Carter and May 2020; Sanchez et al. 2020). Therefore, employee security concerns have a significant effect on the psychological health and wellbeing of employees during the pandemic (Pacheco et al. 2020). These

concerns appear to be a potential stressor in this era (Pacheco et al. 2020) that causes stress, anxiety, and depression among employees (Wang et al. 2018). The findings of this study demonstrate that the security of employment has a positive effect on the management of stress of teaching staff.

Fourth, the study revealed that the proper stress management of employees positively influences employee task and contextual and adaptive performance. Therefore, the findings are similar to previous studies, which evaluated the influence of stress management on employee productivity, task performance, efficiency, and day-to-day functionality (Adim et al. 2018; Bužavaitė and Korsakienė 2021). Individuals who are able to manage stress have better perspectives to accomplish their goals (Altindag 2020). Meanwhile, optimism is a source to improve performance (Strauss et al. 2014; Jabbar et al. 2019), resilience (Zehir et al. 2016) and mindfulness (Dane and Brummel 2015).

Finally, this study examines the mediating role of stress management between the relationship of leadership behavior, e-training, employment security, and employee performance. While previous studies suggest examination of the moderating effect of context-related constructs (Dulebohn and Hoch 2017), this study, under the lens of job demands–resources (JD–R) theory, with the implication of the IPO model, examines the mediating effect of stress management during the COVID-19 pandemic. The study revealed that stress management fully mediates the relationship between leadership behavior and employee performance. Finally, the study suggests that the effect of training programs (Grawitch et al. 2015) and employment security cannot be overlooked. The study disclosed that stress management partially mediates the relationship of e-training and employment security with employee performance.

## 7. Conclusions

This study offers several contributions to the literature on academic services. The study reveals that task- and relation-oriented leadership behavior, e-training, and employment security are crucial resources for teaching staff's stress management process and performance. Previously conducted studies addressed work transformations, stress, job insecurity, mental health, and performance of educators during the pandemic crisis (Korsakienė et al. 2015; Duraku and Hoxha 2020; Chapman et al. 2020; Onyema et al. 2020; Hamid et al. 2020; Davidescu et al. 2020; Sahni 2020). Some studies addressed the role of leaders and training to improve employee performance and work-life balance (Bartsch et al. 2020; Wolor et al. 2020). However, these studies examined the isolated role of leadership or training in performance. To the best of our knowledge, this is the first study to address the integrated effect of leadership behavior, e-training, and employment security on employee task and adaptive and contextual performance of academic staff.

### 7.1. Theoretical Implications

First, based on the input–process–output (IPO) model (Liao 2017), this study offers insights that task- and relation-oriented leadership behaviors, e-training, and employment security are input into the stress management process, leading to better performance during and after the pandemic crisis. This study supplements the work of Bartsch et al. (2020), who stated that effective leadership behavior is an input factor for better performance outcomes of service employees. In contrast, this study extends the IPO model by adding e-training and employment security and examined that, for better performance, pandemic-induced stress should be managed with effective leadership behavior, online training, and security of stable employment. In addition, many studies discussed that job insecurity caused stress among employees that negatively influenced performance (Patro and Kumar 2019). Few studies addressed the impact of employment security on stress management to improve performance outcomes. Therefore, this study contributes to the scarce literature.

Second, this study integrated JD–R theory with the IPO model, as pandemic-induced work transformations created stress, burnout, exhaustion, insecurity, and skill discretion. These changing aspects are job demands that require physical and psychological costs. At

the same time, effective leadership behavior, e-training, and employment security are job resources to manage stress that positively influence employee performance. Additionally, this study extends the stress management process by combining optimism, resilience, mindfulness, and coping behavior. Therefore, the study provides an aggregated understanding of leadership behavior, e-training, and employment security (as input and job resources), optimism, resilience, mindfulness, and coping behavior for stress management (process) to improve employee task, adaptive, and contextual performance (output).

### 7.2. Managerial Implications

Regardless of severe pandemic effects on performance and mental health of academic staff; leadership behavior, e-training, and employment security are decisive in managing stress and performance in uncertain circumstances. This study revealed that leadership behaviors, online training sessions, and employment security contribute to addressing the stress level among employees and lead to favorable outcomes regarding employee task and adaptive and contextual performance. This study offers implications to educational institutions that during work transitions and uncertain situations, task- and relation-oriented leadership behaviors, training programs, and employment security are mechanisms to improve and sustain employee performance. Furthermore, these factors contribute to the stress management process by developing optimism, resilience, mindfulness, and coping behavior in uncertain situations. Educational institutions could use these findings to manage employee stress for better performance during change orientation, work transformations, or uncertain circumstances.

### 7.3. Limitations and Future Recommendations

Research studies about the business and economic disciplines are typically encountered with several limitations for apparent reasons, and the current research has no exceptions to the phenomena. The limitations of this study indicate directions for future researchers. First, this study is cross-sectional in the time horizon, and academic staff were used as a single source of data collection. Future studies can address this shortcoming by taking data from secondary sources (Podsakoff et al. 2012). Moreover, a longitudinal survey can be conducted to examine the effect of leadership behavior, e-training, and employment security on stress management and its effect on the long-term performance of academic staff. Second, this study considered the performance outcomes during the pandemic crisis. However, a similar model can be applied to measure employee performance in a post-pandemic duration. Furthermore, the moderating role of work–life balance and self-motivated work behavior can be examined. Third, this study addressed the impact of work transformations on stress management and academic performance staff. Future studies can implement an IPO model to manage the stress level of front-line service providers working at the risk of their health.

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