INFLUENCE OF IT MINDFULNESS ON TECHNOSTRESS AND EMPLOYEE WELL-BEING AMONG MEDIA AGENCY EMPLOYEES: A STRUCTURAL EQUATION MODEL ANALYSIS AND AN EXPERIMENTAL STUDY

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อิทธิพลของสติทางเทคโนโลยีต่อความเครียดทางเทคโนโลยีและความผาสุกในงานของพนักงานมีเดียเอเจนซี่: การวิเคราะห์โมเดลสมการโครงสร้างและการวิจัยเชิงทดลอง

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BY

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Working lifestyles have changed massively and affected well-being at work since the work-from-home phenomenon during the pandemic. The studies showed employees working from home spent long hours in front of screens, causing a rise in technology stress: technology invasion between work and home, resulting in negative wellness at work. Previous literature has studied stress in terms of mindfulness. Limited studies focused on mindfulness, 'IT mindfulness' and its role in diminishing technostress and well-being. However, the intervention research on these constructs is limited. The present study aimed to investigate the new construct, IT mindfulness, and its moderating role on technostress on employee well-being. The methodology was as follows: the first phase was SEM analysis using a survey, with a sample size of 220, to investigate the role of IT mindfulness in the relationship between technostress (independent variable) on employee well-being (dependent variable). The researcher tested the hypothesized relationship between the study variables. Then, Phase 2 included the experimental study and the IT mindfulness intervention program. It compared pre-post and follow-up studies testing the effectiveness of the program in reducing technostress. The results were based on SEM analysis, the results showed that technostress antecedents had a negative impact on well-being (-.59 $p < .05$) and job satisfaction (-.39, $p < .05$). The results showed a significant adverse effect between technostress and IT mindfulness (-.37, $p < .05$). IT mindfulness did not significantly affect employee well-being and job satisfaction and did not moderate the relationship between technostress and employee well-being. Technostress had a mediating role in the relationship between IT mindfulness and employee well-being. This experimental study by creating an IT mindfulness program to reduce technostress and increase well-being. The results of the intervention program proved that IT mindfulness intervention program increased IT mindfulness level in the experimental group (pre vs. post -4.35, $p < .01$) when tested after the intervention and decreased the technostress level of the participants (pre vs. post 3.56, $p < .01$). In conclusion, the current research contributed to future research in using IT mindfulness elements to mitigate work stress. The present study can generate new insights for media agencies and tech-related organizations. The knowledge from the IT mindfulness program could be employed at an individual level.

Keyword : MINDFULNESS TECHNOSTRESS WELL-BEING JOB SATISFACTION

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DEW INTAPUNYA

TABLE OF CONTENTS

Page

List of tables

Page

List of figures

Page

CHAPTER 1
INTRODUCTION

Background

The COVID-19 pandemic has jeopardized the well-being of employees (OECD, 2021). The work-related well-being of the working population worldwide during the COVID-19 pandemic has been affected by changes in economic activities and our way of working (Lades et al., 2020). Downside outcomes have been found due to the work-from-home (WFH) working lifestyles (Pandey & Pandey, 2021). For instance, employees who spend almost all their time working inside the company's physical space must shift to remote working, leading to another consequence: the inability to separate work and private life (Palumbo, 2020). Forbes, a global business publisher, reports that 94% of employees are stressed, and 90% mention that a new normal way of work affects their home lives (Laker, 2021). These sudden transitions cause harmful consequences associated with adverse effects on well-being (Achor, 2018).

Employee well-being is significant to effective management practice and organization (Wright, 2006). Employee well-being, such as happiness and relationship, is a crucial ingredient of a healthy organization (Pawar, 2016) and is congruent with organizational performance (Van De Voorde et al., 2012). For example, when an employee feels stressed and burnout, it affects work performance and personal health (Elder et al., 2014). McKinsey, the global management consulting company, reports that employee stress affects productivity, leads to voluntary turnover, and costs organizations nearly $200 billion annually in medical costs (Pfeffer, 2018).

Since the COVID-19 pandemic, most organizations have inevitably implemented remote working policies such as 100% work-from-home and alternating teams to prevent the disease's spread (Kramer & Kramer, 2020). Those remote working practices provides lack-of-commute benefit allowing employees to continue their jobs from home and anywhere (Ozimek, 2020). In addition, teleworking outside the workplace has continued and has become a new way of working, yet it negatively impacts

employee well-being such as stress experienced during WFH (Galanti et al., 2021). Scholars have attempted to examine the factors that cause employees' ill-being during the pandemic and evidence leading to the direction of remote working (Juchnowicz & Kinowska, 2021).

Implementation of new technological tools for remote working becomes vital and critical in work environments (Urbaniec et al., 2022) leading to technostress of employees due to more work during the weekends (Song & Gao, 2020). IT yields negative consequences called “technostress'' or stress coming from excessive use of technology (Ragu-Nathan et al., 2008). For instance, two significant causes of technostress, called technostressors, have been known as “information overload" and “techno-invasion” (Perez-Pereda et al., 2022).

Research in technostress has grown as the digital era (Grummeck-Braamt et al., 2021). Behavioral sciences scholars have explored the incidences and published multiple works on the association between technostress and impact among employee well-being for decades. Results show that technostress has been found to negatively affect the well-being of employees, including engagement and overall well-being (Wu et al., 2022). For instance, human-machine interactions can lead to the experience of stress (Körner et al., 2019). Furthermore, work overload and flexibility due to technology usage increase work-life conflicts (Yun et al., 2012). In Thailand, multiple ICT research has confirmed the effects of technostress on employee well-being. For instance, heavy use of IT, such as excessive use of smartphone lowers psychological well-being (Tangmunkongvorakul et al., 2019), and causes work-related issues such as job satisfaction, job issues, and job effectiveness (Boonjing & Chanvarasuth, 2017).

Previous studies mention that five predictors called ‘technostressors’: overload, invasion, complexity, insecurity, and uncertainty, are antecedents of technostress (Tarafdar et al., 2007) and impact professional employees' lives such as reducing employee well-being (Fuglseth & Sørebø, 2014), increasing exhaustion (Maier et al., 2015), lowering job satisfaction, increasing burnout and lower job engagement (Srivastava et al., 2015). Furthermore, technostress reduces job commitment and job

satisfaction and increases turnover intentions (Boyer-Davis, 2019). So literally, technology advancement now leads to damage to employee well-being, and the impact has grown across business sectors, especially the most hi-tech sectors, such as digital-led companies.

Multiple studies explore the ramification of excessive use of technologies in terms of stress in Thailand's context, yet not precisely to the technostress construct. However, based on current knowledge, one research studied the technostress construct during WFH in the banking sector (Khongmalai et al., 2022). The research confirms the similar findings that shifting to new remote working consists of complexity, overload, invasion, and insecurity during the COVID-19 pandemic leading to employees' negative well-being, including experiencing technostress.

One of the heaviest relying on digital tech-tool is the media agency sector or the industry, with agents consulting companies on how and where to advertise and spend the annual media billings. The media sector is enormous in volume and value, delivering billions of USD annually. In Thailand, the Media Agency Association of Thailand (MAAT) data projected yearly media spending of around 116 billion Baht in 2022 (MAAT, 2022). As such, media agencies are progressing and transforming toward digital disruption. However, the inconvenient truth is that when shifting to new normal ways of working and relying heavily on technology, these employees face negative impacts on their well-being (Fuglseth & Sørebø, 2014). This problem is considerable to psychologists and behavioral scientists. Therefore, mitigating approaches to handle with this negative phenomenon, one of Thailand’s vital industries, are urgently required.

In the empirical literature, the technostress construct has been explored in several sectors, such as salespeople (Alnakhli, 2019), supply chain (Penn, 2016), library users (Sami & Pangannaiah, 2006), nurses (Tacy, 2016), accountants (Saganuwan et al., 2015), and academicians (Jena, 2015). However, based on current knowledge, research about technostress on media agency workers needs to be conducted. The current study aims to build new knowledge that contributes to the well-being of the employees working in the digital era, such as the media agency employees.

As applied psychologists in IO, the concern about employees' well-being has been the principal focus. Therefore, the current study, aiming to study the phenomenon and create newly applied strategies to mitigate technostress, adds new knowledge about how technostress can impact employee well-being and create strategies to reduce the issues. The researcher incorporated theories of technostress and its implications, which ultimately can benefit the media agencies and other business sectors that face similar problems.

It is significant to draw attention to research on technostress conducted from a psychological perspective (Westlander, 1990). The researcher had reviewed the most updated studies to find positive psychological constructs that can scientifically decrease technostress such as leadership (Brennan, 2021) and self-efficacy (Kim & Lee, 2021). The current study found that mindfulness is one tangible variable that can effectively alleviate technostress (Azpíroz-Dorronsoro et al., 2023).

Literature has published a few studies about new technology-related mindfulness, called IT mindfulness (Thatcher et al., 2018). The construct of IT mindfulness has been explored with a focus on its relationship with technostress. IT mindfulness, therefore, is promising to be exploited to mitigate technostress. However, it still needs to be further explored scientifically and systematically. Recently, one study proves that IT mindfulness has a solid relationship with reducing technostressors in the workplace, increasing well-being, and reducing employee burnout (Pflügner et al., 2021). Notwithstanding, that research has not explained how the technostress mechanism impacts well-being and how it can be mitigated. As known that mindfulness can be increased through practice (Shapiro et al., 2016). The current research added new knowledge of the IT mindfulness program through experiential learning (Yeganeh & Kolb, 2009). In support of this, the present study can fill the research gaps.

The Research Gaps

Previous research has confirmed the liaisons between technostress and well-being in a direct cause-and-effect relationship. For instance, one study shows the mental health consequences of working with computers, such as job-related ill-health

and mental well-being (Nimrod, 2018). Nevertheless, limited research has investigated the role of a variable that may intervene in the relationship. Therefore, the researcher aims to fill the empirical by looking at the role of a psychological construct, IT mindfulness, as a moderating variable that affects the relationship between technostress and employee wellbeing.

One technostress study investigated technostressors with psychological construct mindfulness and IT mindfulness (Ioannou & Papazafeiropoulou, 2017). Still, the practical application of IT mindfulness, such as studying IT mindfulness in intervention research, has yet to be found. Moreover, the findings do not cover specific technostress prevention approaches or the development and evaluation of interventions. The present study aims to fill the practical knowledge gap by creating and examining the applied use of IT mindfulness intervention in reducing technostress and increasing employee well-being within the workplace.

Numerous studies about technostress and the well-being of employees have been conducted in various high-technology-involved sections, such as banking (Korosec-Serfaty et al., 2021) and accounting (Boyer-Davis, 2019). However, research is scarce in the media agency context. Moreover, based on the current knowledge, the present study is the first one that explored technostress in the media agency industry in Thailand.

Objectives of the Research

The objectives of the current research are:

1. To investigate the moderating role of IT mindfulness in the relationship between technostress and employee well-being, measured in 2 dimensions of affect and job satisfaction.

2. To create an IT mindfulness intervention program and study its effectiveness in reducing technostress and increasing employee well-being, measured in 2 dimensions of affect and job satisfaction, among media agency employees in Thailand.

Significance of the Research

Academic Significance

The current research gives academic significance by generating new knowledge by integrating established theories (technostress, IT Mindfulness, and employee wellbeing), and gaining a new understanding. While IO behavioral scientists know the dark sides of ICT, namely technostress, and have studied it for a long time, the empirical literature has yet to learn the construct of IT mindfulness. Moreover, research about IT mindfulness in association with technostress is rare. Furthermore, research has yet to study the two variables in a media agency, a technology-savvy industry based on the best knowledge. The researcher had reviewed empirical literature about this topic in Thailand and has not found anything. Therefore, the present study can enlarge the IO psychology literature with the new IT mindfulness and its moderating role in the relationship between technostress and employee well-being of IT heavy-user organizations such as media agencies.

Applied Significance

The current research has applied significance to individual employees by providing solutions to enhance employee well-being which is one of the most desired career goals. While employees face challenging technostress situations, which reduce employee well-being, a solving strategy will be needed. The IT mindfulness program of the current study performs as a self-help guide that each employee can practice enhancing their well-being. While at the organizational level, this program provides a new applied science to literature. The applied knowledge from the current research creates the practical implications of the IT mindfulness program that can yield tangible benefits to organizations and provide human resource management solutions in organizations. Understanding the causes of technostress and implementing the right anecdotes to mitigate the stressors, organizations can use the IT mindfulness program to develop a sustainable self-help manual to boost employee well-being. The current research benefits HR and the organization by giving proven guidelines to cope with the significantly growing issues.

Scope of the Research

Research Design

The current study had two phases: a structural equation model analysis and an experiential study. Phase 1 of the research was a quantitative study to investigate the influence of IT mindfulness on technostress and employee well-being and its moderating role in that relationship. Then, the researcher analyzed the findings to develop the second phase. Phase 2 of the research was an experimental study using the outcomes of phase 1 to create an IT mindfulness program to reduce technostress and enhance employee well-being. In addition, the researcher studied its effectiveness by comparing pre-post and follow-up IT mindfulness, technostress and employee well-being effects from the intervention and providing learnings as guidelines for organization and future research.

The Population and Sample of the Research

Phase 1 of the Research

The study population comprised 325 media agency employees who are heavy IT users (who use technology in their day-to-day work for at least 8 hours) working in Bangkok, Thailand. The current research justified the population using criteria of geographic (in Bangkok), demographic characteristics (media agency employees), and availability for study (Banerjee & Chaudhury, 2010). The researcher sent the survey to all 325 media agency employees working in 4 media agencies. The sample size was determined by the precision level, where the confidence level is 95% and p = .5. Therefore, the sample size for the current research was at least 190 (Israel, 1992).

Phase 2 of the Research

The 30 respondents who joined phase 1 research and completed the survey were recruited to join the intervention study in phase 2. First, the researcher selected 30 respondents with the highest levels of technostress to participate in the intervention. Then, the researcher divided them into 15 participants for the control group and 15 for the experimental group. Finally, the intervention studied the effectiveness of the IT mindfulness program by measuring pre, post, and follow-up testing scores of the study constructs among participants.

Technical Terms

Media Agency

Cambridge Dictionary defines a media agency as a company that advises companies on how and where to advertise and how to present a positive picture of themselves to the public and conducts commercial activities including, but not limited to, the purchasing of airtime and the booking of advertising space for and on behalf of advertisers (Dictionary, 2008).

Media Planners

A media planner is an employee who works in a media agency, creates a media campaign for clients, and orchestrates the placement of their client's advertising copy into various media venues that maximize advertising reach toward the client's target audience.

Operational Definitions

IT Mindfulness

IT mindfulness is when the IT user is aware of the present, is careful with details, considers other IT used, and shows genuine interest in knowing IT features and failures (Thatcher et al., 2018). The current study uses the operational definition by Thatcher et al. (2018) in which IT mindfulness level can be developed based on the promotion of the four dimensions:

- The alertness to distinction (AD) means the level of mindfulness IT users can understand IT usage capabilities and the context in which IT capabilities will prove more useful.
- The awareness of multiple perspectives (AP) means the level of mindfulness IT users can identify numerous uses of a specific IT application and develop innovative solutions to emerging problems.
- The openness to novelty (ON) means the level of mindfulness IT users can explore more potential and innovative applications of the deployed system.

- The orientation in the present (OP) means the level of mindfulness IT users can focus on the present moment and adapt technologies to several different contexts.

To measure IT mindfulness, the current research used the IT Mindfulness Instrument consisting of 12 items by Thatcher et al. (2018), which measures AD (3 items), AP (3 items), ON (3 items) and OP (3 items). A five-point Likert scale was used to measure IT mindfulness, ranging from 1 (Strongly disagree) to 5 (Strongly agree) (See appendix 1). Since The IT Mindfulness Scale reflects the IT mindfulness level, a high score indicates a high IT mindfulness level, while a low score indicates a low IT mindfulness level.

Technostress

Technostress is a stress generated from using technology (Tarafdar et al., 2007). The current study used the operational definition by Tarafdar et al. (2007) in which technostress level can be developed based on the promotion of the five dimensions:

- Techno-overload (TO) happens when IT forces an individual user to work faster and longer due to receiving much information from different sources.
- Techno-invasion (TI) happens when an individual always feels connected to IT and can be reached anywhere and anytime.
- Techno-complexity (TC) happens in a situation happening when an individual feels a lack of deficiency in IT skills due to the perceived complexity of new IT.
- Techno-insecurity (TIS) happens when IT users feel insecure that they will lose their job to IT or others keener with IT capabilities could be replaced by new IT.
- Techno-uncertainty (TU) happens when an IT user feels agitated when a continual change and upgrade of ICT inside the organization.

To measure technostress, the current research used the Technostress Creator Scale consisting of 23 items by (Monideepa Tarafdar et al., 2010) which measures TO (5 items), TI (4 items), TC (5 items), TIS (5 items) and TU (4 items). A five-point Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly agree) (See appendix 2). Since The Technostress Creator Scale reflects the technostress level, a high score indicates a high technostress level, while a low score indicates a low technostress level.

Employee Well-being

Employee well-being (EWB) consists of emotional and cognitive reactions when experienced at workplace, referred to as subjective wellbeing (SWB), i.e., job satisfaction and job affect (Kuykendall & Tay, 2015). The current study used the operation definition by (Slemp et al., 2015) in which EWB is employee's cognitive and affective experiences at work including three factors: positive affect, negative affect, and a satisfaction with the job.

To measure employee well-being, the current research measured EWB in 3 dimensions: positive affect, negative affect, and job satisfaction. The Positive and Negative Affectivity Scale (PANAS) (Thompson, 2007) was used to measure positive affect and negative affect and The Michigan Organizational Assessment Questionnaire (MOAQ): Job Satisfaction (Lawler et al., 1979)to measure job satisfaction. The PANAS scale measured positive affect: (5 items) and negative affect (5 items). The Michigan Organizational Assessment Questionnaire: Job Satisfaction measured job satisfaction (3 items). A five-point Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly agree) (See Appendix 3). Since The PANAS reflects the employee well-being level, a high score indicates a high employee well-being level, while a low score indicates a low employee well-being level. Since The MOAQ reflects the job satisfaction level, a high score indicates a high job satisfaction level, while a low score indicates a low job satisfaction level. There are 6 items that have reserve scores.

IT Mindfulness Intervention Program

The researcher developed the IT mindfulness intervention and used it as mitigating strategies to increase IT mindfulness, reduce technostress and improve

employee well-being. At first, the researcher planned to use the five elements of the IT mindfulness construct and form into four modules. The four modules include:

- Module 1: Introduction to the IT mindfulness program
- Module 2: The alertness to distinction (AD) enhancement
- Module 3: The awareness of multiple perspectives (AP) enhancement
- Module 4: The openness to novelty (ON) enhancement

Besides, the program incorporated the Mindfulness Learning Theory by Yeganeh and Kolb (2009) by following its four main learning elements: concrete experience, reflective observation, abstract conceptualization, and active experimentation.

The effectiveness of IT mindfulness intervention means a level of IT mindfulness program that the researcher has designed to reduce technostress and increase employee well-being (measured in 2 dimensions: affect and job satisfaction) of media employees who attend the program (the experimental group) is higher than before attending the program. The level of effectiveness can be measured by the four instruments: the IT mindfulness scale, the technostress scale, the Positive and Negative Affect Schedule (PANAS) scale, and the MOAQ scale.

CHAPTER 2
LITERATURE REVIEW

The current study has two objectives. The first objective is to study the moderating effect of IT mindfulness as the moderating variable on the relationship between technostress as the independent variable and employee well-being, measured in 2 dimensions of affect and job satisfaction, as the dependent variable. The second objective is to create an IT mindfulness intervention program and study its effectiveness in reducing technostress and increasing employee well-being among media agency employees in Thailand. The following chapter reviews the relevant literature that formed the study's basis and developed the current research's conceptual framework.

- Media agencies: industry background in the Thai context
- Technostress
- Employee well-being
- IT mindfulness
- Mindfulness training theories
- IT mindfulness intervention

Media Agency Background in the Thai Context

A media agency is a branch of an advertising agency. Still, the core business advises client companies on how and where to advertise media budgets, and plan and buy media (Cambridge, 2020). A media agency's core task is to ensure that a client's media budget is well-managed, appeals to target audiences (customers), appears in the right place at the right time, and that the client pays the most effective price. Media agency employees are called 'media planners' and 'media buyers.' They are primarily responsible for discovering the company's target consumers and how best to reach them. A media agency receives a predetermined media budget from its clients and gains commission from the given budget.

Generally, media agency employees have the following essential tasks:

- Media buying and negotiating for TV, Radio, Billboards, and online placement
- Professional advice, direction, and advertising counsel
- Data and analytic sharing of key target audiences
- Advertising and marketing of brands, services, or products
- Media planning and strategy development

Media agencies have transformed themselves with digital capabilities in the digital disruption world. Technology, data, and tools are growth areas, so media planners and media buyers need to learn and grow in digital skills. In addition, media agency employees' day-to-day lives must involve digital tools, computer screens, and multi-dimensioned data. In Thailand, the media industry has contributed a tremendous amount of revenue. Price Water House Cooper, a multinational professional services network of firms, stated that the revenue from the media and entertainment sector will account for 600 billion Baht in 2025 (Kate, 2021). The Media Agency Association of Thailand (MAAT) projected annual media spending among advertisers would be around 110 billion Baht (Leesa-Nguansuk, 2022). Hence, media agency employees are key success drivers behind the media agency industry. However, the media agency is a highly stressed job with a 30% turnover rate, considered one of the highest among industries. 85% of media and marketing industries are in a labor shortage (Stewart, 2023). A study released by the National Advertising Benevolent Society (NABS) has revealed that 23% of workers in the media sector find their working environment overly stressful and work more than 55 hours per week (Smith, 2013).

According to the National Advertising Benevolent Society (NABS), the support organization for the advertising and media industry in the U.K. considers the work in the media industry high-pressure (Smith, 2013). Recent research showed that media agency employees face stress and burnout due to working overtime on screen, especially during the remote working era. Due to the nature of the jobs, media agency employees work long hours with technological devices and social media, tight deadlines, numerous teams, and high-performance expectations. The average

spending hours on-screen for media agency workers is 10 hours daily, increasing during work from home. Besides, the media agency is known as a tech-tool-savvy industry. Most work involves technology implementation, including advanced data, programmatic processing, analytical statistics, and precise one-to-one communication. In addition, media agencies use technology to advance advertisers' plans for their media budgets and develop advertising. Therefore, the day-in-a-life of media planners usually involves digging consumer data, connecting to the internet, and performing analysis almost 100% in front of screens.

Technostress

World Health Organization calls stress the 'health epidemic of the 21st century (Fink, 2016). By definition, stress is a non-specific response to any demand (Selye, 1956). Literature analyzes stress in two operational elements: stressors, ecological needs, and strain, which is the potential negative evaluation of an individual to those demands (Khan et al., 1992).

Organizational stress increasingly becomes a significant concern for employees, employers, and society (Bhatti et al., 2010). At the corporate level, work-related stress is stress causing employees of an organization exposed to stressors and it can result in health and performance damage (Florea & Florea, 2016). According to the demands' intensity, duration, and temporal pattern, the related strain can lead to adverse psychological and behavioral outcomes such as well-being (Schneiderman et al., 2005) and organizations' productivity (Dollard et al., 2000)

Technology use is a broad term that can include every interaction between humans and machines. Technostress similarly relates to the transactional stress theory studied in psychological stress literature (Dragano & Lunau, 2020). Technostress is mentioned as a computer technology that can cause stress among its users. The term technostress was first introduced by an American psychologist named Brod (1984). Technostress is "a modern disease of adaptation caused by an inability to cope with new computer technologies healthily" (Brod, 1984). The definition emphasizes that technostress is a severe illness and lists its symptoms: panic, anxiety, resistance,

technophobia, mental fatigue, physical ailments, intolerance, and perfectionism (Champion, 1988). Technostress negatively impacts attitudes, thoughts, behaviors, or psychology, directly or indirectly, and technology (Caro & Sethi, 1985). Recently, the technostress concept has gone mainstream and gained a tremendous amount of research, narrowing to work-related stress caused by increased IT disruption and usage in the workplace. Technostress theories and definitions can be divided into three prongs:

- Transactional and perceived stress
- Biology stress
- Occupational health stress

The mechanism of technostress is like the ordinary model of stress: the stress-strain-outcome. Stress responds first when the threat (stressor) is perceived. Then, the stress response could result in positive or negative outcomes based on cognitive interpretations of the physical symptoms or physiological experience (Selye, 1956). Tarafdar et al. (2019) describes technostress processes as the presence of technological environmental conditions on the individual, which set into motion coping responses that lead to psychological, physical, and behavioral outcomes for the individual.

Literature has examined technostress mitigation from two different perspectives: the organizational perspective and the individual perspective. The organizational perspective includes strategies organizations implement for individuals, like group support, literacy facilitation (Ragu-Nathan et al., 2008), or innovation facilitation (Tarafdar et al., 2010). On the other hand, individual support could be cognitive and behavioral solutions by the individuals themselves. The second prong demonstrates how users attempt to reduce technostress by focusing on the immediate problem or adjusting negative emotions.

Technology is a primary factor leading to technostress (Wu et al., 2022). Therefore, technology-related stimuli are causes of technostress. Those stimuli are called technostressors. The five technostressors are techno-overload, techno-invasion,

techno-complexity, techno-insecurity, and techno-uncertainty (Ragu-Nathan et al., 2008).

Technostressors are classified as

(1) techno-overload (TO) describes situations where IT forces individuals to work faster and longer.

(2) techno-invasion (TI) refers to situations where the individual feels 'always connected' and can be reached anywhere and anytime.

(3) techno-insecurity (TIS) occurs when IT users feel insecure that they will lose their job to computers or to others who are keener with IT capabilities or jobs could be replaced by new information systems.

(4) techno-uncertainty (TU) describes the individuals feeling agitated about the continual changes and upgrades of ICTs inside the organization.

(5) techno-complexity (TC) happens when individuals feel a lack of or deficiency in technology skills due to the perceived complexity of newly introduced IT at work (Tarafdar et al., 2007).

The consequences of technostress are caused mostly by the forms of human-machine interactions that lead to the experience of work-related stress (Körner et al., 2019). Concerning results, technostressors, such as work overload, work-home conflict, invasion of privacy, and role ambiguity, increase the strain on teleworkers (Suh & Lee, 2017; Weinert et al., 2015). In turn, teleworkers' strain has different adverse psychological and behavioral consequences. Technostress results in multiple negative psychological and behavioral ways. For example, it relates to poor productivity, decreased performance, turnover intention, and work-related consequences like job dissatisfaction and depression (Tarafdar et al., 2010). A recent study in China similarly confirms that technostress negatively affects employee well-being and work performance (Wu et al., 2022). Psychological evidence includes a decreased intention to continue teleworking, thus reducing job satisfaction (Weinert et al., 2015). Behavioral consequences include a lack of initiative and energy to socialize and work (Molino et al., 2020). In addition, evidence has shown that technostress rigorously influences

numerous work-related outcomes such as job satisfaction, productivity, turnover intention, and organizational commitment (Ayyagari et al., 2011; Ragu-Nathan et al., 2008; Tarafdar et al., 2007).

In Table 1, the researcher summarizes key psychological outcomes caused by technostress. For instance, multiple studies show that technostress impacted employees, such as job satisfaction, turnover intention, and commitment (Ragu-Nathan et al., 2008; Tarafdar et al., 2007). Other research posits similar outcomes that technostress reduces the intention to stay and increases teleworkers' strain (Suh & Lee, 2017; Weinert et al., 2015).

Table 1: Literature on Technostress Impact on Job-Related Psychological Outcomes

Construct	Psychological outcomes	References
Technostress	Technostress can impact employee job satisfaction, turnover intention, and commitment.	Tarafdar (2007) Ragu-Nathan (2008)
	Technostressors reduce the intention to stay and increase the strain on teleworkers.	Suh (2017) Weinert (2015)

A recent growing literature has recommended future research in finding mitigation strategies in reducing technostress. Based on qualitative research by Penn (2016), the theme from the qualitative interview suggested that maintaining training for technology proficiency and productivity and supporting well-being programs can reduce technostress in organizations.

Employee Well-being

Well-being is a multifaceted concept. Components of well-being can be classified into aspects. For example, in the study by Edgar et al. (2017), well-being is arranged into three aspects: psychological well-being (i.e., happiness), social well-

being (i.e., relationships), and health well-being (i.e., physical health). Well-being is defined multidimensionally, meaning it has various definitions narrated by multiple scholars. For example, well-being is mentioned as positive functioning and referred to the good life definition (Rogers, 1961). An attempt to connect well-being to Aristotle's eudaimonia defines 'psychological well-being' as an individual will be high in psychological well-being to an extent when he has an excess of positive more than negative affect and will be low in well-being in the degree to which negative effect predominates over-optimistic (Bradburn, 1969). However, most literature primarily defines well-being as related to happiness (Diener & Emmons, 1984), subjective well-being (Andrews & Crandall, 1976), and quality of life (Group, 1998).

Psychologists and other behavioral scientists study the construct of 'well-being' by focusing on individuals 'subjective experiences' referring to an individual's judgment of their quality of life based on their standards and emotional perception (de Jong, 2014; Diener, 2000). Hence, the concept of subjective well-being (SWB) represents a person's cognitive and affective evaluations of life" (Diener, 2000). SWB has three main components: the first is positive affect, the second is negative affect, and lastly, life satisfaction (Andrews & Crandall, 1976).

Measurements of well-being are fundamental measures of attitudes and hence can be expected to reflect cognitive and affective elements: reflecting two basic types of influences: affection and cognition (Andrews & McKennell, 1980). Affective well-being (AWB) means the frequency and intensity of positive and negative emotions and moods. Cognitive well-being (CWB) is another facet that measures a cognitive judgment about one's life as satisfying, including life and global life satisfaction (Luhmann et al., 2012).

In a work-related context, well-being is known as employee well-being. Employee well-being can be reviewed as the quality of an employee's experience and functioning at work (Warr, 1990). Other scholars describe employee well-being as a state of physical health and psychological wellness that allows employees to better serve in a work environment (Mohan, 2017); or the extent to which a person feels satisfied (or dissatisfied) with the Job (Warr, 1990). At the same time, the work of the

recent organizational behavioral study considers employee well-being based on happiness, health, and relationships (Grant et al., 2007). Other scholars define employee well-being as the quality of work-life or work-related quality of life as the comprehensive experience and function of an employee from a perspective of both physical and psychological dimensions (Sirgy et al., 2001). Numerous organizational scholars argue that the concept extends to work-related dimensions, such as engagement and burnout (Cropanzano & Wright, 2001). In addition, literature on the employee well-being domain argues that specific job-related characteristics such as stress levels, autonomy, demands of tasks, and workplace social support are related to employees' well-being (Jeurissen & Nyklícek, 2001). The current study used the employee well-being concept that can be measured subjectively by capturing employees' cognitive and affective experiences at work, including the three factors: high positive affect, low negative affect, and a mental evaluation of one's satisfaction with the job (Pradhan & Hati, 2019).

Employee well-being is crucial to an organization and can be stimulated and influenced by workplace interventions (Juniper, 2011). In the approach to health-performance, employee well-being is an important indicator (De Smet et al., 2007) as it contributes to a high-performing organization. For example, satisfied and happy employees are more likely to trust their supervisors, work in harmony with colleagues and drive performance to achieve business goals (Tov & Chan, 2012).

Technostress and Employee Well-Being Research

The impact of technostress is established in numerous pieces of literature. Evidence from the literature showed several psychosomatic symptoms related to technostress, such as anxiety, physical diseases, mental fatigue, and exhaustion (see Table 2). Physical symptoms include muscle cramps, headaches, joint aches, and lack of sleep (Brod, 1984). Technostress social outcomes result in work-family and work-life conflict (Ghislieri et al., 2017; Yun et al., 2012) and in damaging psychological responses, and burnout (Afifi et al., 2018). Table 2 below represents the descriptions of technostress outcome on well-being research.

Table 2: Description of Technostress Outcomes on Well-Being Research

The Relationship between Technostress and Well-Being		
Areas of impact	**Outcomes of technostress**	**References**
Psychological well-being	Technostress causes stress, anxiety, physical diseases, mental fatigue.	Champion (1988) Maier et al. (2015) Al-Fudail and Mellar (2008)
Physical well-being	Technostress causes muscle cramps, headaches, joint aches, and lack of sleep.	Brod (1984)
Social well-being	Technostress causes work-family and work-life conflict.	Ghislieri et al. (2017)

When it is related to work, technology has been associated with higher well-being through enhanced work/life balance, greater autonomy, and more effective communication (Ter Hoeven & Van Zoonen, 2015). When it is related to work, technology has been associated with higher well-being through enhanced work/life balance, greater autonomy, and more effective communication (Dragano & Lunau, 2020). In addition, multiple kinds of literature posit the relationship between technostress and employee well-being, like excessive use of social media affecting employee well-being (Choi & Lim, 2016).

Table 3: Description of Technostress Outcomes on Employee Well-Being Research

The Relationship Between Technostress and Employee Well-Being	**References**
Technostress reduced job satisfaction and organizational and continuance commitment.	Ragu-Nathan et al. (2008)

Table 3 (Cont.)

The Relationship Between Technostress and Employee Well-Being	References
Technostress is inversely related to individual productivity.	Tarafdar et al. (2007)
Techno-overload, such as social media addiction, negatively affects the well-being of employees and students.	Choi and Lim (2016)
One study showed tele-pressure and techno-creators' results associated with the negative effect of ICT demands on well-being indicators.	Pfaffinger et al. (2022)
Technostress has a strong and negative effect on employee well-being. On the other hand, technostress inhibitors significantly and positively affect employees' well-being.	Hang et al. (2022)

Based on the literature review, the current research hypothesizes the impacts of technostress on employee well-being as hypothesized below.

H1: Technostress (techno-overload (TO), techno-invasion (TI), techno-complexity (TC), techno-insecurity (TIS), and techno-uncertainty (TU)) have a negative effect on employee well-being (reduce positive affection, increase negative affection, and reduce job satisfaction).

IT Mindfulness Mindfulness

For decades, empirical studies have reviewed mindfulness as a contemplative science that stems from Buddhist psychology rooted for over 2,500 years (Black, 2011). As the construct of mindfulness has previously been known as the mediation practice and the concentration in the moment, recent literature refers to mindfulness as the quality of a person’s consciousness.

One of the most well-known definitions of mindfulness is paying attention purposively in a particular way in the present moment and non-judgmentally (Kabat-Zinn, 2003). Mindfulness can be conceptualized as a state (Langer, 1992), a cognitive ability (Sternberg, 2000), or a trait (Langer, 1989). As a state, individuals are described as having a propensity toward mindfulness (Brown & Ryan, 2003). As a cognitive ability, mindfulness refers to an individual's typical mode of thinking (Sternberg, 2000). Finally, as a trait, mindfulness is viewed as an individual difference that can be measured similarly to personality. In the psychological and organizational literature, mindfulness was defined as an active information-processing mode (Langer, 1989).

In Thailand, where Buddhist philosophy is dominant with the deep-rooted philosophy, mindfulness is long known as the translation of the Buddhist word or intentness of mind called sati, wakefulness of mind, and lucidity of mind (Davids, 1959). Mindfulness practicing is related to Buddhism philosophy as a matter not so much of doing but of undoing, not thinking, not judging, not associating, not planning, not imagining, and not wishing (Bodhi, 1984). Mindfulness is commonly known and practiced as being in the present moment rather than focusing on past experiences and upcoming plans.

In the ICT domain, mindfulness was first introduced through a study suggesting incorporating mindfulness philosophy into the IT processes, including comprehension, implementation, adoption, and assimilation (Swanson & Ramiller, 2004). However, mindfulness has also evolved as the world moves into digital disruption. As a result, literature appears with the new construct of 'IT mindfulness.' IT mindfulness is the state in which an IT user can stay in the present moment, pay attention to details, show a willingness to consider other uses, and express genuine interest in investigating IT features (Thatcher et al., 2018).

After that, mindfulness from an IT perspective is widely adopted across the organizational field, such as consequences regarding work performance. For instance, organizations could interpret information systems reliably by implementing a mindfulness approach (Butler & Gray, 2006). Moreover, IT mindfulness is lately

grounded on IT-specific context when working with IT, such as when the IT user is aware of the present, is careful with details, considers other IT uses, and shows genuine interest in knowing IT features and failures (Thatcher et al., 2018).

Industrial and organizational behavioral psychologists have recently focused on this construct by developing the systematic concept of IT mindfulness, defined as "a dynamic IT-specific trait, evident only when an individual is working with IT." (Thatcher et al., 2018, p. 5). IT mindfulness is a mental mindset driven by an individual awareness of the context and acceptance of value-adding applications of IT.

IT mindfulness comprises four dimensions:

- The alertness to distinction (AD), meaning the extent to which an IT- mindful user understands the capabilities of IT usage and the context in which they will prove more useful.
- The awareness of multiple perspectives (AP), meaning the IT mindful user can identify numerous uses of a specific IT application and develop innovative solutions to emerging problems.
- The openness to novelty (ON), meaning the willingness of an IT user to explore more potential and innovative applications of the deployed system.
- The orientation in the present (OP) means an IT mindful user can focus on the present moment and thus can adapt technologies to several different contexts.

Work-related outcomes of IT users who have IT mindfulness were mentioned solely in a few works of literature based on the best knowledge. Furthermore, only one piece of literature on IT mindfulness said it found a positive relationship with online task performance (Järveläinen et al., 2021).

IT Mindfulness and Technostress Research

Multiple works of literature show the significance of mindfulness as a coping strategy in reducing technostress, such as linking mindfulness as an individual antecedent to proactive coping for technostress (Tuan, 2022). However, most research focuses on studying mindfulness to increase positive work-related outcomes and

processes such as stress reduction, employee performance, employee well-being, leadership, and ethical decision-making (Reb & Choi, 2014); but research on IT mindfulness is rare. So, in the tactical intervention domain, literature has practiced mindfulness training as a therapeutic technique to enhance and cultivate more mindful states (Segal et al., 2002). One of the most popular programs is mindfulness meditation to cope with stress, such as Mindfulness-Based Stress Reduction (MBSR), developed by Jon Kabat-Zinn at the University of Massachusetts Medical School (Kabat-Zinn, 1982). Another widely known mindfulness training is mindfulness meditation to promote well-being showing results of self-regulated behavior and positive emotional states (Brown & Ryan, 2003). Also, in the investigation, a mindfulness-based-stress reduction (MBSR) intervention showed a strong relationship in lowering stress among clinical populations (Praissman, 2008).

Based on the current knowledge, mindfulness correlates with technostress in a few pieces of literature. For example, the impact of mindfulness has been proven to be a coping strategy to reduce technostress, such as distress venting and distancing from IT can mediate the relationship between technostressors and strains (Pirkkalainen et al., 2017).

Compared to the IT mindfulness study on intervention, it is limited based on the current knowledge. However, Ioannou and Papazafeiropoulou (2017) explored IT mindfulness regarding mitigating strategies to reduce technostress to minimize the negative consequences of ICT usage within an organizational landscape (See Table 4). Based on the research, users with higher levels of IT mindfulness show a reduction in technostress. For instance, a more IT-mindful user can consider alternative perspectives when a problem happens and execute the work processes; thus, techno-overload decreases (Roberts et al., 2007). Furthermore, focusing on the present moment, an IT-mindful user who can adapt their IT application depending on the specific context can vary their response to incoming interruptions by adjusting to the current environment and consciously understanding options. For instance, avoid using a mobile device at home (Ragu-Nathan et al., 2008); thus, techno-invasion decreases.

Table 4: The Relationship between Technostress and IT Mindfulness

Predictors of Technostress (Technostressors)	IT Mindfulness Antecedents (AD, AP, ON, OP)	IT Mindfulness Strategies in Mitigating Technostress
Techno-overload (TO) forces employees to handle multiple disruptions and extreme multitasking with various IT applications.	The orientation in the present (OP) is when an IT mindful user can focus on the present moment and adapt technologies to different contexts.	Using mindfulness to mitigate information technology overload (Pfaffinger et al., 2022; Wolf et al., 2011).
Techno-invasion (TI) is situations where the individual feels 'always connected and can be reached anywhere and anytime.	The orientation in the present (OP) is when an IT mindful user can focus on the present moment and adapt technologies to different contexts.	Using mindfulness to mitigate technology invasion (Chen et al., 2022; Pflügner et al., 2021).
Techno-insecurity (TIS) is where IT users feel insecure that they will lose their job to computers or innovative technology.	The openness to novelty (ON) is the willingness of an IT user to explore more innovative applications of the deployed system.	Using mindfulness to mitigate technology insecurity (Ioannou & Papazafeiropoulou, 2017).
Techno-uncertainty (TU) is situations where individuals feel unsettled against the complexity.	The alertness to distinction (AD) is the extent to which an IT mindful user understands the capabilities of IT usage.	Using mindfulness to mitigate technology uncertainty (Pflügner et al., 2021).

Table 4 (Cont.)

Predictors of Technostress (Technostressors)	IT Mindfulness Antecedents (AD, AP, ON, OP)	IT Mindfulness Strategies in Mitigating Technostress
Techno-complexity (TC) is when individuals feel inadequate in terms of their knowledge and skills against constant changes and upgrades of organizational ICTs	The awareness of multiple perspectives (AP) is the numerous uses to develop innovative solutions to emerging problems.	Using mindfulness to mitigate technological complexity (Pflügner et al., 2021)

IT mindfulness strategies to reduce technostress (five technostressors above) have been posited and widely referred to by scholars. Grounded on a mindfulness-stress causal model, an IT mindful user can demonstrate attention in learning IT applications by opening to novel stimuli and new information, thus reducing the perceived complexity of the deployed IT, techno-complexity, and techno-uncertainty should lower. Furthermore, awareness of situations, looking from different perspectives, or having an additional stimulus, thus decreasing techno-insecurity.

The researcher collaborates with the grand theory of technostress literature (Tarafdar et al., 2015) and four core IT mindfulness elements (AD, AP, ON, OP) and aims to create IT mindfulness strategies to mitigate technostress. As mentioned earlier, the current research hypothesizes that IT mindfulness is negatively associated with technostress by reducing the level of five technostressors.

H2: IT mindfulness (with four dimensions: alertness to distinction (AD), awareness of multiple perspectives (AP), openness to novelty (ON), and orientation in the present (OP)) has a negative effect on technostress (techno-overload (TO), techno-invasion (TI), techno-complexity (TC), techno-insecurity (TIS), and techno-uncertainty (TU).

IT Mindfulness and Employee Well-Being Research

For decades, empirical literature has studied mindfulness as a positive psychological construct and found positive effects on employee well-being in the work context. For instance, after practicing mindfulness in the workplace, employees experienced decreased stress and increased mental health, well-being, and work performance outcomes (Bartlett et al., 2019). A quasi-experimental 3-week mindfulness-teaching intervention has evaluated mindfulness and found that it can promote employee well-being (Rexroth et al., 2017). Besides, mindfulness-based intervention research tested the relationship with employee well-being; results posit that mindfulness moderately affects outcomes such as stress, anxiety, distress, depression, and burnout (Lomas et al., 2019), compassion and empathy, and positive well-being. An experimental intervention was performed among 238 UK employees for eight weeks to use a mindfulness meditation practice app showed findings such as significant improvement in well-being, distress, and job strain (Bostock et al., 2019).

In Thailand, several research studies were positively and directly associated with employee well-being. For example, mindfulness practice in physical training and mindfulness meditation programs delivered via a smartphone application (app) is researched to improve employee well-being. In addition, recent quantitative research has been done with college students and found that mindfulness was found to have a positive and robust relationship with eudaimonic well-being (Jarukasemthawee & Pisitsungkagarn, 2021).

Despite the wide adoption of mindfulness for over a decade by researchers in this domain, there needs to be more research focusing on adapting mindfulness to the IT context. In other words, although most literature research is related to ‘pure’ mindfulness, none has explored the relationship between ‘IT mindfulness’ and employee well-being based on the current knowledge. However, IT mindfulness is grounded in the particular definition of mindfulness. For instance, an IT user can focus on the present moment, show attention to detail, be willing to regard other IT uses, and express absolute interest in investigating IT features (Thatcher et al., 2018). Therefore, the

current research has hypothesized that mindfulness, when being practiced and trained in work-related context including in IT-related work-context, so-called 'IT mindfulness' positively affects employee well-being.

H3: IT mindfulness (with four dimensions: alertness to distinction (AD), awareness of multiple perspectives (AP), openness to novelty (ON), and orientation in the present (OP)) has a positive effect on employee well-being (increasing positive affection, reducing negative affection, and increasing job satisfaction).

The Moderating Effect of IT Mindfulness on Technostress and Employee Well-Being

As described earlier, IT mindfulness is hypothesized to have a negative relationship with technostress (H2), and IT mindfulness is hypothesized to positively affect employee well-being (H3) (Brown & Ryan, 2003; Glomb et al., 2011; Schultz et al., 2015). Theoretically, mindfulness enhances positive affect (e.g., satisfaction) and reduces negative affect (e.g., stress), resulting in high level of well-being (Junça-Silva et al., 2021; Ramaci et al., 2020). As a result, mindfulness is more likely to have a moderating role in the relationship between stress and employee well-being. Therefore, the researcher hypothesized the moderating role of IT mindfulness in the relationship between technostress and employee well-being.

H4: IT Mindfulness (with four dimensions: alertness to distinction (AD), awareness of multiple perspectives (AP), openness to novelty (ON), and orientation in the present (OP)) has a moderating role in the relationship between technostress (techno-overload (TO), techno-invasion (TI), techno-complexity (TC), techno-insecurity (TIS), and techno-uncertainty (TU)) and employee well-being (increasing positive affection, reducing negative affection, and increasing job satisfaction).

In Table 5, the researcher summarized the three study constructs and the operational definitions of the study variables in the current study: IT mindfulness, technostress, and employee well-being (measured in 2 dimensions of affect and job satisfaction).

Table 5: Operational Definitions of The Three Constructs of the Current Study

Construct	Definition	References
IT mindfulness	IT mindfulness is when the IT user is aware of the present, is careful with details, considers other IT uses, and shows genuine interest in knowing IT features and failures that can be developed based on the promotion of the four dimensions: AD, AP, ON, and OP.	Thatcher et al. (2018)
Technostress	Technostress is a stress generated from using technology that can be developed based on the promotion of the five dimensions: TO, TI, TC, TIS, and TU.	Tarafdar et al. (2007)
Employee well-being	EWB is an employee's cognitive and affective experiences at work including three factors: positive affect, negative affect, and satisfaction with the job.	Pradhan and Hati (2019)

Mindfulness and Learning Theories

Literatures have practiced two dominant streams in mindfulness intervention literature: meditative mindfulness and socio-cognitive mindfulness (Yeganeh & Kolb, 2009). The former, mostly known as used, requires a discipline of anchoring the mind in the present moment, such as breathing-awareness practice. However, the latter, developed by social psychologists, emphasizes cognitive applications of mindfulness, such as how we describe experiences and make sense of the world based on our available mental categories.

The researcher had reviewed the literature and placed importance on enhancing the most suitable for the current IT mindfulness intervention program considering theoretical concepts and training format. Therefore, in the present study, the researcher combined the Mindfulness Experiential Learning Practice by Yeganeh and Kolb (2009) in the intervention program.

Recent mindfulness scholars have integrated mindfulness learning with the experiential learning theory (ELT) known as Mindful Experiential Learning Practice (Yeganeh & Kolb, 2009). The new mindfulness experiential learning approach was adopted later because it enhanced the capacity for experiencing, reflecting, thinking, and action (Griffith et al., 2018). The Mindful Experiential Learning Practice incorporates four desired mindfulness learning phases:

- Concrete experience: enhancing mindfulness practices such as breathing and focusing on new touch, sight, sound, and smell.
- Reflective observation: becoming aware of critical time and practice acceptance.
- Abstract conceptualization: questioning assumption-making at the moment and considering other people's perspectives.
- Active experimentation: practicing novel questioning by asking questions that generate possibilities.

The current research covered and followed the four approaches as the core learning concept in each IT mindfulness module.

Regarding the learning format, based on the mindfulness training literature review, most are primarily traditional face-to-face classroom training, such as Mindfulness-Based Stress Reduction (Kabat-Zinn, 2003). Face-to-face training provides benefits such that the trainer can receive participants' undivided attention and show body language. Besides, some practices in the current program such as the oxygen break need participants to meditate walking outdoors. Therefore, the researcher selected to perform the face-to-face IT mindfulness training.

In summary, the researcher ensured the following considerations for better learning. First, regarding information processing, the research had studied and referenced mindfulness-based training to form the program content since IT mindfulness training has yet to be found, as mentioned earlier. Second, the researcher had considered the participants' personalities in the current research 'IT mindfulness program.' Knowing they are heavy ICT users and personality-wise, they are digital-skewed users. Therefore, the program format was traditional ways. Lastly, instructional preference was also a primary concern. Therefore, selecting the right training approach was crucial and required systematic analysis and theoretical endorsement.

IT Mindfulness Intervention

Compared to mindfulness, the theory of IT mindfulness is relatively new. Hence, research about IT mindfulness intervention is rare. However, multiple kinds of literature have also researched and studied mindfulness in multiple formats, including surveys and systematic reviews research. In applied psychology research, most empirical studies have created mindfulness interventions to create positive psychological outcomes in organizations (Petchsawang & McLean, 2017; Schultz et al., 2015). Mindfulness practice in the intervention literature includes the widely practiced Mindfulness-Based Stress Reduction (MBSR) program and the 8-week group-based meditation training program fostering mindfulness (Kabat-Zinn, 1982). The other training beyond mediation practice is Acceptance and Commitment Therapy (ACT) (Ong et al., 2020), which trains mindfulness skills of monitoring and acceptance.

A considerable amount of mindfulness intervention literature suggests a solid and positive relationship between employee well-being and a negative association with stress-related constructs. Table 6 summarizes the mindfulness intervention literature and its positive psychological consequences on employee well-being. For instance, experimental research found that mindfulness-based training has been conducted among financial employees to reduce stress, anxiety, depression, fatigue, and other adverse effects (Grégoire & Lachance, 2015).

The current study had reviewed the literature and gathered findings from mindfulness intervention research that enhanced employee well-being in Table 6 below.

Table 6: Mindfulness Construct Enhances Employee Well-Being Research

Research Description	Psychological Outcomes	References
Experimental research of Mindfulness-based intervention (MBI) among call center employees working for a financial institution in Canada.	After the intervention, mindfulness is increased. As a result, MBI can lessen employees' stress, anxiety, depression, fatigue, and adverse effects.	Grégoire and Lachance (2015)
A systematic review showed that MBI could improve mental health among employees.	MBI can transfer the locus of control for stress from external work conditions to internal metacognitive and attentional resources.	Van Gordon et al. (2014)
Quantitative research among 259 employees in the U.S. showed that mindfulness is related to work-related adjustment.	Mindfulness can reduce burnout, turnover intention, and absenteeism.	Schultz et al. (2015)
Quantitative research data was collected in a survey of 134 white-collar workers in Germany who use IS regularly on mindfulness impact on techno-stressors.	Mindfulness can reduce technostressors by lowering levels of stressors.	Pflügner et al. (2021)

Table 6 (Cont.)

Research Description	Psychological Outcomes	References
College undergraduates were randomly allocated between training in two distinct meditation-based interventions, Mindfulness-Based Stress Reduction (MBSR).	After the intervention, mindfulness increased and mediated reductions in perceived stress and rumination.	Shapiro et al. (2008)

IT mindfulness is grounded on mindfulness theory that both share the present moment orientation and awareness of an individual's behavior (Ioannou & Papazafeiropoulou, 2017); IT mindfulness could be manipulated (Thatcher et al., 2018). Therefore, the researcher aims to create an IT mindfulness training program as a mitigating strategy to reduce technostress and increase employee well-being. Based on the study, "Using IT Mindfulness to Mitigate the Negative Consequences of Technostress," IT mindfulness has a strong relationship with technostress which results in showing that IT mindfulness (being mindful in IT) is positively related to end users' satisfaction (Ioannou & Papazafeiropoulou, 2017). Furthermore, this research elaborates that IT mindfulness can affect user satisfaction through several mechanisms. For instance, the first mentioned mechanism is the ability to focus and engage in the present activity actively (OP) (mindful moment). In addition, another mechanism is the flexibility and adaptability the user can adjust when facing an unexpected working environment, thus resulting in higher end-user satisfaction. Besides, the ‘openness to new learning” (ON) mechanism is another example in which the user is curious and willing to experiment and explore more IT features, as a result, the user experiences higher satisfaction from the ICT. As a result, the current research aims to develop an IT mindfulness program as intervention research and test its moderating effect on the relationship between technostress and employee well-being.

Developing IT Mindfulness Intervention Content

Based on the present study's hypothesis, IT mindfulness is likely to moderate the relationship between technostress (mitigating five technostressors) and employee well-being and job satisfaction (mitigating three elements of employee well-being: increasing positive affection, reducing negative affection, and increasing job satisfaction). Hence, using IT mindfulness to mitigate technostressors can decrease technostress and improve employee well-being. As aforementioned, mitigating technostress can be done with IT mindfulness strategies. The current study integrated and developed an IT mindfulness program and tested its moderating role and effectiveness in reducing technostress and increasing employee well-being and job satisfaction among the pre-post & follow-up of the experimental-group participants in the intervention, based on the theoretical assumption summarized in Table 7 below.

Table 7: Theoretical Assumptions of the Current Research

IT mindfulness antecedents (AD, AP, ON, OP)	IT mindfulness mitigating technostress	Outcome on technostressors	Hypothesis: Outcome on EWB
The alertness to distinction (AD) - Level of mindfulness when IT users can understand IT capabilities and find them useful.	With AD, an IT mindful user can generate new ways of using the system at work (Thatcher et al., 2018).	Decrease (Ioannou & Papazafeiropoulou, 2017).	Increase
The awareness of multiple perspectives (AP) - the IT mindful user can identify numerous uses of IT and develop innovative solutions to problems.	With AP, an IT mindful user shows willingness to explore existing IT features (Ioannou & Papazafeiropoulou, 2017).	Decrease (Ioannou & Papazafeiropoulou, 2017).	Increase

Table 7 (Cont.)

IT mindfulness antecedents (AD, AP, ON, OP)	IT mindfulness mitigating technostress	Outcome on technostressors	Hypothesis: Outcome on EWB
The awareness of multiple perspectives (AP) - the IT mindful user can identify numerous uses of IT and develop innovative solutions to problems.	With AP, an IT mindful user demonstrates curiosity and willingness to experiment and explore existing IT features (Ioannou & Papazafeiropoulou, 2017).	Decrease (Ioannou & Papazafeiropoulou, 2017).	Increase
The openness to novelty (ON) - the IT mindful user is curious and willing to experiment and explore more IT features.	With ON, a mindful IT user stays curious and flexible to experiment with IT (Ioannou & Papazafeiropoulou, 2017).	Decrease (Ioannou & Papazafeiropoulou, 2017).	Increase
The orientation in the present (OP) – the IT mindful user can focus on the present moment and adapt to different contexts.	With OP, a mindful IT user can adapt technologies to several different contexts (Roberts et al., 2007).	Techno-overload decreases (Ioannou & Papazafeiropoulou, 2017).	Increase

The researcher suggested that enhancing IT mindfulness for IT users should increase IT mindfulness. At the same time, IT mindfulness is likely to be a mitigating strategy to reduce technostressors, decreasing technostress levels among IT users.

When technostress among IT users decreases, employee well-being and job satisfaction can increase among the IT users. Putting together the assumptions mentioned above, the current IT mindfulness intervention program will positively affect IT mindfulness, negatively affect technostress, and positively affect employee well-being (measured in 2 dimensions: affect and job satisfaction) among participants. Hence, the current research has additional hypotheses.

The next hypothesis could also be a manipulation check to confirm whether the IT mindfulness program could increase the level of IT mindfulness to participants, as in H5 below.

H5: The IT mindfulness intervention program increases the participants' IT mindfulness level in the experimental group (measuring the effectiveness by comparing scores among pre-post & follow-up phases).

H6: The IT mindfulness intervention program decreases the technostress level of the participants in the experimental group (measuring the effectiveness by comparing scores among pre-post & follow-up phases).

H7: The IT mindfulness intervention program increases the employee well-being of the participants in the experimental group (measuring the effectiveness by comparing scores among pre-post & follow-up phases).

The current study proved the assumption mentioned earlier by studying the interrelationship of the four psychological constructs: IT mindfulness as a moderating variable, technostress as the independent variable, employee well-being, and job satisfaction as the dependent variables.

Conceptual Framework

The current research's conceptual framework was based on empirical literature knowledge from IT mindfulness, employee well-being, and technostress research. Phase 1 of the present research is a structural equation model analysis aiming to study the moderating role of IT mindfulness in the relationship between technostress, employee well-being (affect and job satisfaction) among media agency employees in Thailand. Then, in phase 2 which is an experimental study, the researcher developed an

IT mindfulness intervention program and tested its effectiveness, comparing pre-post and follow-up scores of the experimental group participants in increasing employee well-being and job satisfaction and reducing technostress.

Phase 1

Based on the literature review, the researcher hypothesizes that IT mindfulness would moderate the relationship between technostress and employee well-being (affect and job satisfaction). IT mindfulness is likely to reduce technostress and increase employee well-being and job satisfaction. In Figure 1, the conceptual framework of the first is illustrated.

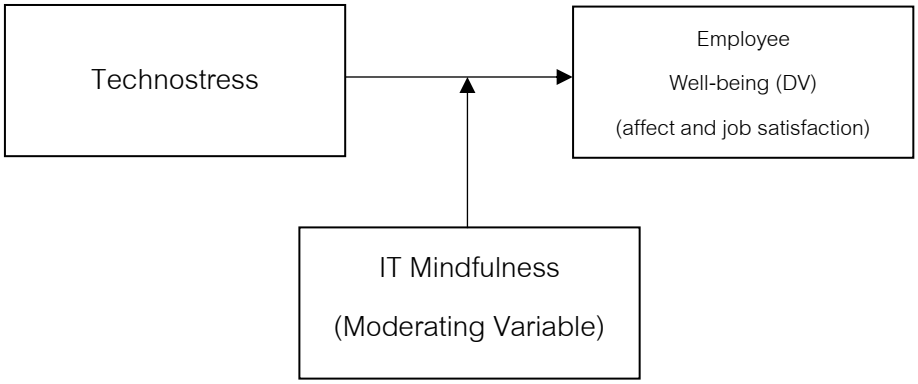


Figure 1: The Conceptual Model of Phase 1

Integration Between Phase 1 and Phase 2

Integration to Test the First Objective

Data and findings from the first phase allowed the current study to know the impact of IT mindfulness on technostress and employee well-being (affect and job satisfaction). In other words, among the four IT mindfulness predictors (AD, AP, ON, OP), which were the most substantial predictors of the independent and dependent variables. By doing the moderation analysis, the researcher identified the different impact levels of each predictor, from high significant, low significant, and no significant, to affect technostress, employee well-being (affect and job satisfaction). Then, in continuing to develop an intervention program in phase 2, the researcher selected the highly significant impact predictors of IT mindfulness and prioritized them as the primary

training content. For example, at the pre-test, it turned out that findings showed that the openness to novelty (ON) was a highly substantial predictor with a high impact on increasing employee well-being and reducing technostress; the researcher brought ON to develop the intervention program. Vice versa, the IT mindfulness predictor did not have a significant effect; the research purposefully omitted that predictor from the intervention program.

Integrating to Achieve the Second Objective

From phase 1, the researcher tested H1-H4 and determined the interrelated impact of the three variables to answer the first research objective. Moreover, a study from phase 1 allowed the researcher to know, among the respondents, who had the highest-lowest technostress scores. These findings allowed the researcher to recruit respondents with the highest technostress scores to join the experimental research in phase 2. As mentioned in the second research objective, the researcher aims to bring the knowledge from phase 1 to develop an IT mindfulness training program to reduce technostress and increase employee well-being (affect and job satisfaction). In the intervention program to minimize technostress aims to benefit participants with high scores of technostress for the same reason.

Phase 2

In phase 2, the researcher developed the IT mindfulness intervention program and tested its effectiveness by comparing pre, post, and follow-up IT mindfulness, technostress, employee well-being, and job satisfaction scores of participants from the experimental group. The conceptual framework of phase 2 is illustrated below.

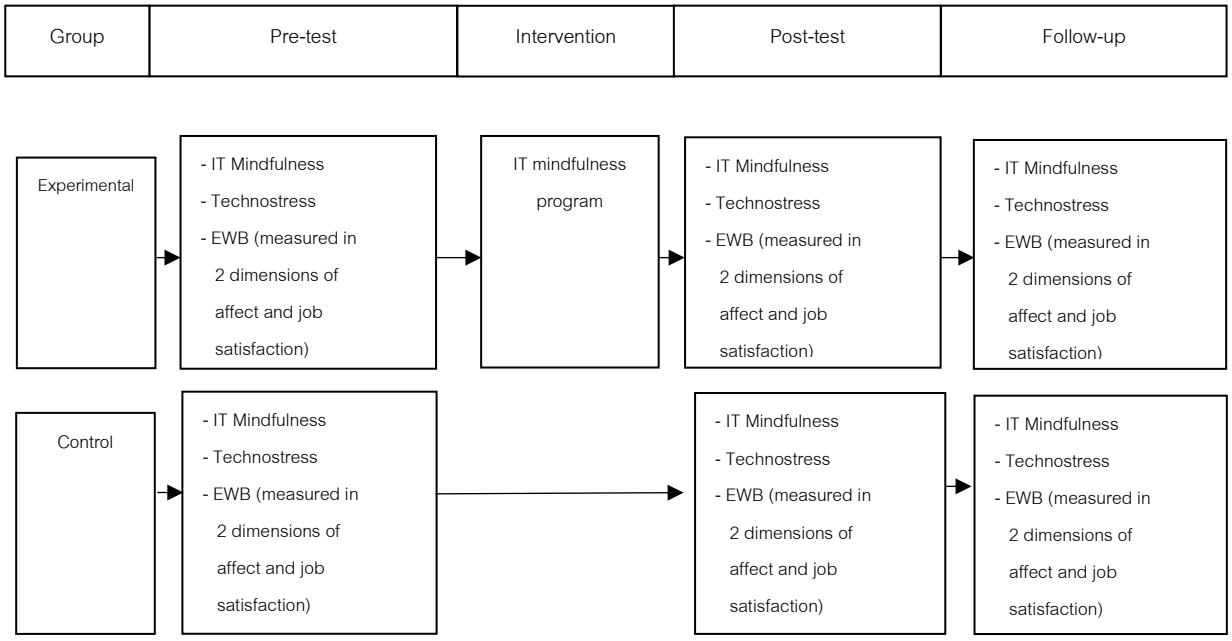


Figure 2: The Conceptual Model of Phase 2

CHAPTER 3
METHODOLOGY

This research aimed to investigate the moderating role of IT mindfulness in the relationship between technostress and employee well-being and to create an IT mindfulness intervention program and study its effectiveness in reducing technostress and increasing employee well-being among media agency employees in Thailand. Hence, in designing the research, phase 1 was quantitative analysis using to investigate the role of IT mindfulness in the relationship between technostress (independent variable) on employee well-being (measured in 2 dimensions of affect and job satisfaction) (dependent variables). Phase 1 research studied the effects among the study variables and validated the moderating role of IT Mindfulness on the relationship between technostress and employee well-being proving H1, H2, H3, and H4 with SEM analysis. Phase 2 research was experimental study implementing the IT mindfulness intervention program, comparing pre-post and follow-up studies on the effectiveness of the program in reducing technostress and increasing employee well-being among media agency employees in Thailand. The IT mindfulness predictors were selected to be in the primary content in the program. Phase 2 validated the effectiveness of the program in reducing technostress and improving employee well-being. Two-way ANOVA with Repeated Measures was used to test H5, H6, and H7.

The researcher followed the research protocol and systematically considered the research aspects:

Timing: the researcher collected the data in a sequential time. The data from phase 1 was compiled based on the first research objective, which was to test the relationship between the three variables. After that, the study collected the afterward data set, which was the results from the experimental study.

Weighting: the weighted significance or the priority of the findings was crucial and was used to determine the researcher's attention. The present study

prioritized phase 2 as applied behaviorist, aiming to use the current IT mindfulness enhancement program knowledge to benefit individual employees and organizations.

Integrating: the researcher combined the data gathered from phase 1 to form phase 2 intervention to gain a holistic body of knowledge and fill the gap in the literature on IT mindfulness, technostress, and employee well-being works.

Research Design

The current research used a quantitative approach in which the researcher followed the research protocols in the following diagram (See Figure 3).

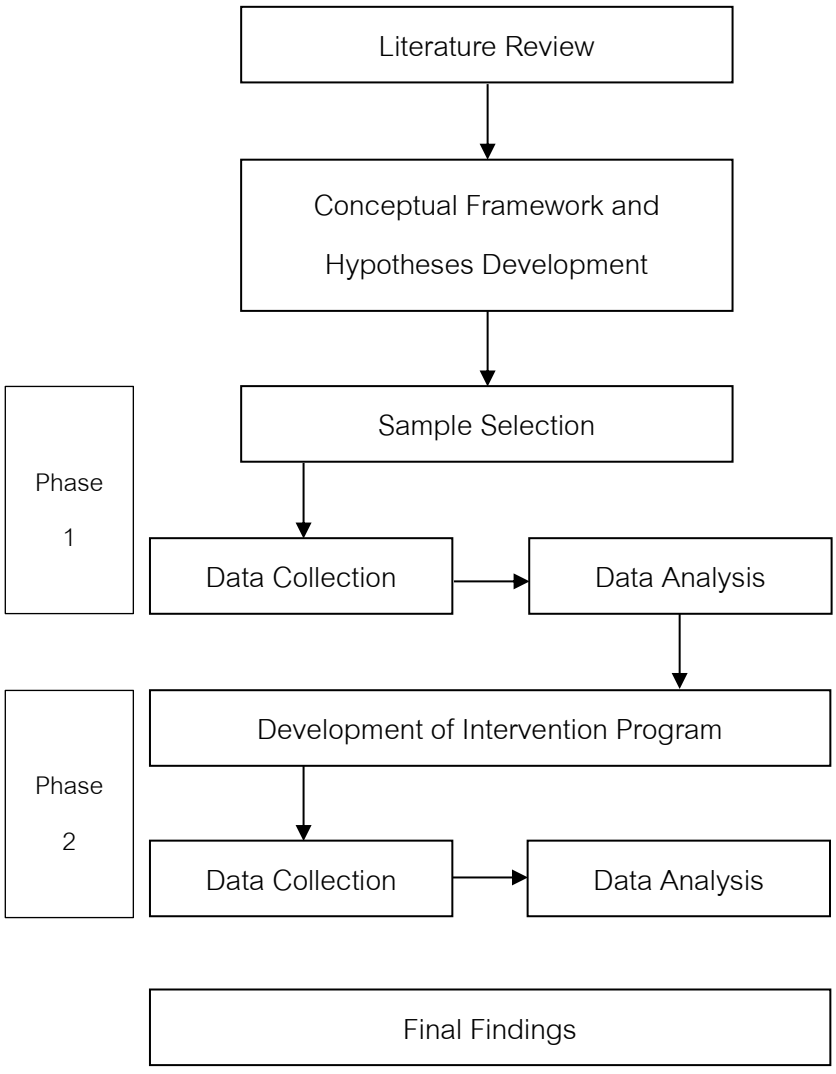


Figure 3: Research Design Step-By-Step Process

Phase 1: SEM Analysis

Research Tool

To measure the moderating role of IT mindfulness and its impact on the relationship between technostress, employee well-being (measured in 2 dimensions of affect and job satisfaction). The present study developed questionnaires as a data generation method. All questionnaire items were adopted from existing literature with reliability from long-known studies in empirical literature. The researcher used Structural Equation Modeling (SEM) and Two-way ANOVA with Repeated Measures as data analysis tools. SEM is appropriately used when a research aims to test the hypothetical relationships among theoretical constructs and their observed indicators (Deng et al., 2018). Two-way ANOVA with Repeated Measures is appropriately used when a research measures a variable over two or more time points (Minke, 1997)

Population and Samples

The current research used convenient sampling to recruit the respondents due to available time, and financial resources. The convenience sampling method is considered one of the most common and widely used sampling techniques (Zikmund, 2010). In this case, convenient sampling enabled the researcher to collect data fast and economically. The population consisted of 325 media agency employees from four selected media agencies in Bangkok, Thailand, heavy IT users working on computers, software tools, and mobile phones for at least six to eight hours daily. After that, the researcher reviewed the justification amount of the sample size by considering sample-to-item-ratio. The ratio should not be smaller than 5-to-1 meaning that the current study had 38 items, so the sample size was suggested to be at least 190 (Memon et al., 2020). For construct-wise, the minimum sample size for a quantitative study with seven or fewer constructs ranged from 150 to 300 (Hair, 2009). Basically, the typical sample size for an SEM study is 200 cases (Kline, 2023). Therefore, the sample size for the current research had to be at least 200. The researcher sent the survey to all 325 users as the whole population and sent the email as a reminder to ensure that at least 200 questionnaires would be returned. In distributing the questionnaires, the researcher asked for the email list from HR from the four selected media agencies for all 325 names

and sent the questionnaires to them via email. The reminder emails were sent to all target samples one more time one week after that.

Instruments

The survey instrument consists of 48 items measuring the three main constructs: IT mindfulness, technostress, and EWB (measured in 2 dimensions of affect and job satisfaction) which were adopted from existing literature with reliability and validity from long-known studies.

The questionnaire consisted of an introductory page where the respondents would understand the research objectives clearly with an information sheet and the respondent's rights concerning confidentiality. The questionnaire was grouped into three sections. The first section was the introductory page, followed by two sections, including the four instruments measuring the research's independent, moderating, and dependent variables. The third section provided questions such as age, hours of IT usage, and professional background items. The questionnaire was translated into Thai, and the researcher checked the clarity of the language and consulted with the experts who are media agency professionals. Once the translation was finalized, the researcher back translated it into English.

IT Mindfulness Scale

The IT Mindfulness Scale shows a four-factor structure: (AD, α = .90), (AP, α = .86), (ON, α = .91), (AP, α = .89) (Thatcher et al., 2018).

The instrument to measure IT mindfulness was a 12-item (Thatcher et al., 2018). A five-point Likert scale was used, ranging from strongly disagree to strongly agree (See Appendix 1).

Technostress Scale

The Technostress Creator Scale (TCS) shows a five-factor structure: Techno-overload (TC1, α = .82), Techno-invasion (TC2, α = .80), Techno-complexity (TC3, α = .77), Techno-insecurity (TC4, α = .78), Techno-uncertainty (TC5, α = .83) (Ragu-Nathan et al., 2008).

The instrument to measure technostressors was a 23-items measuring technostress. A five-point Likert scale was used, ranging from strongly disagree to strongly agree (See Appendix 3) and Thai version (See Appendix 4).

Employee Well-being (Measured in 2 Dimensions of Affect and Job Satisfaction)

The Positive and Negative Affectivity Scale (short version) shows PA and NA factors (PA, α = .88 / NA, α = .87) (Thompson, 2007).

To measure the affective component, the questionnaire contains 10 descriptor words that measure positive affect (PA; 5 items) and negative affect (NA; 5 items). A five-point Likert scale ranged from strongly disagree to strongly agree (See Appendix 5) and Thai version (See Appendix 6).

The Michigan Organizational Assessment Questionnaire: Job Satisfaction (MOAQ) (α = .91) (Lawler et al., 1979).

To measure job satisfaction, the current study used The MOAQ's three items (Lawler et al., 1979). A five-point Likert scale ranged from strongly disagree to strongly agree (See Appendix 7) and Thai version (See Appendix 8).

Procedures

Pilot Study

Before administering a self-administered survey, a pilot study is essential to detect weaknesses in the questionnaire design and assess the feasibility of a full study (Hertzog, 2008). Therefore, the researcher could refine the survey questions and avoid the occurrence of any flaws in the final questionnaires.

Sample Size of the Pilot Study

A pilot study depends on various factors, such as the research question, the study's aim and objectives, the project's size, and the available time and budget of the study. Hertzog (2008) mentioned that there have been numerous suggestions in the exact literature for a pilot study sample, ranging from 10 people to 40 people representing enough to meet a variety of possible. Regarding internet survey research, a sample of more than 30 people representative of the targeted population would be sufficient for the pilot study (Browne, 1995). Therefore, the researcher sent out

questionnaires to 45 media-related employees in one media company employees who are content creators, programmers, web developers, and VDO editors. The researcher got back 38 questionnaires.

Questionnaire Reliability

It is essential to assess the reliability or consistency of an instrument. There are two types of reliability: internal consistency (e.g., Cronbach's Alpha) and stability (test-retest). Generally, +.75 or above indicates appropriate instrument internal consistency. Reliability refers to the internal consistency of a measure so that all items of an instrument reflect the same underlying construct. The reliability of the survey constructs was tested with the statistical program and Cronbach's Alpha (Cronbach, 1951). According to the extant literature, an alpha value above 0.8 is considered a good result, while an alpha above 0.9 is considered excellent reliability. In Table 8, the results of Cronbach's alpha of the current study were presented where all alpha values were above 0.89, thus confirming all constructs of the proposed model had high reliability.

Of the total forty-eight items measuring the four primary constructs, previously established scales were adopted with proven validity and reliability. The result from the test showed that there were ten low correlated items. Therefore, the researcher deleted those items and retained the rest. Consequently, the final instrument used for the quantitative phase consisted of 38 items with Cronbach's alpha score shown in Table 8. Referring to technostress scale, all 4 items from techno-uncertainty got lower than .75 Cronbach's alpha score; therefore, the element TU was omitted for further study.

Table 8: Final Instruments

Factors	Items	Cronbach's Alpha
Technostress	14	0.87
IT mindfulness	12	0.91
Employee well-being	9	0.81
Job satisfaction	3	0.80
Total items	38	

The researcher translated all 38 items into Thai. Then, to find discrepancies and evaluate the accuracy of the translation, all the items were back translated into English or the reverse translation. Finally, the researcher analyzed the translation and compared it to the source text to ensure the translation quality one more time.

Final Instrument Items after the Pilot Test

The final questionnaires on surveymonkey.com consisted of 6 sections, including an introductory page where the respondent was provided with an information sheet briefly describing the study's aim, the respondent's rights concerning anonymity and confidentiality, and the contact details of the researcher supervisor. As shown in Table 8, the four-questionnaire consisted of 38 final items, divided into five sections, where Section 1 consisted of the introductory page, Sections 2-5 included the instruments measuring the independent and dependent variables of the study while Section 6 included the demographic questions including age, number of the working year and numbers of working hours using technology in daily work.

Ethical Considerations

The researcher requested the Ethical Committee of Srinakharinwirot University to approve the research operation. The current research has been approved by the committee on October 16, 2021, document number SWUEC-G-357/2565E.

Data Analyses

Phase 1 of the present research collected data from the quantitative method. After collecting the questionnaires, the researcher used the statistic program to perform the fundamental review of the data, such as identifying any missing data and reviewing the data's normality, linearity, and multicollinearity. In addition, the analysis generated descriptive statistics and demographics of the sample, such as frequency and percentages. In the current study, the researcher used the SEM to examine the data derived from the questionnaires and explained the interrelationship among the three variables: IT mindfulness, technostress, and employee well-being (measured in 2 dimensions of affect and job satisfaction).

Data and findings from phase 1 allowed the current study to know the impact of IT mindfulness on other variables. In other words, among the four IT mindfulness predictors (AD, AP, ON, OP), which among the four were the most significant predictor (s) of the independent and dependent variables. The researcher could identify the different impact levels of each predictor, from high significant, low significant, and no significant, to affect IT mindfulness, technostress, and employee well-being (affect and job satisfaction).

Phase 2: Experimental Study

Phase 2 of the current study was the intervention research to create an IT mindfulness intervention program. In continuing to develop an intervention program in phase 2, the researcher selected the highly significant impact predictors of IT mindfulness gathered from phase 1 to be used in the training content. The researcher measured its effectiveness by measuring pre-post and follow-up IT mindfulness, technostress, employee well-being, and job satisfaction scores of participants using two-way ANOVA with Repeated Measures.

Participants

Respondents were among media agency employees who joined phase 1 of the research and completed the questionnaires. Among those, the researcher recruited the ones with the highest technostress scores to join the intervention. In the intervention, the IT mindfulness program would be more beneficial to participants with high scores of

technostress. For sample size, according to Gall et al. (1996) and Cohen et al. (2017), there should be at least 15 participants in control and experimental groups for the appropriate comparison.

After that, the researcher performed a random assignment by dividing the participants into two groups, consisting of 15 participants for the control group and 15 participants for the experimental group. The experimental group participants were asked to join the IT mindfulness program, while the control group did not have any treatment.

The researcher brought the results from phase 1 showing the predictors of the IT mindfulness construct that significantly and negatively affected technostress and significantly and positively affected employee well-being (affect and job satisfaction) into the intervention program. The researcher measured the scores three times: pre, post, and follow-up.

Table 9: The Intervention Research Design's Variables

Measured variables	Joining IT Mindfulness Intervention Program					
	Control	Experimental	Control	Experimental	Control	Experimental
	Pre (scores)		Post (scores)		Follow-up (scores)	
IT mindfulness						
Technostress						
Employee well-being (affect and job satisfaction)						

Instruments

The research tool in phase 2 comprised two tools: an IT mindfulness program and the four instruments to measure IT mindfulness, technostress, employee well-being (affect and job satisfaction) used in phase 1.

Intervention Program

The researcher designed the IT mindfulness program based on the results from phase 1 by incorporating the same protocol, studying the related intervention theories and research from the empirical literature, and developing an IT mindfulness intervention program to reduce technostress and increase employee well-being.

Integration Using Statistical Results from Phase 1

The results of the quantitative phase showed that three components of IT mindfulness could significantly reduce technostress and increase employee well-being (affect and job satisfaction) which were the alertness to distinction (AD), the awareness of multiple perspectives (AP), and the openness to novelty (ON) (See Table 16 in Chapter 4). Hence, the researcher selected the three components (AD, AP, ON), excluding OP, to create the IT mindfulness program in phase 2.

The intervention program included the three significant IT mindfulness predictors: AD, AP, and ON as shown in Table 10.

- Use IT mindfulness predictor 'AD' to reduce technostress and increase employee well-being by understanding the capabilities of IT usage and the context in which they prove more useful and generating new ways of using the system at work.
- Use IT mindfulness predictor 'AP' to reduce technostress and increase employee well-being by identifying numerous uses of a specific IT application and develop innovative solutions to emerging problems.
- Use IT mindfulness predictor 'ON' to reduce technostress and increase employee well-being by exploring more potential and innovative applications of the IT application.

The current IT mindfulness intervention program selected the first element of IT mindfulness, AD, as the first module since the concept, by definition, should start with understanding (capabilities of IT) first then move on to identifying (the use of that capabilities), and end with exploring more potential ideas (of those capabilities. With this flow in order AD-AP-ON (understanding-identifying-exploring, the learning of IT mindfulness concept should make sense.

Table 10: Summary of the IT Mindfulness Strategies

IT Mindfulness Antecedents (AD, AP, ON)	Expected Outcome on Technostressors	Expected Outcome on EWB (affect and job satisfaction)
The alertness to distinction (AD)	Decreases	EWB (Affect and job satisfaction) increases.
The awareness of multiple perspectives (AP)	Decreases	
The openness to novelty (ON)	Decreases	

Based on the assumption that all predictors of IT mindfulness have a substantial impact on technostress, the researcher had brought them to form an IT mindfulness- program to reduce technostress and increase employee well-being.

The IT mindfulness Program

The IT mindfulness program consisted of four modules as follows:

Module 1: Introduction to IT mindfulness program.

This module introduced the research objectives, the program's significance, the key theoretical concepts (IT mindfulness, technostress, and employee well-being), and the overall details such as the agenda, evaluation, rules, and regulations research the participants.

Module 2: The alertness to distinction (AD) enhancement

This module enhanced IT mindfulness by teaching AD to participants so they could understand the capabilities of IT usage and the context in which they prove more useful. This module showed the participants the significance of enhancing an individual's certainty and control over a situation. The perception of uncertainty could be mitigated by adjusting to the new mindset.

Module 3: The awareness to multiple perspectives (AP) enhancement

This module enhanced IT mindfulness by teaching AP to participants so they could identify numerous uses of a specific IT application and develop innovative

solutions to emerging problems. In addition, this module showed the participants the significance of adapting their IT application depending on the specific context and varying their response to incoming interruptions by adjusting to the current environment and consciously understanding options.

Module 4: The openness to novelty (ON) enhancement

This module enhanced IT mindfulness by teaching ON to participants so they could explore more potential and innovative applications of the IT application. This module showed the participants the significance of escaping from a rigid mindset, focusing on the present, narrowing the perspectives, and narrowing from categories and distinctions formed in the past (Langer, 1989); acknowledging that the situation is not life-threatening and that they can overcome this by changing their skills and knowledge to innovative technologies.

The researcher summarized the intervention program content in Appendix 5.

Program Content Validity

To ensure internal and construct validity, the researcher designed the research content clearly and precisely, following the operational definitions from phase 1 to create the IT mindfulness program content. Then, the researcher checked the program's validity by consulting with three experts: university professors in applied psychology and a Ph. D. executive in a media agency in Thailand. Furthermore, the researcher ensured the content validity and reliability to find the Index of Item-Objective Congruence (IOC). Two prongs were considered for content validity. First was the program's quality, including the congruence of the program modules relating to the research objectives. Second was the quality of the activities, including the objectives, timing, presentation, tools, processes, measurement, and evaluation, measured by receiving +1 (congruent) from at least 2 of the 3 experts. The current research received all approval (+1) from the three experts. Additional recommendations from the experts were combined in the program.

Table 11: Program Content Validity and the IOC Template

IOC scores by activities	Overall IOC	Objectives	Timing	Content	Presentation	Tools	Measure Evaluation
Results of the content validity of the IT mindfulness intervention program by activities							
Module 1	+1	+1	+1	+1	+1	+1	+1
Module 2	+1	+1	+1	+1	+1	+1	+1
Module 3	+1	+1	+1	+1	+1	+1	+1
Module 4	+1	+1	+1	+1	+1	+1	+1

Intervention Research

Pre-Intervention Research

The researcher followed these steps:

- All research involving human participants, either directly or indirectly, must consider the ethical implications. Therefore, the crucial step in doing experimental research is obtaining ethical approval for all research involving human participants. Hence, the researcher requested a letter from the research ethics committee (REC), Graduation Office, SWU, to request the human part research before beginning the research.
- The researcher coordinated with HR departments from the four selected media agencies to request to conduct the IT mindfulness program and purposefully invite the highest score of technostress to join the training program. In the letter, the researcher identified the research objectives and informed the date and time of the training. Finally, the consent letters were sent to the selected participants willing to join the program.
- After receiving the 30 voluntary participants, the researcher divided them into two groups, fifteen of which belonged to the control and another fifteen to the experimental group.

- The researcher prepared the pre-test questionnaires, consisting of four instruments: the IT Mindfulness Scale, the Technostress Scale, the Positive and Negative Affectivity Scale, and the MOAQ: Job Satisfaction.

Intervention program

The researcher started the intervention by implementing the IT mindfulness program including two face-to-face training days, a total of 16 hours. The program comprised 4 modules in Table 12.

Table 12: The IT Mindfulness Intervention Program Training Days

Day 1	Training	Activities	Training Hours
1	1	Module 1	4
1	2	Module 2	4
2	3	Module 3	4
2	4	Module 4	4
		Total	16 hours

Incorporating the Learning Theory

In developing the IT mindfulness program, the researcher incorporated the mindful experiential learning practice theory into the training approach (Yeganeh & Kolb, 2009). With the mindful experiential learning practice, the research enhanced the capacity of participants to experience, reflect, think, and create action during the training, as shown in Table 13.

- Concrete experience: the researcher enhanced mindfulness practices such as inviting participants to have a breathing exercise and focusing on new touch, sight, sound, and smell.
- Reflective observation: the researcher invited the participants to become aware of critical time and practice acceptance.
- Abstract conceptualization: the researcher invited the participants to question assumptions made at the moment and consider other people's perspectives.

- Active experimentation: the researcher invited the participants to practice novel questioning by asking questions that generate possibilities.

Table 13: Integrating Mindful Experiential Learning (Yeganeh & Kolb, 2009)

Mindful Experiential Learning Theory	Concrete experience	Reflective observation	Abstract conceptualization	Active experimentation
Learning behaviors	Practicing Exemplifying	Deep listening Observing	Questioning Theorizing	Brainstorming Asking questions
Learning behaviors	Roleplaying Problem-solving Team playing Ice-breaking	Reflecting Note-taking Presenting Exchanging	Fact-finding	Planning Generating possibilities

Post-Intervention Research

After the intervention program, the researcher asked the control and experiment group participants to do the post-test and 2-week follow-up surveys to measure IT mindfulness, technostress, employee well-being (affect and job satisfaction). The researcher reviewed the literature for previous mindfulness and IT intervention studies to identify the appropriate follow-up phase timing. The follow-up phase ranged from 2 weeks to over 4 weeks. Hence, the researcher adopted the mindfulness intervention research with 2-week follow-up time (Michel et al., 2014) and (Kosasih et al., 2022).

Ethical Considerations

- The researcher strictly followed ethical protocol to ensure no harm or adverse consequences from the current research by following the guidelines (Cooper et al., 2006).
- Providing clear explanations to all participants.
- Getting consent.

- Protecting the identity of the respondents
- Providing participant information, including a brief description of the study's objectives.

Data Analyses

In this phase, after collecting the post-training questionnaires and 2-week follow-up from the control and experimental participants, the researcher inspected and selected only the completed questionnaires to be measured with the statistical program. The researcher used two statistics.

First, to measure the relationship among the three variables (IT mindfulness, technostress, and employee well-being (measured in 2 affect and job satisfaction), the researcher examined the moderating role of IT mindfulness in the relationship between technostress and employee well-being by using the Structural Equation Modeling (SEM) to analyze the moderating role in the model. The statistical analysis used in phase 2 was the two-way ANOVA with Repeated Measures in comparing means across the variables: IT mindfulness, technostress, and employee well-being (affect and job satisfaction) scores of the experimental and control groups.

CHAPTER 4
RESULTS

The present research consisted of two phases. Phase 1 was SEM analysis combining a data collection process and a quantitative method that allowed the researcher to collect data by deploying a survey-based approach. The research used an online questionnaire as a statistical tool to validate the proposed theoretical framework. The Structural Equation Model (SEM) and AMOS version 23 were used to study the effects among the study variables and validate the moderating role of IT mindfulness on the relationship between technostress, employee well-being (affect and job satisfaction) proving H1, H2, H3, and H4. Phase 2 of the research was experimental study. The researcher created the IT mindfulness program and tested its effectiveness in reducing technostress and improving employee well-being (affect and job satisfaction). SEM was used to test the intervention program's effectiveness proving H5, H6, and H7.

Results of Phase 1: The SEM Analysis

The results of phase 1 were divided into two analyses: the descriptive analysis and the SEM analysis.

Descriptive Analysis

Demographic Characteristics of Participants

As shown in Table 14, most of the participants were between the ages of 30-39 (39.55%). Most participants have worked in media agencies between 1 to 5 years (49.55%). In terms of IT usage at work per day, more than half of the respondents were heavy IT users, using IT to support their work for more than 8 hours per day (55.00%).

Table 14: Descriptive Statistics of the Participants (n=220)

Demographic information	Frequency	Percentage
Age in years		
20-29	70	31.82

Table 14 (Cont.)

Demographic information	Frequency	Percentage
Age in years		
20-29	70	31.82
30-39	87	39.55
40-49	56	25.45
Over 50	7	3.18
Number of years of working		
1-5	109	49.55
6-10	37	16.82
11-15	29	13.18
Over 15	45	20.45
Number of hours using IT (daily)		
Below 6	20	9.09
6-8	79	35.91
Over 8	121	55.00

Table 15 showed that the average score of the construct IT mindfulness was the highest among all, equal to 3.97 (SD. = 0.51), followed by the average score of job satisfaction, equaled 3.63 (SD. = 0.79), while the average score of employee well-being was 3.58 (SD. = 0.52) and the average score of technostress was 3.07 (SD. = 0.75). The average IT mindfulness elements score ranged between 3.76 to 4.26 (SD. = 0.52 to 0.73). The average score of technostress ranged between 2.55 to 3.38 (SD. = 0.83 to 1.03). Considering the skewness (Sk.), the researcher found that the average score of all constructs ranged between -0.50 to 0.24, which fell between -2 and +2, while the kurtosis (Ku.) of all constructs ranged between -0.73 to 0.76. Hair (2009) and Byrne (2016) argued that data is normal if skewness falls between -2 to +2 and kurtosis falls between -7 to +7. Thus, the above results indicated that all three variables: IT

mindfulness, technostress, and employee well-being (measured on 2 dimensions of affect and job satisfaction), were approximately normally distributed.

Table 15: Mean, SD, Skewness, and Kurtosis

Variables	Mean	SD.	Sk.	Ku.
IT mindfulness	3.97	0.51	-0.19	0.19
AD	3.76	0.68	-0.44	0.49
AP	4.26	0.54	-0.50	0.60
ON	3.88	0.73	-0.39	-0.14
OP	3.96	0.52	-0.09	0.76
Technostress	3.07	0.75	-0.06	-0.31
TO	3.38	0.83	-0.29	-0.35
TI	3.14	1.02	-0.19	-0.73
TC	2.80	0.87	-0.03	-0.06
TIS	2.55	1.03	0.24	-0.68
EWB	3.58	0.52	0.09	0.21
JS	3.63	0.79	-0.40	-0.12

Note: SD: Standard deviation, Sk: Skewness, Ku: Kurtosis, AD: Alertness to distinction, AP: Awareness of multiple perspectives, ON: Openness to novelty, OP: Orientation in the present, TO: Techno-overload, TI: Techno-invasion, TC: Techno-complexity, TIS: Techno-insecurity, EWB: employee well-being, JS: Job satisfaction

SEM Analysis

For examining the relationship of four study variables and the role of IT mindfulness in the relationship between technostress, employee well-being, and job satisfaction (H1-H4), structural equation modeling (SEM) was used.

The researcher performed the SEM analysis shown in Table 16. All the correlations were tested among the four variables in this model. IT mindfulness and its three elements (AD, AP, ON) correlated with other variables, ranging from -0.39 to 0.33, statistically significant ($p < .01$ and $p < .05$), except OP, which did not significantly

correlate with other variables, ranging from -0.13 to 0.22. The correlation of 3 IT mindfulness elements (AD, AP, ON) was negatively correlated with technostress while positively correlated with employee well-being and job satisfaction. The results showed that when IT mindfulness increased, technostress would decrease. On the contrary, when IT mindfulness increased, employee well-being and job satisfaction would increase.

Table 16: Correlations among Study Variables

Variable	AD	AP	ON	OP	TO	TI	TC	TIS	WB	JS
AD	1.00									
AP	.57**	1.00								
ON	.64**	.71**	1.00							
OP	.55**	.47**	.49**	1.00						
TO	-.14*	-.10	-.04	.08	1.00					
TI	-.10	-.17*	-.09	.01	.68**	1.00				
TC	-.37**	-.34**	-.39**	-.13	.38**	.41**	1.00			
TIS	-.22**	-.29**	-.24**	-.05	.47**	.55**	.59**	1.00		
EB	.26**	.33**	.26**	.13	-.42**	-.38**	-.44**	-.53**	1.00	
JS	.33**	.24**	.22**	.22**	-.29**	-.24**	-.36**	-.34**	.52**	1.00

Note: AD: Alertness to distinction, AP: Awareness of multiple perspectives, ON: Openness to novelty, OP: Orientation in the present, TO: Techno-overload, TI: Techno-invasion, TC: Techno-complexity, TIS: Techno-insecurity, EB: Employee well-being, JS: Job satisfaction, *$p < 0.05$; **$p < 0$ .01

Technostress and its elements significantly correlated with other variables, ranging from -0.53 to -0.14, statistically significant ($p < .01$ and $p < .05$). Technostress elements (TO, TI, TC, TIS) significantly and negatively correlated with IT mindfulness (AD, AP, ON), employee well-being, and job satisfaction ($p < .01$ and $p < .05$). It showed that when technostress increased, IT mindfulness, employee well-being (affect and job satisfaction) would decrease. The model was tested for the goodness of fit (Hair, 2009). Table 17 showed the result of the goodness of fit indices.

Table 17: The Goodness of Fit Indices and Acceptable Level (Moderating effect)

Fit Indices	Acceptable Level	Test of Fit	Result
χ^2	-	35.13	-
df	-	1	-
χ^2/df	< 2.00	35.13	Unacceptable
AGFI	> .90	.16	Unacceptable
CFI	> .90	.97	Acceptable
RMSEA	< .05	.40	Unacceptable
SRMR	< .05	.07	Unacceptable

Note: χ^2:Chi-square, df: Degree of freedom, χ^2/df: Normal chi-square, CFI: Comparative fit index, GFI: Goodness of fit, AGFI: Adjusted goodness of fit, RMSEA: Root mean square error of approximation, RMR: Root mean square residual, SRMR: Standard root mean square residual.

Reporting Fit Indices

The goodness of fit test was performed to assess whether there was a significant association among the variables in the proposed model. When reporting fit indices, it is unrealistic to include every fit index (Hooper, 2008). However, it is suggested to include two indices which are SRMR, and RMSEA or the CFI (Hu & Bentler, 1999). Additionally, scholars recommend to include the use of Chi-square test, RMSEA, CFI, and SRMR (Kline, 2023). Hence, the researcher considered four fit indices to evaluate the model. The first index was χ^2/df. A value of < 2.00 represents a reasonable fit (Hair, 2009). The Second index was CFI. A recommended value for CFI is > 0.90. The third and fourth indices were RMSEA, and SRMR. A recommended value for all three indices is < 0.05.

Table 17 displayed the fit indices of the model. As shown in this table, results indicated that the hypothesized model had a poor fit to the data, as indicated by χ^2/d = 35.13, AGFI = 0.16, RMSEA = 0.40, and SRMR = 0.07. The researcher was aware that fit indices vary sensitivity to extraneous factors which expands the amount of

variability across (Stone, 2021). Therefore, the interpretation of fit should be carefully justified.

The current study proposed the interrelationship among the three study variables and evaluated the moderating role of IT mindfulness in the association between technostress and employee well-being (affect and job satisfaction). Table 18 showed IT mindfulness did not significantly and statistically moderate the relationship between technostress and employee well-being, indicated by β = .12 (p > .05) and job satisfaction β = .09 (p > .05), Hence did not support H4.

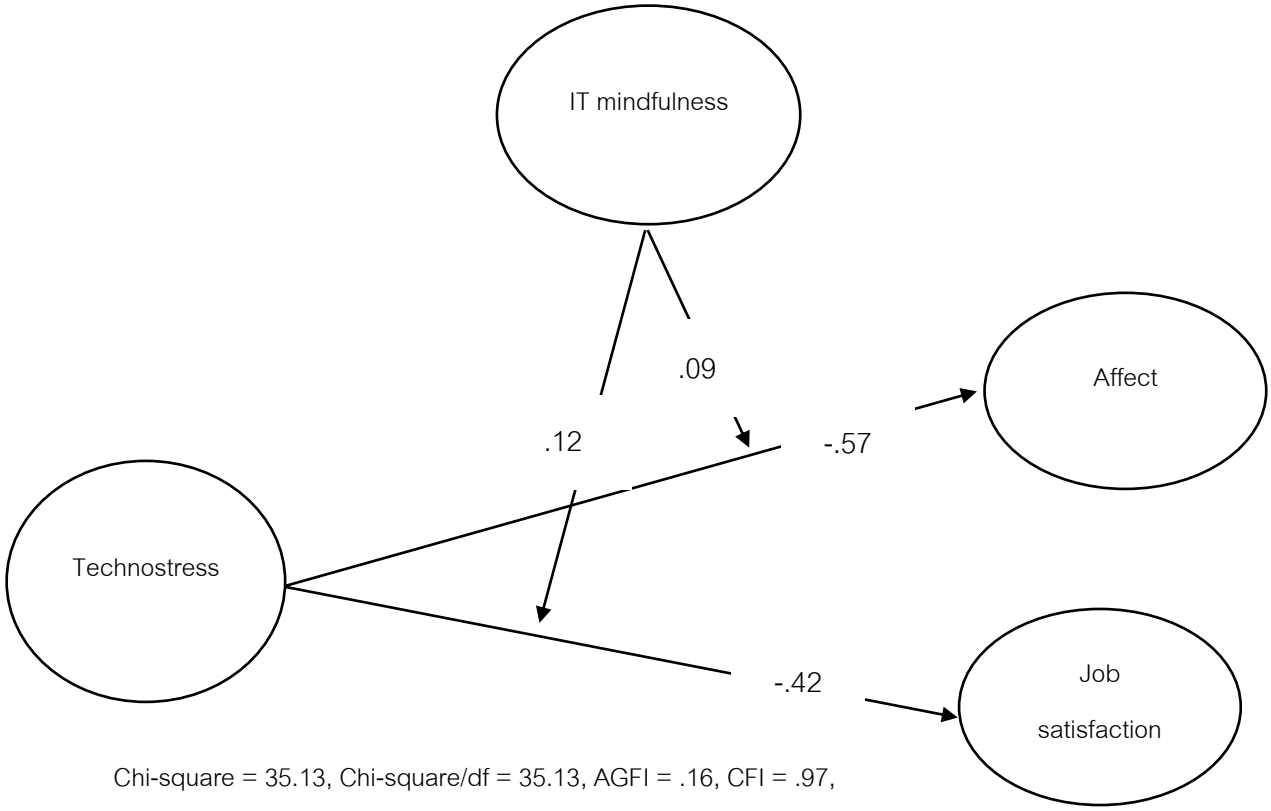


Figure 4: A Path Model of Moderating Effect of IT Mindfulness

Table 18: SEM Analysis Result of IT Mindfulness as the Moderating Role

Dependent Variable	Independent Variable	B	S.E.	beta
Employee well-being	Technostress	-.26	.16	-.57
R^2 = .32				
	IT mindfulness	.11	.16	.15
	Interaction	.00	.00	.09
	(Technostress x IT mindfulness)			
Job satisfaction	Technostress	-.10	.09	-.42
R^2 = .189				
	IT mindfulness	.07	.09	.18
	Interaction	.00	.00	.12
	(Technostress x IT mindfulness)			

*p < .05, **p < .01

Additional Analysis to Examine the Interrelationships of the Study Variables

The results from the current research showed that IT mindfulness was not the moderator in the relationship between technostress and employee well-being and H4 was rejected. Yet, the results demonstrated the direct negative impact of IT mindfulness on technostress (-.36, p <.05) as in H2. Also, technostress had a direct negative impact on employee well-being (-.59, p < .05) as in H1, meaning that using IT mindfulness in reducing technostress was hypothesized to increase employee well-being (affect and job satisfaction). Therefore, technostress role might be a mediating variable in the relationship between IT mindfulness and employee well-being.

The studies of mediating role of stress on the relationship between mindfulness and positive and negative outcomes were found in the literature. For instance, one research studied the stress fully mediated the relationship between mindfulness and depression; mindfulness can reduce depression and anxiety through reducing stress (Valikhani et al., 2020). Stress was found to be the mediator in the relationship between mindfulness and positive outcomes such as physical health (Ballantyne et al., 2021). Also confirmed by Tingaz et al. (2022) that by reducing stress,

mindfulness may positively affect perceived performance. These previous studies showed the mediating role of stress, not technostress. However, technostress is a kind of stress that is mentioned in the IT context as well as IT mindfulness is a kind of mindfulness in the IT context. Therefore, the hypothesis that technostress has a mediating role in the relationship between IT mindfulness and employee well-being (affect and job satisfaction) was created. Therefore, the researcher proposed an alternative hypothesis that technostress has a mediating role in the relationship between IT mindfulness (independent variable) and employee well-being, measured in 2 dimensions of affect and job satisfaction (dependent varible).

H4a: Technostress (techno-overload (TO), techno-invasion (TI), techno-complexity (TC), and techno-insecurity (TIS) has a mediating role between IT mindfulness (with four dimensions: alertness to distinction (AD), awareness of multiple perspectives (AP), and openness to novelty (ON), and employee well-being (increasing positive affection, reducing negative affection, and increasing job satisfaction).

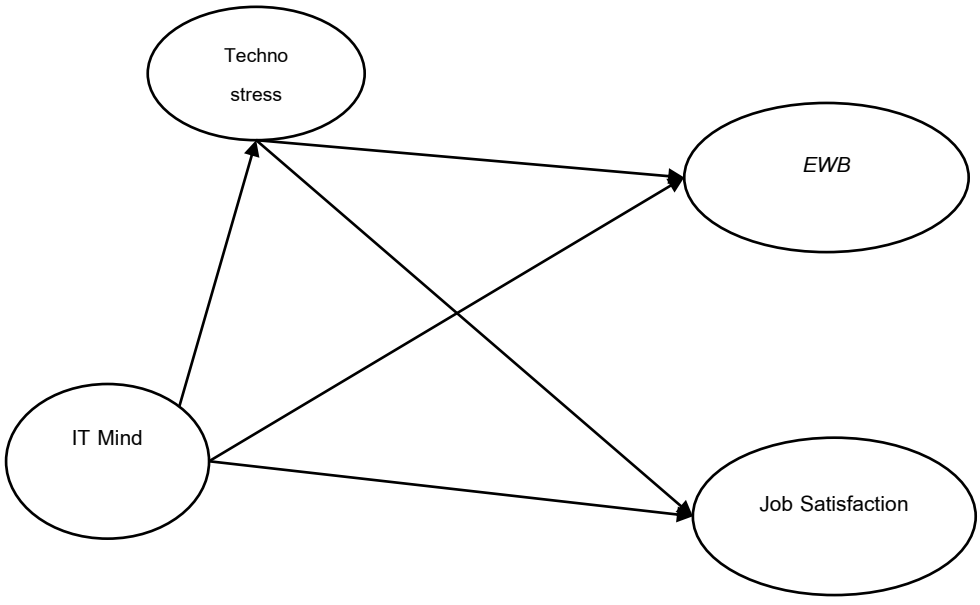


Figure 5: The Alternative Hypothesized Model for Technostress as a Mediator

Additional Analysis to Examine the Hypothesized Role of Technostress as a Mediator

Next was the evaluation of the goodness of fit of the proposed model to reflect how well the model fit the observed data, which was a crucial step (Hooper, 2008). Therefore, the researcher used SEM to analyze the study variables, employee well-being (affect and job satisfaction), as dependent variables, IT mindfulness as the independent variable, and technostress as the mediating variable. Table 19 showed the result of the goodness of fit indices.

Table 19: The Goodness of Fit Indices and Acceptable Level (Mediating Effect of Technostress)

Fit Indices	Acceptable Level	Before Modification		After Modification	
χ^2	-	152.46		28.02	
df	-	32		23	
χ^2/df	< 3.00	4.76	✘	1.21	✓
CFI	> .90	.87	✘	.99	✓
AGFI	> .80	.79	✘	.91	✓
RMSEA	< .05	.13	✘	.03	✓
SRMR	< .10	.09	✓	.05	✓

Hair et al., (2010) Note: χ^2:Chi-square, df: Degree of freedom, χ^2/df: Normal chi-square, CFI: Comparative fit index, AGFI: Adjusted goodness of fit, RMSEA: Root mean square error of approximation, SRMR: Standard root mean square residual.

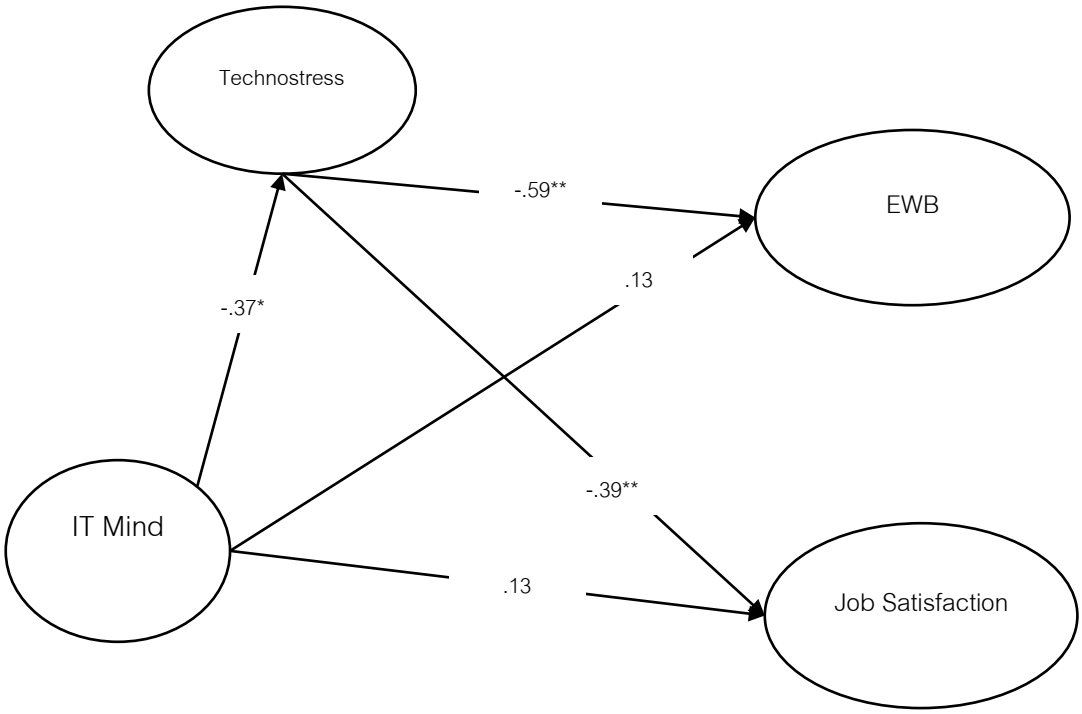
✘ Unacceptable ✓ Acceptable

The goodness of fit test was performed to assess whether there was a significant association among the variables in the proposed model. At first, the fit indices reported that the model had a poor fit (χ^2/df = 4.76, CFI = .87, AGFI = .79, RMSEA = .13, and SRMR = .09). The fit statistic from AMOS recommended the model's fit could be improved. For instance, one modification index indicated that by allowing the errors to co-vary, the fit could be better (Bacon & Bacon, 2001). Therefore, the researcher

modified the model by using the statistics that the program recommended and rerunning the model again for the better fit. The results showed model was fit after modifications (χ^2/df = 1.21, CFI = .99, AGFI = .91, RMSEA = .03, and SRMR = .05).

Structural Model of the Alternative Hypothesis

Having achieved an acceptable measurement model, the researcher proceeded to the structural model to test the proposed hypotheses in Figure 6. SEM procedure using AMOS was conducted to test the proposed structural model of the studied variables to test H4a.



Chi-square/df = 1.21, CFI = .99, AGFI = .91, CFI = .99, RMSEA = .03, SRMR = .05

Figure 6: Structural Model of Technostress as a Mediating Variable (after Modification)

The Direct, Indirect, and Total Effect

The researcher further examined the statistical significance of the direct, indirect, and total effects, as shown in Table 20. A mediation effect of technostress was observed. The direct effect of technostress on employee well-being (β = -.59, p < .01) and on job satisfaction were statistically significant (β = -.39, p < .01). The direct effect of

IT mindfulness on technostress was also statistically significant (β = -.37, p < .05). Furthermore, technostress significantly mediated the relationship between IT mindfulness and employee well-being (indirect effect β = .22 p < .05) and job satisfaction (indirect effect β = .14 p < .05).

Table 20: Direct, Indirect, and Total Effects of the Alternative Hypothesized Model

Path Analysis	Direct effect	Indirect effect	Total effect	R^2
H1: Technostress -> EWB	-.59**	-	-.59**	-
H2: IT mindfulness -> Technostress	-.36*	-	-.36*	.14
H3: IT mindfulness -> EWB	.13	-	-	-
H3: Technostress -> Job Sat	.13	-	-	-
H4a: IT mindfulness -> Technostress -> EWB	.13	.22*	.27*	.42
H4a: IT mindfulness -> Technostress-> Job Sat	.13	.14*	.27*	.20

Note: * p < .05, ** p < .01

The findings showed the relationships between the three variables: IT mindfulness, technostress, and employee well-being (affect and job satisfaction). The result supported H4a that technostress mediated the relationship between IT mindfulness and employee well-being (affect and job satisfaction) since the indirect effect of IT mindfulness was statistically significant.

Integrating Phase 1 Result to Develop Phase 2 Research

The current research investigated the IT mindfulness on reducing technostress and increasing employee well-being (affect and job satisfaction). Results of the SEM analysis showed that three elements of IT mindfulness (AD, AP, ON) could significantly reduce technostress and increase employee well-being (affect and job satisfaction). Table 20 showed that technostress significantly affected employee well-being (β = -.59, p < .05) and job satisfaction (β = -.39, p < .05). It also showed the significant negative direct effect of IT mindfulness on technostress (β = -.37, p < .05). Hence, the researcher selected the three components of IT mindfulness (AD, AP, ON) to

create the IT mindfulness program aiming to reduce technostress in phase 2. When technostress reduces, employee well-being and job satisfaction could increase. Finally, the two-way ANOVA of repeated measures was used to analyze the results proving the effectiveness of the program by comparing pre, post, and follow-up scores of participants in the experimental group. Two-way ANONA of repeated measures was used to assess changes over time in an outcome measured serially in the same experiment (Sullivan, 2008)

Result of Phase 2: The Experimental Study

Demographic Data

30 participants were media agency employees who joined phase 1. Analyzing from the questionnaire results, the researcher intentionally selected them due to having high technostress scores compared to the rest of participants. First, the researcher analyzed the demographic data of 30 participants in Table 21 below.

Table 21: Demographic Information of The Participants (n=30)

Data	Number	Percentage
Age range		
20 – 29 years old	9	30.00
30 - 39	13	43.34
40 – 49	7	23.33
50 - 59	1	3.33
Number of working years		
1 - 5 years	14	46.67
6 - 10	12	40.00
11 – 15	3	10.00
More than 15 years	1	3.33

Table 21 (Cont.)

Data	Number	Percentage
Number of hours using IT at work per day		
Below 6 hours	1	3.33
6 – 8 hours	8	26.67
More than 8 hours	21	70.00

The findings showed the demographic information of participants in Table 21. Among 30 participants, most of the average age was proportionally split between 30 – 39 years old (43.34%). Regarding the number of working years, most participants' working years were 0 – 5 years (46.67 %). Regarding the number of working hours using technology every day, most participants use technology more than 8 hours per day, (70.00%).

Preliminary Examination

Hair (2009) mentioned that a researcher should ensure that the collected data meets the required theoretical and statistical assumptions. Before testing the hypotheses, the researcher had to perform the preliminary examination of the collected data and process the multivariate analysis for normality. Results are shown below.

The Univariate Multivariate Analysis for Normality

The researcher had performed a statistical test to determine if a data set was well-modeled by a normal distribution. To test that the samples were generated from a normal distribution, Shapiro-Wilk test was applied, since participant number was less than 50. The researcher also checked the normality of data by checking skewness and kurtosis values. The results were demonstrated in Table 22.

In the beginning, the researcher performed the Shapiro-Wilks test in the statistic program. Results showed that the normality could not be confirmed for all study variables since p-values for these variables appeared as significant. Nonetheless, Shapiro-Wilks test could be sensitive to sample sizes (Le Boedec, 2016). Next, the researcher checked the values of skewness and kurtosis.

When considering the z-values of the skewness (*Sk.*) and kurtosis (*Ku.*), the researcher found that the skewness values of all variables in the experimental and control group fell between -2.02 to 1.04, which were not more than ± 3.00, and the kurtosis values fell between -1.70 to 6.50, which was not more than ±10.00, were considered acceptable (Kline, 2023). Regarding skewness and kurtosis, IT mindfulness was a little skewed and kurtotic in both groups but did not differ significantly from normality. It can be assumed that the data were approximately normally distributed, in terms of skewness and kurtosis.

Table 22 are the results of means, standard deviation, skewness and kurtosis of the study variables.

Table 22: Mean, Standard Deviation, Skewness, and Kurtosis of Study Variables.

Variable	(1) Experimental group					(2) Control group				
	M	SD.	Sk.	Ku.	Shapiro Wilk	M	SD.	Sk.	Ku.	Shapiro Wilk
1. IT Mindfulness										
1.1 Pre-test	3.59	.50	-.02	.10	.97	3.91	.34	.18	.26	.97
1.2 Post-test	4.15	.41	.40	-.61	.95	3.76	.31	.88	1.02	.93
1.3 Follow-up	4.26	.31	-1.25	.63	.83*	3.64	.26	-2.02	6.50	.79**
2. Technostress										
2.1 Pre-test	3.02	.68	-.30	-.36	.98	2.87	.51	.50	-.51	.94
2.2 Post-test	2.43	.74	.44	-.85	.94	2.86	.46	-1.10	1.37	.92
2.3 Follow-up	2.17	.59	1.04	1.48	.93	2.95	.50	.65	.86	.95
3. Job Satisfaction										
3.1 Pre-test	4.13	.69	-.62	-.48	.84*	4.04	.64	.06	-.52	.92
3.2 Post-test	4.33	.64	-1.10	.85	.84*	3.89	.53	-.72	-.42	.87*
3.3 Follow-up	4.27	.40	-.69	1.42	.89	4.22	.47	.15	-.16	.93
4. Employee Well-being										
4.1 Pre-test	3.64	.410	-.09	-.52	.98	3.79	.41	.06	-.68	.95
4.2 Post-test	4.03	.58	.06	-1.44	.92	3.87	.37	-.07	-.88	.94
4.3 Follow-up	4.12	.35	-.34	-1.70	.84*	3.89	.29	-.56	-.89	.91

Note: *$p < .05$, **$p < .01$

Regarding IT mindfulness, a repeated measure ANOVA representing that the experimental group at the follow-up phase had the highest mean score (*M* = 4.26, *SD.* = .30), followed by the post-test phase (*M* = 4.15, *SD.* = .41) and the pre-test phase (*M* = 3.59, *SD.* = .50) respectively; while the control group at the pre-test phase had the highest mean score (*M* = 3.91, *SD.* = .34), followed by the post-test phase (*M* = 3.76, *SD.* = .31) and the follow-up phase (*M* = 3.64, *SD.* = .26).

Regarding technostress, the experimental group at the pre-test phase had the highest mean score (*M* = 3.02, *SD.* = .69), followed by the post-test phase (*M* = 2.43, *SD.* = .74) and the follow-up phase (*M* = 2.17, *SD.* = .59) respectively; while the control group at the follow-up phase had the highest mean score (*M* = 2.95, *SD.* = .50), followed by the pre-test phase (*M* = 2.87, *SD.* = .51) and the post-test phase (*M* = 2.86, *SD.* = .49).

Regarding employee well-being, the experimental group at the follow-up phase had the highest mean score (*M* = 4.12, *SD.* = .35), followed by the post-test phase (*M* = 4.03, *SD.* = .58) and the pre-test phase (*M* = 3.64, *SD.* = .41) respectively; while the control group at the follow-up phase had the highest mean score (*M* = 3.89, *SD.* = .29), followed by the post-test phase (*M* = 3.87, *SD.* = .37) and the pre-test phase (*M* = 3.79, *SD.* = .41).

Regarding job satisfaction, the experimental group at the post-test phase had the highest mean score (*M* = 4.33, *SD.* = .64), followed by the follow-up phase

(*M* = 4.27, *SD.* = .40) and the pre-test phase (*M* = 4.13, *SD.* = .69) respectively; while the control group at the follow-up phase had the highest mean score (*M* = 4.22, *SD.* = .47), followed by the pre-test phase (*M* = 4.04, *SD.* = .64) and the post-test phase (*M* = 3.89, *SD.* = .53).

Assessing Sphericity in Repeated Measures Analysis of Variance.

As a preliminary examination, the researcher conducted a test for sphericity - Mauchly's test to hypothesize that the variances of the differences between conditions were equal or compound symmetry. Mauchly's test evaluated whether the sphericity

assumption was violated. Sphericity described the term where the differences between all combinations of related groups were equal. The results are shown in Table 23.

Table 23: Sphericity in Repeated Measures Analysis of Variance

Within Subjects Effect	Mauchly's W	Chi-Square	df	Sig.	Epsilon		
					Greenhouse-Geiser	Huynh-Feldt	Lower-bound
IT mindfulness	.94	.36	2	.84	.99	1.00	.50
Technostress	.95	1.27	2	.53	.96	1.00	.50
Job satisfaction	.87	3.88	2	.14	.88	.97	.50
EWB	.10	.14	2	.93	.10	1.00	.50

From the data above, Mauchly's Test of Sphericity of IT mindfulness was not statistically significant (Mauchly's = .99, χ^2 = .36, p = .84), which met the criteria that the assumption of sphericity had not been violated, and the assumption of sphericity was met.

Mauchly's Test of Sphericity of technostress was not statistically significant (Mauchly's = .95, χ^2 = 1.26, p = .53), which met the criteria that the assumption of sphericity had not been violated, and the assumption of sphericity was met.

Mauchly's Test of Sphericity of employee well-being was not statistically significant (Mauchly's = .10, χ^2 = .14, p = .93), which met the criteria that the assumption of sphericity has not been violated, and the assumption of sphericity was met.

Mauchly's Test of Sphericity of job satisfaction was not statistically significant (Mauchly's = .87, χ^2 = 3.88, p = .14), which met the criteria that the assumption of sphericity had not been violated, and the assumption of sphericity was met.

Statistical Analysis to Test the Hypothesis of IT Mindfulness

Repeated Measures Analysis of Variance on IT Mindfulness Scores

A two-way ANOVA with repeated measures was used to test the differences in IT mindfulness between the experimental and control groups, as shown in Table 24.

Table 24: Two-Way Repeated Measures ANOVA of IT Mindfulness

Source of variation		SS	df	MS	F	p-value	η^2
Time x Group	Sphericity Assumed	3.60	2	1.80	20.29	.00	.42
Time	Sphericity Assumed	.85	2	.43	4.81	.01	.15
Error (phase)	Sphericity Assumed	4.96	56	.09			

From Table 24, a two-way ANOVA with repeated measures was performed to compare the effect of IT mindfulness at three timeframes (pre-test, post-test, follow-up) and between two groups (experimental and control groups). There was a statistically significant difference between the timeframe and between groups (F = 20.29, p = .00). It showed that IT mindfulness scores were different during the three times and differences between groups.

Table 25: Pairwise Comparison of IT Mindfulness between Both Groups

Group	Mean Different (d)	SE.	p-value
Experimental - Control	.23	.10	.02

From Table 25, the pairwise comparison of IT mindfulness between groups found a statistically significant difference at .05 (d = .23, *SE.*= .10, *t* = .02).

Table 26: The Comparison of IT Mindfulness Scores between Both Groups

Group	Phase	M	SD	Mean Different (d)	SE	t
Experimental	Pre-test	3.59	.50	-.56	.13	-4.35**
	Post-test	4.15	.41			
	Pre-test	3.59	.50	-.67	.12	-5.59***
	Follow-up	4.26	.31			
	Post-test	4.15	.41	-.11	.08	-1.33
	Follow-up	4.26	.30			
Control	Pre-test	3.91	.34	.14	.08	1.73
	Post-test	3.76	.31			
	Pre-test	3.91	.34	.27	.10	2.49*
	Follow-up	3.64	.26			
	Post-test	3.76	.31	.12	.12	1.02
	Follow-up	3.64	.26			

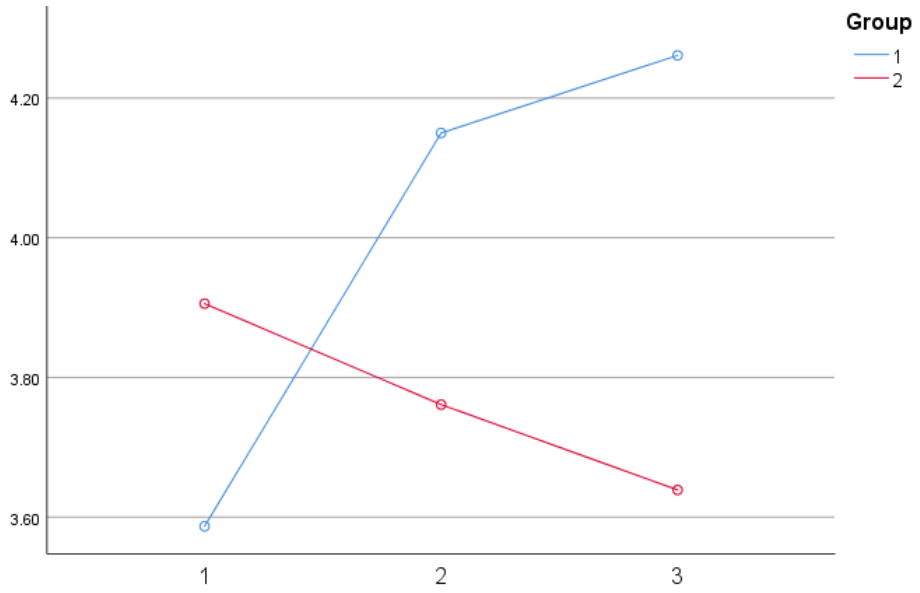
Note: *$p < 0.05$ **$p < 0.01$ ***$p < 0.00$

To test H5, the result in Table 26 showed that, when comparing IT mindfulness score of the experimental group, the pre-test (*M* = 3.59, *SD.* = .50) was significantly lower than that of the post-test (*M* = 4.15, *SD.* = .41, *p* < .01). Moreover, the average score at the pre-test (*M* = 3.59, *SD.* = .50) was significantly lower than that of the follow-up (*M* = 4.26, *SD.* = .31, *p* < .00). However, the average score at the post-test (*M* =4.15, *SD.* = .41) was not significantly different from that of the follow-up.

While in the control group, the average pre-test score (*M* = 3.91, *SD.* = .34) was not significantly different from that of the post-test (*M* = 3.76, *SD.* = .31). Next, the average score of the pre-test (*M* = 3.91, *SD.* = .34) was significantly higher than that of

the follow-up (M = 3.64, $SD.$ = .26, p < .05). Finally, the average score of the post-test (M = 3.76, $SD.$ = .31) was not significantly different from that of the follow-up.

The result proved the effectiveness of the IT mindfulness score of participants in the experimental group; that is, the IT mindfulness score was significantly higher after joining the program, relatively compared with the control group, as shown in Figure 6.



Note: Group 1 is the experimental group, Group 2 is the control group

Figure 7: Graph Showing Increasing Trend of IT Mindfulness in Experimental Group as Compared to Control Group during 3 Times

Statistical Analysis to Test the Hypothesis of Technostress

Repeated Measures Analysis of Variance on Technostress

A two-way ANOVA with repeated measures was also used to test the differences in technostress between the experimental and control groups, as shown in Table 27.

Table 27 Repeated Measures Analysis of Variance on Technostress Scores

Source of variation		SS	df	MS	F	p-value	η^2
Time x Group	Sphericity Assumed	3.30	2	1.65	6.90	.00	.20
Time	Sphericity Assumed	2.45	2	1.23	5.13	.01	.16
Error (phase)	Sphericity Assumed	13.38	56	.24			

From Table 27, a two-way ANOVA with repeated measures was performed to compare the effect of technostress at three timeframes (pre-test, post-test, follow-up) and between two groups (experimental and control groups). There was a statistically significant difference between the timeframes and between groups (F = 6.90, p = .00). It showed that technostress scores differ during the three times and groups.

Table 28: Pairwise Comparison of Technostress between Both Groups

Group	Mean Different (d)	SE.	p-value
Experimental - Control	-.35	.16	.03

From Table 28, the pairwise comparison of technostress between groups found a statistically significant difference at .05 (d = -.35, *SE*.= .16, p = .03).

Table 29: The Comparison of Technostress Score Between both Groups by Phases

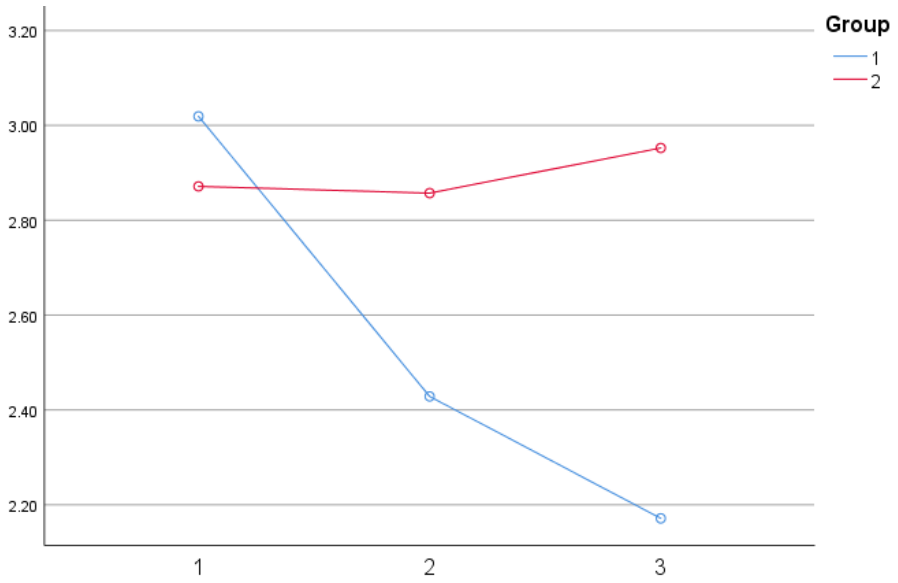
Group	Phase	M	SD	Mean Different (d)	SE	t
Experimental	Pre-test	3.02	.68	.59	.17	3.56**
	Post-test	2.43	.74			
	Pre-test	3.02	.68	.85	.16	5.43***
	Follow-up	2.17	.59			
	Post-test	2.43	.74	.26	.10	2.66*
	Follow-up	2.17	.59			
Control	Pre-test	2.87	.51	.01	.18	.08
	Post-test	2.86	.49			
	Pre-test	2.87	.51	-.08	.23	-.35
	Follow-up	2.95	.50			
	Post-test	2.86	.49	-.10	.21	-.44
	Follow-up	2.95	.50			

Note: * $p < .05$ ** $p < .01$ *** $p < .00$

To test H6, Table 29 showed the average technostress score of the experimental group at the pre-test (M = 3.02, $SD.$ = .68) which was significantly higher than that of the post-test (M = 2.43, $SD.$ = .74, $p < .01$). Moreover, the average score at the pre-test (M = 3.02, $SD.$ = .68) was significantly higher than that of the follow-up (M = 2.17, $SD.$ = .59, $p < .00$). In addition, the average score at the post-test (M = 2.43, $SD.$ = .74) was significantly higher than that of the follow-up (M = 2.17, $SD.$ = .59, $p < .05$).

Compared with the control group, the average pre-test score (M = 2.87, $SD.$ = .51) was not significantly different from that of the post-test (M = 2.86, $SD.$ = .46). Next, the average score of the pre-test (M = 2.87, $SD.$ = .51) was not significantly different from that of the follow-up (M = 2.95, $SD.$ = .50). Besides, the average score of the post-test (M = 2.86, $SD.$ = .46) was not significantly different from that of the follow-up (M = 2.95, $SD.$ = .50).

The result proved the effectiveness of the technostress score of participants in the experimental group; that was, the technostress score was significantly lower after joining the program, relatively compared with the control group, as shown in Figure 7.



Note: Group 1 is the experimental group, Group 2 is the control group

Figure 8: Graph Showing Decreasing Trend of Technostress in Experimental Group as Compared to Control Group during 3 Times

Statistical Analysis to Test the Hypothesis of Employee Well-Being

Repeated Measures Analysis of Variance on Employee Well-Being

A two-way ANOVA with repeated measures was used to test the differences in employee well-being between the experimental and control groups, as shown in Table 30.

Table 30: Repeated Measures Analysis of Variance in Employee Well-Being Scores

Source of variation		SS	df	MS	F	p-value	η^2
Time x Group	Sphericity Assumed	.63	2	.31	2.99	.06	.10

Table 30 (Cont.)

Source of variation		SS	df	MS	F	p-value	η^2
Time	Sphericity Assumed	1.42	2	.71	6.78	.00	.20
Error (phase)	Sphericity Assumed	5.88	56	.11			

From Table 30, a two-way ANOVA with repeated measures was performed to compare the effect of employee well-being scores at three times (pre-test, post-test, follow-up) and between two groups (experimental and control groups). There was no statistically significant difference between times and between groups ($F = 2.99$, $p = .06$). It showed that employee well-being scores were not significantly different during the three phases and between groups. Nevertheless, considering only by times, there was a statistically significant ($F = 6.78$, $p = .00$).

To test H7, Table 31 showed the result showed that the average employee well-being score at the pre-test ($M = 3.64$, $SD. = .41$) which was significantly lower than that of the post-test ($M = 4.03$, $SD. = .58$, $p < .01$). Moreover, the average score at the pre-test ($M = 3.64$, $SD. = .41$) was significantly lower than that of the follow-up ($M = 4.12$, $SD. = .35$, $p < .001$). While the average score at the post-test ($M = 2.43$, $SD. = .74$) was not significantly different from that of the follow-up ($M = 4.03$, $SD. = .58$).

Table 31: The Comparison of EWB Scores between Both Groups by Times

Group	Phase	M	SD	Mean Different (d)	SE	t
Experimental	Pre-test	3.64	.41	-.39	.10	-3.78**
	Post-test	4.03	.58			
	Pre-test	3.64	.41	-.48	.08	-5.95***
	Follow-up	4.12	.35			
	Post-test	4.03	.58	-.09	.09	-1.02
	Follow-up	4.12	.35			

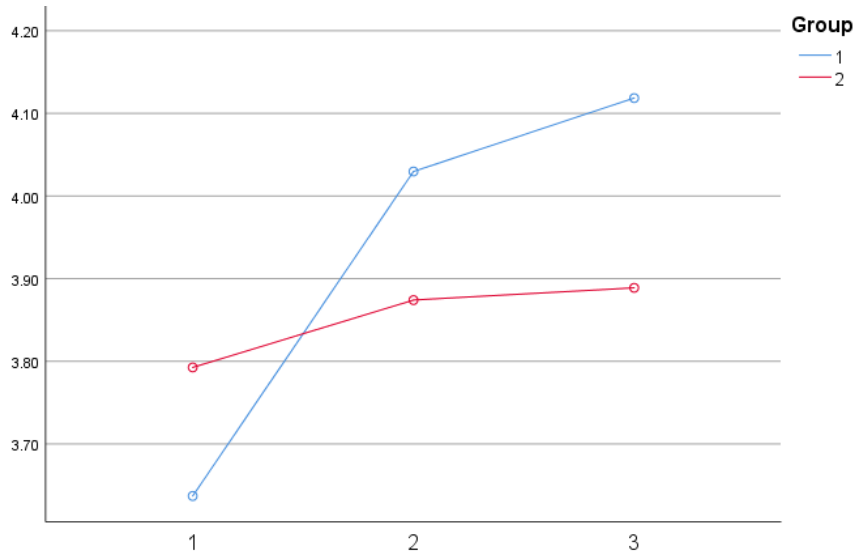
Table 31 (Cont.)

Group	Phase	M	SD	Mean Different (d)	SE	t
Control	Pre-test	3.79	.41	-.08	.13	-.65
	Post-test	3.87	.37			
	Pre-test	3.79	.41	-.10	.15	-.63
	Follow-up	3.89	.29			
	Post-test	3.87	.37	-.02	.14	-.11
	Follow-up	3.89	.29			

Note: * $p < .05$ ** $p < .01$*** $p < .00$

Compared with the control group, the average pre-test score (M = 3.79, $SD.$ = .41) was not significantly different from that of the post-test (M = 3.87, $SD.$ = .37). Next, the average score of the pre-test (M = 3.79, SD = .41) was not significantly different from that of the follow-up (M = 3.89, $SD.$ = .29). Besides, the average score of the post-test (M = 3.87, $SD.$ = .37) was not significantly different from that of the follow-up (M = 3.89, $SD.$ = .29).

The result proved the effectiveness of the employee well-being score of participants in the experimental group; that was, the employee well-being score was higher after joining the program, relatively compared with the control group. While the control group's score had no difference in employee well-being scores in all 3 times, as shown in Figure 8.



Note: Group 1 is the experimental group, Group 2 is the control group

Figure 9: Graph Showing Increasing Trend of Employee Well-Being in Experimental Group as Compared to Control Group during 3 Times

Statistical Analysis to Test the Hypothesis of Job Satisfaction

Repeated Measures Analysis of Variance on Job Satisfaction

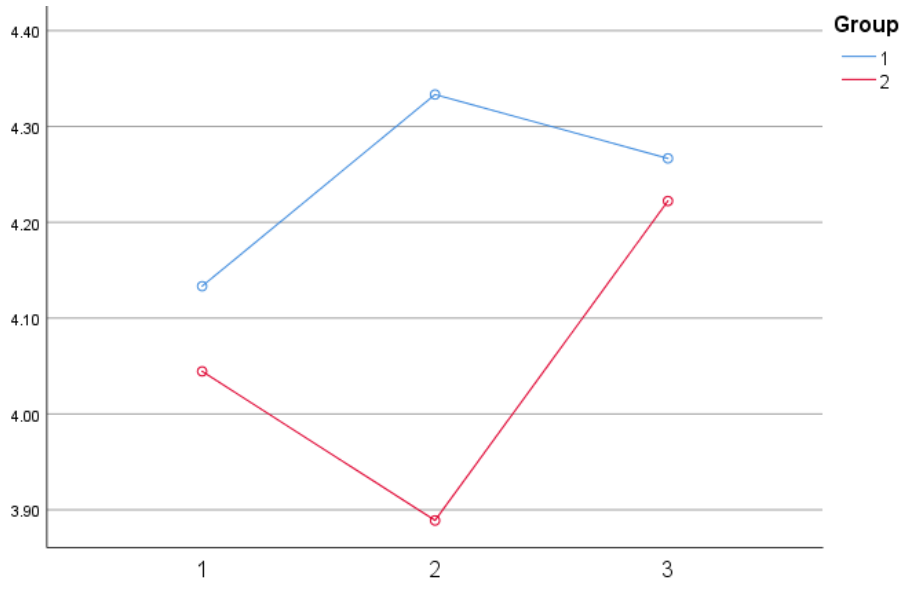
A two-way ANOVA with repeated measures was also used to test the differences in job satisfaction between the experimental and control groups, as shown in Table 32.

Table 32: Repeated Measures Analysis of Variance on Job Satisfaction Scores

Source of variation		SS	df	MS	F	p-value	η^2
Time x Group	Sphericity Assumed	.72	2	.36	1.86	.17	.06
Time	Sphericity Assumed	.43	2	.21	1.10	.34	.04
Error (phase)	Sphericity Assumed	10.85	56	.19			

From Table 32, a two-way ANOVA with repeated measures was performed to compare the effect of job satisfaction at three times (pre-test, post-test, follow-up) and between two groups (experimental and control groups). There was no statistically significant difference between times and between groups (F = 1.86, p = .17). It showed that job satisfaction scores were not statistically and significantly different during the three times and not different between groups. Furthermore, there was no statistical difference when considering only the intervention phases (F = 1.10, p = .34).

In this case, the result showed that job satisfaction scores of participants in the experimental and control groups were not statistically different in all three phases, as shown in Figure 9.



Note: Group 1 is the experimental group, Group 2 is the control group

Figure 10: Graph Showing Increasing Trend of Job Satisfaction in Experimental Group as Compared to Control Group during 3 Times

Summary of the Current Research Findings

The researcher summarized all the current research findings, and the results supported the hypotheses in Table 33 below.

Table 33: Summary of Results for Hypotheses

Hypothesis / Relationship	Path coefficient	Result
H1 Technostress ⟶ EWB	-.59, $p < .05$	Supported
H1 Technostress ⟶ Job Satisfaction	-.39, $p < .05$	Supported
H2 IT Mind ⟶ Technostress	-.37, $p < .05$	Supported
H3 IT Mind ⟶ EWB	.13, $p < .05$	Not supported
H3 IT Mind ⟶ Job Satisfaction	.13, $p < .05$	Not supported
H4 Technostress x IT Mind ⟶ EWB (Moderating effect)	Model not fit (χ^2/d 35.13, AGF 0.16, RMSEA 0.40, RMR 0.81, SRMR 0.07)	Not supported
H4a: IT mindfulness -> Technostress -> EWB	EWB (indirect effect .22, $p < .05$)	Supported
H4a: IT mindfulness -> Technostress-> Job Satisfaction	Job satisfaction (indirect effect .14, $p < .05$).	Supported
H5 IT Mind (+) IT Mind	Pre vs Post (-4.35, $p < .01$)	Supported
H6 IT Mind (-) Technostress	Pre vs Post (3.56, $p < .01$)	Supported
H7 IT Mind (+) EWB	Pre vs Post (-3.78, $p < .01$)	Supported

Note: * $p < .05$ ** $p < .01$

In detail, technostress had a negative impact on employee well-being (H1). The path between technostress and employee well-being was significant and negative (β = -.59, p < .05). Therefore, H1 was supported.

IT mindfulness had a significant negative impact on technostress (H2). The path between technostress and IT mindfulness was significant and negative (β = -.36, p < .05). Therefore, H2 was supported.

IT mindfulness positively impacts employee well-being and job satisfaction (H3) but not significant (β = -.13) and (β = -.13), respectively. Therefore, H3 was not supported.

IT Mindfulness did not have a moderating role in the relationship between technostress and employee well-being. The conceptual model did not fit. So then, H4 was not supported.

Technostress had a mediating role in the relationship between IT mindfulness and employee well-being: EWB (indirect effect β = .22, p < .05) and job satisfaction (indirect effect β = -.14, p < .05). So then, H4a was supported.

The IT mindfulness intervention program increased the participants' IT mindfulness level in the experimental group (pre vs. post -4.35, p < .01) when tested after the intervention. Hence, H5 was supported.

The IT mindfulness intervention program decreased the technostress level of the participants in the experimental group (pre vs. post 3.56, p < .01) when tested after the intervention. Hence, H6 was supported.

The IT mindfulness intervention program increased the employee well-being of the participants in the experimental group (pre vs. post -3.78, p < .01) when tested after the intervention. Hence, H7 was supported.

CHAPTER 5
DISCUSSION

The study's phase 1 aimed to investigate the interrelationship of information technology mindfulness as the moderating variable in the impact of technostress on employee well-being and job satisfaction. Further, in phase 2, the study aimed to bring the significant findings from phase 1 to develop an IT mindfulness intervention program to reduce technostress, increase employee well-being, and test its effectiveness. The result from phase 1 confirmed that technostress significantly impacted employee well-being (affect and job satisfaction), IT mindfulness was a positive psychology construct that could reduce the technostress effectively, and technostress had a mediating role in the relationship between IT mindfulness and employee well-being. Lastly, the study's phase 2 showed that the IT mindfulness enhancement intervention program significantly increased level of IT mindfulness to participants while reduced technostress during the pre-, post, and follow-up times.

In this chapter, the researcher aimed to discuss the main results of the present study by offering an in-depth interpretation and providing an outline of the significance and contributions of the research by discussing the critical discoveries about current literature in IT mindfulness, technostress, and employee well-being that can be applied to media agencies and tech-user organizations.

Discussion of Results from Phase 1

The SEM analysis in phase 1 of the current research proved the developed hypotheses, affirming the proposed theoretical framework of the research.

The present study showed that technostress antecedents had a negative impact on employee well-being (-.59 $p < .05$) and job satisfaction (-.39, $p < .05$). This result was consistent with existing literature, proving that technostress leads to negative employee and work well-being. For instance, technostress reduces job satisfaction and organizational and continuance commitment (Ragu-Nathan et al., 2008). Technostress is inversely related to individual productivity (Tarafdar et al., 2007). Linked to social media usage, technology overload negatively affects the well-being of employees (Choi & Lim,

2016). Another study shows that tele-pressure and techno-creators have associations with the negative effect of IT demands on well-being indicators (Pfaffinger et al., 2022). Overall, technostress strongly and negatively impacts employee well-being (Hang et al., 2022). Accordingly, it becomes evident that organizations must reduce technostress in daily work lives and increase employee well-being and job satisfaction among heavy IT users.

Current research posited that IT mindfulness had a negative effect on technostress. The analysis of the current study proved a significant adverse effect between technostress and IT mindfulness (-.37, $p < .05$). This result is consistent with existing literature proving that mindfulness can reduce technostress. For instance, Reb and Choi (2014) states that mindfulness reduces work-related stress. The findings are also in line with the literature in the intervention domain. For example, mindfulness meditation can cope with stress like studies using Mindfulness-Based Stress Reduction (MBSR) developed by (Kabat-Zinn, 1982). Furthermore, existing literature uses MBSR to improve well-being in an organizational context, such as research on mindfulness meditation to promote well-being related to self-regulated behavior and positive emotional states (Brown & Ryan, 2003). Specifically, in IT mindfulness research on technostress, the researcher found one study which confirms the similar finding that IT mindfulness could reduce technostress and mediate the relationship between technostress and user satisfaction (Ioannou & Papazafeiropoulou, 2017).

The current research showed that IT mindfulness did not significantly affect employee well-being ($\beta = .13$), job satisfaction ($\beta = .13$). This finding is distinct from several mindfulness literatures. For decades, mindfulness literature has existed and confirmed its coping anecdotes in leveling up well-being in the workplace. In other words, practicing mindfulness shows positive correlations with employees in work-related studies. For instance, research shows that employees' experience increased well-being and better work performance after practicing mindfulness (Bartlett et al., 2019). Similarly, quasi-experimental research done by Rexroth et al. (2017) shows that a 3-week mindfulness teaching can promote employee well-being. Even though

mindfulness practice is performed using an application, it shows effective results in significant improvement in well-being (Bostock et al., 2019). Based on the limited knowledge, the current research was the first that studies the IT mindfulness intervention impact on technostress, grounded on original 'pure' mindfulness. In other words, the researcher adopted the theory of IT mindfulness by (Thatcher et al., 2018). Hence, there is room for future research to explore this dimension.

Results showed that IT mindfulness as a moderating role was nonsignificant since no moderating effect in the relationship proven by the structural model does not fit (χ^2 /d = 35.13, AGFI = .16, RMSEA = .40, RMR = .81, SRMR = .07). The current study is consistent with (Pflügner et al., 2021). In that study, mindfulness did not have a moderation effect on the relationship between techno-stressors and negative work well-being, which is job burnout.

Additionally, the present study proposed that technostress mediated the relationship between IT mindfulness and employee well-being (affect and job satisfaction) which is relevant to previous studies testing mindfulness and well-being such as quality of life and mental health with technostress' mediating role (Ballantyne et al., 2021; Tingaz et al., 2022; Valikhani et al., 2020).

Discussion of Results from Phase 2

The present study found that the IT mindfulness intervention program increased the IT mindfulness level of participants in the experimental group (pre vs. post -4.35, $p <$ .01). Results showed that the average score of IT mindfulness of participants in the experimental group was higher than that of the control group after joining the program. This finding is consistent with previous studies on developing mindfulness intervention strategies showing positive results in mitigating work stress and well-being (Bostock et al., 2019). Like the mindfulness intervention research by Althammer et al. (2021), which shows results that, among the mindfulness-based intervention group, compared to the control group, the level of satisfaction and work-life balance increases.

The present study found that the IT mindfulness intervention program decreased the technostress level of participants in the experimental group (pre vs. post

3.56, $p < .01$). Results showed that the average score of technostress of participants in the experimental group was lower than that of the control group after joining the program. Based on the limited knowledge, there have been no practical advancements in developing IT mindfulness intervention programs to mitigate technostress, then, intervention using IT mindfulness antecedents (AD, AP, ON) to reduce technostress is none. The present study was the first to apply the IT mindfulness construct to applied intervention. Previous literature studied the pure mindfulness construct and its practices in lowering work stress and enhancing well-being (Grover et al., 2017; Lomas et al., 2019; Zeller & Levin, 2013; Zivnuska et al., 2016). Hence, comparing the present findings with similar existing literature is not easy. However, literature on mindfulness has been studied recently for its significantly proven to reduce technostress (Ioannou et al., 2022).

The present study found that the IT mindfulness intervention program increased employee well-being (affect and job satisfaction) of participants in the experimental group. Results showed that participants in the experimental group had an average employee well-being score higher than the control group after joining the program. This finding is consistent with a study by Wongtongkam et al. (2017) showing that the relationship between total mindfulness, after participants practicing mediation, on job satisfaction was not significant.

In the current research, the job satisfaction score of participants slightly increased at the post-test compared to the pre-test, then slightly dropped when tested at the 2-week follow-up. The researcher, therefore, did an additional interview with three participants from the experimental group to check for any incidence. Two of the three participants mentioned that there was no specific happening during the time, yet their work was unpredictable and varied to external factors such as clients. Therefore, day-to-day operations are up and down, as was the satisfaction with the job. Hence, on the day of the follow-up test, there were coincidences that they were emotionally down, so they rated their job satisfaction lower than on the post-test day.

The researcher posited that factor that might affect this incidence was the immediacy effect of the mindfulness practice. Even though the immediate impact of mindfulness practice on well-being (affect and job satisfaction) was shown in the current study, there was a discussion about whether the impact of mindfulness intervention could persist over time. Mindfulness practice's effectiveness might be a function of time (Mantzios & Giannou, 2019). For instance, 20-minute meditation and a 10-minute mediation were found to significantly lower stress (Berghoff et al., 2017; Mohan et al., 2011).

The present study is principally coherent with theoretical mindfulness theories and practices; however, it prioritized a fresher perspective of mindfulness theory by narrowing down on "information technology mindfulness." Since the significance of the present study was clearly stated the importance of studying mindfulness in media agency landscape which heavily relies on technology at work. The results showed that IT mindfulness directly affected technostress, employee well-being and job satisfaction. Furthermore, this research has produced new optimistic psychological knowledge in effectively coping with media agency employee stress from working in front of technological devices using IT mindfulness. Media agency employees who always need to study about new media tools could reduce technological stress by fostering alertness to different IT contexts, searching for new perspectives when using IT, and always welcoming innovation and novelty (Ioannou & Papazafeiropoulou, 2017; Pflügner et al., 2021).

Limitations

The current study has limitations. The sample design of this study limited media agency employees resulting in the result's generalizability and low response rate due to the limited population of media agency people. Even though the objective of this study was to study the data and the relationships among the variables initially, the low number of participants did not allow these results to be generalizable. Hence, continuing work in this area with larger samples is essential.

Also, convenient sampling was used in this research and the disadvantage is the sample lacks clear generalizability (Jager et al., 2017). Future research should recruit a larger sample since larger samples present stronger and more reliable results. Also, probability sampling could be used as a sampling strategy to reduce this concern.

The current research deleted 10 items from the original instruments due to its low Cronbach's alpha scores. Although, the instruments in the current research were proved reliability through the pilot test by receiving acceptable Cronbach's alpha scores, the validity was not checked with the IOC due to the time constraint. Future research should be aware of this.

The lack of consistency timing of the current IT mindfulness intervention, divided into 2-hour one-time-off in each phase, might be insufficient to see the high impact; since, practicing mindfulness is like physical exercise meaning the frequent it is done, the more capable it might cause (Greene, 2020). The nature of mindfulness practice requires consistency and needs a long-term commitment since its effects can be seen over time (Crumpler, 2022). Hence, design research could be done daily (Droit-Volet et al., 2019).

Next, the researcher only focused on measuring stress from technology in the working context. However, work and life cannot be separated clearly (Grzywacz et al., 2002). Therefore, future research should measure other types of stresses in a single study to investigate different relationships.

Besides, the satisfaction level of employees might be affected by external factors resulting in inconsistent impact. In the case of media agency employees, sources of stress and dissatisfaction come from clients and uncontrollable timelines. This study's follow-up time of the intervention took place after the annual work evaluation and salary adjustment period; therefore, this might modify the real impact of the satisfaction level of the participants, as seen in the higher satisfaction level of the control group compared to the experimental group. Future researchers should incorporate the timing of the intervention and analyze the results to determine whether the consequences differ at different times.

Recommendations for Future Research

The current study found that IT mindfulness could directly and significantly reduce technostress. Simply put, IT mindfulness acts like a 'practical tool' for an employee who has low well-being at work due to IT stress. In the sense that, when an IT user faces technological stress, increasing well-being including affect and job satisfaction could be done through IT mindfulness practice. For example, an IT user will have less technostress, more well-being, and will be satisfied with the IT job when incorporating IT mindfulness in work. Thus, the current study suggested the benefits of IT mindfulness and its elements as a tool for organizations striving to ultimate well-being.

The current research took place during the very end of the COVID-19 pandemic in which media agencies have actively adopted the work-from-home policy. As mentioned earlier, WFH affects the heavier IT use at home compared to on-site work. Hence, the direct effect of technostress level and employee well-being is relatively strong. Future research should take into consideration, if the WFH circumstance is lessened and employees return to work in office, the correlation might be changed. Future research should anticipate the abruptly increasing technological impact on employee well-being from the happening of artificial intelligence (AI) in work settings. The recent trend of technology usage includes the rising of AI, though can facilitate work, can impact technostress and work-related well-being.

Implications to Academic

The findings of the current study have generated a new body of knowledge, and practical strategies for IO scholars as follows:

Understanding the phenomenon: the researcher has reviewed multiple literature on mindfulness, IT mindfulness, technostress, employee well-being, and job satisfaction to study the interrelationship among those constructs. As mentioned earlier, technology-related mindfulness is relatively new. However, Chapter 2 of the current study has gathered the definition, studies, and findings and provided critical review, hypothesizing, testing, experimenting, and generating significant findings to fulfill the existing literature.

In addition, the statistical analysis part of the current research is robust. In the quantitative phase, based on the initial hypothesis of the indirect effect, the current study previously assumed the moderating effect of IT mindfulness. The researcher ran the data and analyzed the results, yet the hypothesis was not supported. However, the researcher continued to study it further with a curious mind. The mediation analysis was also tested thoroughly showing evidence to the literature through different lenses.

Another contribution to academic literature is the knowledge of the indirect effect of IT mindfulness on technostress. Based on limited knowledge, the current research is the only one that studied both the moderating effect and the mediating effect of IT mindfulness on the relationship of technostress and employee well-being. The finding enhances researchers to see IT mindfulness with holistic perspectives. Even though IT mindfulness directly and significantly impacts technostress (negative impact) and employee well-being (positive impact), the current study found that IT mindfulness did not change the strength level of that relationship; or no significant moderating and mediating effects of IT mindfulness were found. In other words, practicing mindfulness might not be the only strong influence for an employee who does not have work well-being due to IT stress. IT mindfulness might intervene in the relationship of the two factors and but might not bring about any change and difference. Simply put, IT mindfulness might be used as an effective 'tool' for an employee to reduce stress from technology. Then, when having less stress, more well-being and job satisfaction will be found.

Implications to Organizations

This research bears significant contribution directly to media agencies and beyond to organizations and professionals where operations heavily rely on information and technology usage. The researcher has interpreted IT mindfulness and technostress theories and its predictors into ready-to-use applications, created the practical IT mindfulness enhancement intervention, and proved its effectiveness that can reduce technostress among real employees. Knowing that media agency employees are facing high-stress work, organizations should fix this issue by injecting IT mindfulness level

through HRD operations. Media agencies who need to catch up with challenging briefs from the clients resulting in solving problems with smart screens all the time could adopt IT mindfulness elements such as being aware of multiple perspectives to resolve ongoing issues. Other hi-tech organizations could also benefit their employees experiencing work stress from overload technology usage by applying the program in the training schedules.

An organization must protect and promote employee well-being since well-being at work is a vital element of work-life. The significance of employee well-being has been mentioned as leaders' goal is to improve performance by increasing employee well-being. The findings from the current study are 'an anecdote' to media agencies, other organizations and employees in the current business world especially in the digital disruptions. Since mindfulness can be trained and practiced through training, it is unneglectable for media agencies to relook and create formal mindfulness enhancement programs for their employees. Media agencies use a lot of technology daily such as data analytics, social listening tools, or programmatic software. Consequently, HR department could form consistent IT mindfulness programs into calendars, same as Google that creates recurring meditation sessions or employees at General Mills stimulates employees to form meditation habits by creating on-site meditation room. Since IT mindfulness can be enhanced and practiced through training, it is unneglectable for organizations to relook and create formal mindfulness enhancement programs for their employees.

Implications to Individual Employees

The current study's IT mindfulness enhancement program could be used as mindful strategies among media agency employees with a series of techniques right away. The researcher has created ready-to-use, module-by-module content from proven mindfulness literature with supporting materials such as VDO, and PowerPoint presentation. The program is snackable, easy-to-digest, and format-fitted to practical to the multiple media planning tasks. Its conciseness, 2-day and 16 training hours, are realistic to practical usage and suitable for organizations and employees who are time-

restrained. By adopting this program, heavy-IT users can gain direct benefits such as stress reduction, and well-being improvement. Companies can benefit from having more job-satisfied employees which leads to productivity and performance. Ultimately, these embedded benefits can lead to more organization's success.

In addition, enhancing IT mindfulness at an individual level, an employee could make use of the four IT mindfulness enhancement strategies in everyday working life. When struggling with complicated technology, an employee should find a short blocking break, picking an IT mindfulness practice such as body scan, to think of optional or innovative ideas in using that technology to fix that complexity. Thus, it could reduce techno-complexity, one among five technostressors. On the other hand, when facing stress due to extreme work in front of computer, an employee can apply orientation in the present, and concentrate on the present moment to help alleviate technostress.

Conclusion

Current research found that one of the stress factors among media agency employees is called technostress, stress caused by the inability to cope with computer and technology usage. The findings showed that technostress is a reason causing negative employee well-being. Also, the current study filled the knowledge gap by examining the influence of IT mindfulness as a new mechanism to mitigate technostress, and in due course, devoted to employee well-being. Findings showed that when practicing mindfulness, stress from heavy use of technology can be lessened. Ultimately, when technostress is reduced, employee well-being and job satisfaction will be increased.

Appendix

Appendix 1: IT Mindfulness Instrument was adapted from (Thatcher et al., 2018)

Appendix 2: IT Mindfulness Instrument (Thatcher et al., 2018) (Thai Version)

Appendix 1: IT Mindfulness Instrument was adapted from (Thatcher et al., 2018)

Questionnaire: How much “IT Mindfulness” when working with ICT do you have? Rate from 1= Strongly disagree 2 = Agree 3 = Neutral = 4 Disagree 5 = Strongly disagree

Alertness to Distinction (AD)

- AD1 I find it easy to create new and effective ways of using the systems.
- AD2 I am very creative when using the systems.
- AD3 I make many novel contributions to my work-related tasks through the use of the systems.

Awareness of Multiple Perspectives (AP)

- MP1 I am often open to learning new ways of using the systems.
- MP2 I have an open mind about new ways of using the systems.
- MP3 I use the systems in many different wats to support my work.

Openness to Novelty (ON)

- ON1 I like to investigate different ways of using the systems.
- ON2 I am very curious about different ways of using the systems.
- ON3 I like to figure out different ways of using the systems.

Orientation in the Present (OP)

- OP1 I often notice how other people using the systems.
- OP2 I attend to the ‘big picture’ of a project when using the systems.
- OP3 I ‘get involved’ when using the systems.

Appendix 2: IT Mindfulness Instrument (Thatcher et al., 2018) (Thai Version)

แบบสอบถามชุดนี้จะวัดระดับสติทางเทคโนโลยีของคุณ ให้พิจารณาในวันปกติที่คุณทำงานโดยใช้ IT โปรดระบุว่าคุณเห็นด้วยกับประโยคเหล่านี้เพียงใด
1= **ไม่เห็นด้วยอย่างมาก** 2= **ไม่เห็นด้วย** 3= **เฉย ๆ** 4= **เห็นด้วย** 5= **เห็นด้วยอย่างมาก**

Alertness to Distinction (AD)

AD1 ฉันรู้สึกว่ามันง่ายเมื่อต้องหาวิธีใหม่ๆในการใช้เทคโนโลยี

AD2 ในขณะใช้งานเทคโนโลยี ฉันสร้างสรรค์มาก

AD3 ฉันมักจะสร้างผลงานใหม่ๆเมื่อได้ใช้เทคโนโลยี

Awareness of Multiple Perspectives (AP)

MP1 ฉันมักจะเปิดรับวิธีใหม่ๆในการใช้เทคโนโลยี

MP2 ฉันมีใจที่เปิดกว้างเกี่ยวกับการใช้เทคโนโลยีรูปแบบใหม่ๆ

MP3 ฉันมักจะใช้ระบบเทคโนโลยีในหลายรูปแบบเพื่อรองรับงานของฉัน

Openness to Novelty (ON)

ON1 ฉันชอบเสาะหาวิธีใช้เทคโนโลยีในหลากหลายวิธี

ON2 ฉันมีความอยากรู้อยากเห็นสูงในเรื่องวิธีใช้เทคโนโลยีในหลากหลายรูปแบบ

ON3 ฉันชอบที่จะคิดค้นวิธีใหม่ๆในการใช้เทคโนโลยี

Orientation in the Present (OP)

OP1 บ่อยครั้งที่ฉันสังเกตเห็นคนอื่นใช้เทคโนโลยีกันอย่างไร

OP2 ฉันมองเห็นภาพรวมของโปรเจคเมื่อฉันได้ใช้เทคโนโลยี

OP3 ฉันรู้สึกเกิดความมีส่วนร่วมเมื่อได้ใช้เทคโนโลยี

Appendix 3: Technostress Instrument was adapted from (Tarafdar et al., 2010)

Appendix 4: Technostress Instrument (Tarafdar et al., 2010) (Thai Version)

Appendix 3: Technostress Instrument was adapted from (Tarafdar et al., 2010) (Thai Version)

Questionnaire: Rate how much technostress you feel based on the given situations?

Rate from 1 = not at all 2 = Once in a while 3 = Sometimes 4 = Many times 5 = All the time

Techno-overload (TO)

I1_1—I am forced by this technology to work much faster.

I1_2—I am forced by this technology to do more work than I can handle.

I1_3—I am forced by this technology to work with very tight time schedules.

I1_4—I am forced to change my work habits to adapt to new technologies.

I1_5—I have a higher workload because of increased technology complexity.

Techno-invasion

I1_6—I spend less time with my family due to this technology.

I1_7—I have to be in touch with my work even during my vacation due to this technology.

I1_8—I have to sacrifice my vacation and weekend time to keep current on new technologies.

I1_9—I feel my personal life is being invaded by this technology.

Techno-complexity

I1_10—I need a long time to understand and use new technologies.

I1_11—I do not find enough time to study and upgrade my technology skills.

I1_12—I often find it too complex for me to understand and use new technologies.

Techno-insecurity

I1_13—I feel constant threat to my job security due to new technologies.

I1_14—I am threatened by co-workers with newer technology skills.

Appendix 4: Technostress Instrument was adapted from (Tarafdar et al., 2010) (Thai Version)

แบบสอบถามชุดนี้จะวัดความเครียดทางเทคโนโลยีของคุณในการทำงานโดยใช้เทคโนโลยี

1 = **ไม่เลย** 2 = **นาน ๆครั้ง** 3 = **บางครั้ง** 4 = **มีเสมอ** 5 = **ตลอดเวลา**

Techno-overload (TO)

I1_1—ฉันถูกเทคโนโลยีบังคับให้ทำงานเร็วขึ้น

I1_2—ฉันถูกเทคโนโลยีบังคับให้ทำงานมากเกินจะทำไหว

I1_3—ฉันถูกเทคโนโลยีบังคับให้ทำงานกับตารางงานที่แน่น

I1_4—ปรับนิสัยการทำงานให้เข้ากับเทคโนโลยี

I1_5—ฉันต้องทำงานหนักกว่าเดิมเพราะความซับซ้อนทางเทคโนโลยี

Techno-invasion

I1_6—ฉันมีเวลาให้กับครอบครัวน้อยลงเพราะเทคโนโลยี

I1_7—ฉันต้องทำงานแม้เป็นวันลาพักร้อนเพราะเทคโนโลยีพวกนี้

I1_8—ฉันต้องเสียสละวันหยุดและวันเสาร์อาทิตย์เพราะต้องตามเทคโนโลยีใหม่ๆให้ทัน

I1_9—ฉันรู้สึกว่าชีวิตส่วนตัวถูกรบกวนเพราะเทคโนโลยี

Techno-complexity

I1_10—ฉันต้องใช้เวลานานกว่าจะเข้าใจ และใช้เทคโนโลยีใหม่ๆ

I1_11—ฉันมีเวลาไม่มากพอที่จะเรียนรู้และเพิ่มเติมความรู้ทางเทคโนโลยี

I1_12—บ่อยครั้งที่ฉันรู้สึกซับซ้อนมากเกินไปที่จะเข้าใจและใช้เทคโนโลยีใหม่ๆให้ทัน

Techno-insecurity

I1_13—ฉันรู้สึกความมั่นคงในงานถูกคุกคามตลอดเวลาเพราะเทคโนโลยีใหม่ๆ

I1_14—ฉันรู้สึกถูกคุกคามจากเพื่อนร่วมงานที่มีทักษะทางเทคโนโลยีใหม่ๆ

Appendix 5: The Positive and Negative Affectivity Scale was adapted from Thompson (2007)

Appendix 6: The Positive and Negative Affectivity Scale by Thompson (2007) (Thai Version)

Appendix 5: The Positive and Negative Affectivity Scale was adapted from Thompson (2007)

Questionnaire:

1. How often do you feel about working in IT-related right now or recently?

1	2	3	4	5
Never	Ever	Sometimes	Often	Always

1. Active
2. Upset
3. Hostile
4. Attentive
5. Ashamed
6. Inspired
7. Nervous
8. Alert
9. Afraid

Appendix 6: The Positive and Negative Affectivity Scale was adapted from Thompson (2007) (10-item) (Thai Version)

แบบสอบถามชุดนี้จะวัดระดับความผาสุกในงานของคุณ เมื่อคุณได้ทำงานกับเทคโนโลยีขณะนี้หรือในช่วง หนึ่ง สัปดาห์ที่ผ่านมาเมื่อเป็นงานเกี่ยวกับเทคโนโลยีคุณมีความรู้สึกแบบนี้บ้างหรือไม่ ให้คะแนนจ๊ะ

1	2	3	4	5
ไม่เลย	**นาน ๆครั้ง**	**บางครั้ง**	**มีเสมอ**	**ตลอดเวลา**

1. แอคทีฟ
2. ผิดหวัง
3. ต่อต้าน
4. สนใจ
5. อับอาย
6. ได้แรงบันดาลใจ
7. กังวล
8. ตื่นตัว
9. หวาดกลัว

Appendix 7: The Michigan Organizational Assessment Questionnaire: Job Satisfaction (Lawler, 1979)

Questionnaire: How do you feel about your job?

Rate from 1 = not at all 2 = Once in a while 3 = Sometimes 4 = Many times 5 = All the time

1. In general, I don't like my job.	1 2 3 4 5
2. All in all, I am satisfied with my job.	1 2 3 4 5
3. In general, I like working here.	1 2 3 4 5

Appendix 8: The Michigan Organizational Assessment Questionnaire: Job Satisfaction (Lawler, 1979) (Thai Version)

แบบสอบถามชุดนี้จะวัดความพึงพอใจในงานของคุณ

ข้อความด้านล่างเป็นการวัดความพึงพอใจในงานโปรดอ่านแต่ละข้อความและระบุว่าคุณเห็นด้วยหรือไม่เห็นด้วยกับประโยคดังกล่าวมากน้อยเพียงใด

1 = ไม่เห็นด้วยอย่างมาก 2 = ไม่เห็นด้วย 3 = เฉย ๆ 4 = เห็นด้วย 5 = เห็นด้วยอย่างมาก

1. โดยรวมฉันไม่ชอบงานของฉัน	1 2 3 4 5
2. โดยภาพรวมทั้งหมดฉันพึงพอใจกับงานที่ทำอยู่	1 2 3 4 5
3. โดยทั่วไปฉันชอบที่ได้ทำงานที่นี่	1 2 3 4 5

Appendix 9: IT Mindfulness Intervention Program

Appendix 9: IT Mindfulness Intervention Program

THE IT MINDFULNESS PROGRAM TO REDUCE TECHNOSTRESS AND INCREASE EMPLOYEE WELL-BEING

Developed by

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February 2023

Appendix 9: The IT Mindfulness Program to Reduce Technostress and Increase Employee Well-being

Significance of the program

Development of the IT Mindfulness Program is phase 2 in the research for the dissertation "Influence of IT Mindfulness on Technostress and Well-being among Media Agency Employees: A Structural Equation Model Analysis and an Experimental Study." This program was developed from the literature review of information technology and technostress combined with the results of the SEM analysis in phase 1, which examined the role of technostress in the relationship between IT mindfulness and employee well-being (measured in 2 dimensions of affect and satisfaction).

The COVID-19 outbreak caused employees to shift to work from home or in remote working mode (Bick et al., 2020). Various research studies have published the negative psychological impact on employee well-being, such as stress due to the imbalance between work and life. Furthermore, reduced work well-being has affected the companies' performance (Pawar, 2016). Conversely, unfavorable consequences include job dissatisfaction and high turnover. Therefore, employee well-being and job satisfaction are crucial elements that organizational psychology scholars should be aware of and enhance.

Work-from-home caused new working patterns forcing employees to use intense technology for longer, continuous periods and resulting in work stress. Industrial and organizational psychology (IO) literature has named the type of stress from using information technology 'technostress'; for example, technostress comes from the overuse of technology at work or techno-overload (Tarafdar et al., 2010). IO scholars have studied mindfulness and IT mindfulness from the literature review and proved they could reduce technostress.

The research aimed to create an IT mindfulness intervention program and study its effectiveness in reducing technostress and increasing employee well-being (affect and job satisfaction) among media agency employees in Thailand.

The current research gave academic significance by generating new knowledge by integrating established theories (technostress, IT Mindfulness, and employee well-

being), gaining a new understanding, and proposing practical human resource management solutions in organizations.

The results of phase 1 showed that there were three components of IT mindfulness that could significantly reduce technostress and increase employee well-being (affect and job satisfaction). All three IT mindfulness components: the alertness to distinction (AD), the awareness of multiple perspectives (AP), and the openness to novelty (ON) of IT mindfulness directly affected technostress creators: techno-overload (TO), techno-invasion (TI), techno-complexity (TC) and techno-insecurity (TIS) negatively and statistically ($p < 0.01$) and on TO ($p < 0.05$), except OP. All three (AD, AP, ON) antecedents also had a positive effect on work well-being and job satisfaction ($p < 0.01$).

Therefore, enhancing IT mindfulness in employees through AD, AP, and ON could improve their well-being and job satisfaction. The researcher, hence, created the IT mindfulness program from the three elements aiming to reduce the technostress level of participants who joined the program.

The program consists of four core modules, including:

1. The enhancement of alertness to distinction (AD): the module aims to increase IT users' mindfulness level and teach them to understand the capabilities of IT usage and the context in which they prove more useful.

2. Enhancing awareness of multiple perspectives (AP): the module aims to increase IT users' mindfulness level, teach them to identify numerous uses of a specific IT application, and develop innovative solutions to emerging problems.

3. The enhancement of openness to novelty (ON): the module aims to increase IT users' mindfulness level and teach them to be willing to explore more potential and innovative applications of the deployed systems.

In developing the IT mindfulness program, the researcher incorporated the mindful experiential learning practice theory into the training approach (Yeganeh & Kolb, 2009). With the mindful experiential learning practice, the research enhanced the

capacity of participants to experience, reflect, think, and create action during the training.

1. Concrete experience: the researcher enhanced mindfulness practices such as inviting participants to have a breathing exercise and focusing on new touch, sight, sound, and smell.
2. Reflective observation: the researcher invited the participants to become aware of critical time and practice acceptance.
3. Abstract conceptualization: the researcher invited the participants to question assumptions made at the moment and consider other people's perspectives.
4. Active experimentation: the researcher invited the participants to practice novel questioning by asking questions that generate possibilities.

Integrating training modules into Mindful Experiential Learning (MEL) (Yeganeh & Kolb, 2009)

MEL Theory	*Concrete experience*	*Reflective observation*	*Abstract conceptualization*	*Active experimentation*
Learning behaviors	- Practicing - Exemplifying - Roleplaying - Problem-solving - Team playing - Ice-breaking	- Deep listening - Observing others and reflecting on comments - Note-taking - Presenting solutions - Exchanging knowledge	- Questioning assumptions - Theorizing - Fact-finding	- Brainstorming - Asking questions - Planning - Generating possibilities

Module 1: The Introduction of The IT Mindfulness Program	
Objectives	1. To introduce the concept of IT mindfulness and explain its significance to the participants. 2. To introduce the concept of technostress and explain its consequence on employee well-being.
Theories	IT mindfulness theory (Thatcher et al., 2018) Technostress theory (Taradar et al., 2010) Employee well-being theory (Thatcher et al., 2018) The Mindful Experiential Learning (Yeganeh & Kolb, 2009)
Training Time and Format	Four hours of Face-to-face learning.
Training Tools and Equipment	- PPT slides - Activity sheet - VDO clips - Summary sheet: for individual learning reflection (journal).
Module's Critical Content	- The researcher performed a self-introduction and informed research objectives, training agenda, the program's significance, rules and regulations, and the participants' voluntary rights. - The researcher explained the main theoretical concepts: ▪ Employee well-being (affect and satisfaction) ▪ Technostress ▪ IT mindfulness - The researcher set a learning framework of module 1.
Module's Training Activities	*Concrete Experience:* - The researcher performed a self-introduction and shared the researcher's background as an I/O scholar. - The researcher gave away a pre-test questionnaire to participants to do.

Module 1 (Cont.)

Module 1: The Introduction of The IT Mindfulness Program	
Module's Training Activities	*Concrete Experience:* - Activity 1: Ice-breaking activity "Find three things in common." - The researcher raised the program's significance and explained the benefits of IT mindfulness in mitigating technostress and increasing employee well-being at individual and organizational levels. - The researcher informed research objectives and clarified the training agenda, rules, and regulations for productive group learning. - The researcher reviewed the critical concept of employee well-being, technostress, and IT mindfulness. *Reflective Observation* - Activity 2: Group discussion. The researcher welcomed participants to express their vision of well-being in their idealistic and had a group discussion and asked them to talk about 'IT stress' and 'stress from using IT in daily work-life.' *Abstract Conceptualization* - The researcher asked the participants to question the assumptions by inviting any disagreement with the theory. - The researcher showed the facts of IT mindfulness research and its strategy to cope with technostress and gave examples of research findings. *Active Experimentation* - The researcher asked the participants to brainstorm ideas to cope with technostress. - The researcher explained the IT mindfulness antecedents (AD, AP, ON) as mitigating strategies to cope with technostress.
Module's Training Activities	- The researcher asked the participants to write a reflection on what had been learned today. - The researcher requested the participants to perform mindfulness at home before sleep and start the next day with mindfulness practice.

Module 1 (Cont.)

Module 1: The Introduction of The IT Mindfulness Program	
Module Evaluation	Summative assessment of Module 1 - The researcher invited each participant to write a journal summary of a learning reflection.

Activity 1: Ice-breaking activity “Find three things in common.”

Objective: To create a rapport training atmosphere.

Learning theory: The Mindful Experiential Learning (Yeganeh & Kolb, 2009) / Concrete experience

Training tool: The researcher

Activity:

- The researcher broke the participants into three groups of 5, including participants from different departments.
- The researcher tasked the groups to find three things they shared.

Activity conclusion:

- The researcher asked the leader of each group to share the results.
- The researcher invited participants to share their feedback.

Module 2	The alertness to distinction (AD) enhancement
Objectives	1. To enhance the IT mindfulness level of participants by teaching the alertness to distinction (AD) so they can understand the capabilities of IT usage and the context in which they prove more useful. 2. To show proven mindfulness tactics for using AD.
Theories	IT Mindfulness Theory (Thatcher et al., 2018) The Mindful Experiential Learning (Yeganeh & Kolb, 2009)
Training Time and Format	Four hours of Face-to-face learning.
Training Tools and Equipment	- PPT slides - Activity sheet - VDO clips - Summary sheet: a summary of a learning reflection (journal).
Module's Critical Content	- The research briefly recapped the central concept of technostress and IT mindfulness as a tool to cope with the technostress effectively. - The research explained the concept of 'alertness to distinction (AD).'
Module's Training Activities	*Concrete Experience* - The researcher reviewed the vital technostress and IT mindfulness concepts in PPT slides with VDO clips. - The researcher asked the participants to practice IT mindfulness tactics by counting breathing techniques with two exercises 1) body scan 2) Gentle forms of movement and following these in the present moment steps:
Module's Training Activities	▪ Observing: notice the smells and aromas of things. ▪ Nonreactivity to inner experience: perceive the feelings and emotions without reacting to them. ▪ Describing: describe the feelings. ▪ Nonjudging of inner experience: think some of the emotions are bad or inappropriate and I shouldn't feel them. ▪ Acting with awareness.

Module 2 (Cont.)

Module 2	The alertness to distinction (AD) enhancement
Module's Training Activities	*Reflective Observation* - The researcher presented the solution to technostress which is the IT mindfulness strategy "alertness to distinction" (AD): the extent to which an IT mindful user understands the capabilities of IT usage and the context in which they will prove more useful. - Activity 1: The researcher elaborated on the AD concept via an activity (Understanding the capabilities of IT and distinctive use of the tool) by implementing a situational exercise: - The researcher gave an example of using a media agency application. *Abstract Conceptualization* - The researcher asked the participants to question the assumptions by inviting any disagreement with the theory. *Active Experimentation* - The researcher asked the participants to study its features thoroughly, present a case of a discrepancy, and let the participants brainstorm for another innovative use of the application. - The researcher asked the participants to brainstorm how to overcome techno-overload (TO) in real work life. - The researcher requested the participants to perform mindfulness at home before sleep and start the next day with mindfulness practice.
Module Evaluation	Summative assessment of Module 1 - The researcher invited each participant to write a journal summary of a learning reflection.

AD Activity 1: The alertness to distinction (AD) case "Do you think you really know the Search Insight Tool?"

Objective: To increase the participants' mindfulness level in knowing the alertness to distinction (AD) and teach them to understand the capabilities of IT usage and the context in which they prove more useful.

Learning theory: The Mindful Experiential Learning (Yeganeh & Kolb, 2009) / Concrete Experience

Training tool: The researcher, PPT slide

Activity:

- The researcher broke the participants into three groups of 5 people, making sure to include participants from different departments.
- The researcher showed the participants “The Search Insight Tool” and asked them to explain its capabilities and features as many as possible.”
- The research gave a case of a discrepancy and let the participants brainstorm for another innovative use of the application. Then, the researcher asked the participants to take 3 minutes for mindful meditation and try to brainstorm for further innovative use of the application again.
- The researcher wrapped up that by being mindful and relooking into the subject thoroughly, the participants understood more IT tools and made better use of them.

Activity Conclusion

- The researcher asked the leader of each group to share the learning of these modules.

Module 3	The awareness of multiple perspectives (AP) enhancement
Objectives	1. To enhance participants' IT mindfulness level by teaching them the awareness of multiple perspectives (AP) so they can identify numerous uses of a specific IT application and develop innovative solutions to emerging problems. 2. To show proven mindfulness tactics for using AP.
Theories	IT Mindfulness Theory (Thatcher et al., 2018) The Mindful Experiential Learning (Yeganeh & Kolb, 2009)
Training Time and Format	Four hours of Face-to-face learning.
Training Tools and Equipment	- PPT slides - Activity sheet - VDO clips - Summary sheet: a summary of a learning reflection (journal).
Module's Critical Content	- The research briefly recapped the central concept of technostress and IT mindfulness as a tool to cope with the technostress effectively. - The research explained the concept of 'awareness of multiple perspectives (AP).' *Concrete Experience* - The researcher asked the participants to practice IT mindfulness tactics with the Gas Pedal or Brake Mindful Break. o The researcher asked the participants to pause and assess their speed (checking whether they were too fast, tired, upset with occurring problems working with IT, and sighing often). o The researcher asked the participants about the underlying motivation for the task. Then, the participants brainstormed for the 'healthy ambition' to energize and provide satisfaction. o The researcher encouraged the participants to allow permission to rest over time and explore for solutions to solve the current problems. - The researcher reviewed the vital technostress and IT mindfulness concepts in PPT slides with VDO clips. - *Reflective Observation*

Module 3 (Cont.)

Module 3	The awareness of multiple perspectives (AP) enhancement
Module's Training Activities	- The researcher invited participants to share real experiences of situations when facing the technostress, such as techno-invasion (TI) and its impact (real testimonial cases). - The researcher explained the IT mindfulness strategy, "awareness of multiple perspectives" (AP): the IT mindful user can identify numerous uses of a specific IT application and develop innovative solutions to emerging problems. *Abstract Conceptualization* - The researcher asked the participants to question the assumptions by inviting any disagreement with the theory. *Active Experimentation* - The researcher asked the participants to brainstorm how to overcome techno-invasion (TI) in real work life. - The researcher requested the participants to perform mindfulness at home before sleep and start the next day with mindfulness practice. - Activity 1: The researcher elaborated on the AP concept via an activity (identify numerous uses of a specific IT application in developing innovative solutions to emerging problems by implementing a situational exercise: The researcher gave an example of a day-to-day working situation in a media agency, 'the pitching.'
Module Evaluation	Summative assessment of Module 1 The researcher invited each participant to write a journal summary of a learning reflection.

AP Activity 1: The awareness of multiple perspectives (AP) case “The new perspectives to an old problem.”

Objective: To increase the participants’ mindfulness level in knowing the awareness of multiple perspectives (AP) and teach them to find innovative solutions to the current problem.

Learning theory: The Mindful Experiential Learning (Yeganeh & Kolb, 2009) / Concrete Experience

Training tool: The researcher, PPT slide

Activity:

1. The participants received a case during the pitch, and a problem with using the IT application will happen. Then, the researcher asked the participants to divide into three groups of 5 people and brainstorm innovative solutions to the emerging problem.
2. The researcher gave a pitch case and a specific media agency application to use.
3. The research gave a condition facing a problem using the application.
4. The researcher asked the participants to take 3 minutes for mindful meditation and brainstorm additional solutions to cope with the problems.
5. The researcher wrapped up that by being mindful and relooking into the subject thoroughly, the participants solved the current problems.

Activity conclusion:

The researcher asked the leader of each group to share the learning of this module.

Module 4	The openness to novelty (ON) enhancement
Objectives	1. To enhance the IT mindfulness level of participants by teaching the openness to novelty (ON) so they can explore more potential and innovative applications of the IT application. 2. To show proven mindfulness tactics for using ON.
Theories	IT Mindfulness Theory (Thatcher et al., 2018) The Mindful Experiential Learning (Yeganeh & Kolb, 2009)
Training Time and Format	Four hours of Face-to-face learning.
Training Tools and Equipment	- PPT slides - Activity sheet - VDO clips Summary sheet: a summary of a learning reflection (journal).
Module's Critical Content	- The research briefly recapped the central concept of technostress and IT mindfulness as a tool to cope with the technostress effectively. - The research explained the concept of 'openness to novelty (ON).'
Module's Training Activities	*Concrete Experience* - The researcher asked the participants to practice IT mindfulness tactics with the Oxygen Mindful Break. ○ The researcher asked the participants to leave the training and find the space where they would go for the oxygen break. ○ The participants stayed at the oxygen break space for 10 minutes, practiced meditation, and returned to the training room. ○ The researcher opened the floor for volunteers to share their oxygen break space and meditation tactics. ○ The researcher invited feedback and comments from any participants. *Reflective Observation* - The researcher reviewed the vital technostress and IT mindfulness concepts in PPT slides with VDO clips. - The researcher invited participants to share real experiences of situations when facing the technostress, such as techno-complexity (TC) and its impact (real testimonial cases).

Module 4 (Cont.)

Module 4	The openness to novelty (ON) enhancement
	- The researcher explained the IT mindfulness strategy, "openness to novelty" (ON): The IT mindful user could explore more potential and innovative applications at work to cope with TC.
	Abstract Conceptualization
	- The researcher asked the participants to question the assumptions by inviting any disagreement with the theory.
	Active Experimentation
	- The researcher asked the participants to brainstorm how to overcome techno-complexity (TC) in real work life.
	- The researcher requested the participants to perform mindfulness at home before sleep and start the next day with mindfulness practice.
	- Activity 1: The researcher elaborated on the ON concept via an activity (explore more potential and innovative applications of the IT application) by implementing a situational exercise:
	The researcher gave an example of the latest IT application, 'CHAT GPT,' which is currently widely used in organizations worldwide.
Module Evaluation	Summative assessment of Module 1
	Formative assessment of the overall modules.
	- The researcher invited each participant to write a journal summary of a learning reflection.
Training Closing Session	1. The researcher closed the training by recapping the three learning concepts (variables) and their interrelationship: technostress, employee well-being, and IT mindfulness as coping strategies.
	2. The researcher emphasized the tactics of IT mindfulness: the alertness to distinction (AP), the awareness of multiple perspectives (AP), and the openness to novelty (ON)
	The researcher gave the post-test questionnaire to the participants.

ON Activity 1: The openness to novelty (ON) case “A Debate in Chat GPT topic. Are you open to it?”

Objective: To increase the participants’ mindfulness level in openness to novelty (ON) and teach them to explore the more potential and innovative use of new applications at work.

Learning theory: The Mindful Experiential Learning (Yeganeh & Kolb, 2009) / Concrete experience

Training tool: The researcher, PPT slide, VDO clip

Activity:

1. The researcher created a debate session on the openness to CHAT GPT.
2. The researcher divided the participants into the proposer and the opposition.
3. The researcher opened the floor for two rounds of debate.
4. During each round, the researcher asked the participants to take 3 minutes for mindful meditation.
5. The researcher wrapped up that by being mindful and relooking at the results of the debate,
6. Participants of the two groups were welcome to express their opinions.

Activity conclusion:

The researcher asked the leader of each group to share the learning of these modules.

REFERENCES

Achor, S. (2018). *Big potential: How transforming the pursuit of success raises our achievement, happiness, and well-being*. Currency.

Afifi, T. D., Zamanzadeh, N., Harrison, K., & Callejas, M. A. (2018). WIRED: The impact of media and technology use on stress (cortisol) and inflammation (interleukin IL-6) in fast paced families. *Computers in Human Behavior, 81*, 265-273. https://doi.org/10.1016/j.chb.2017.12.010

Al-Fudail, M., & Mellar, H. (2008, 01/01/January 2008). Investigating teacher stress when using technology [Article]. *Computers & Education, 51*(3), 1103-1110. https://doi.org/10.1016/j.compedu.2007.11.004

Alnakhli, H. Q. (2019). *BETTER, BUSIER, OR STRESSED OUT? EXPLORING SOCIAL MEDIA-INDUCED TECHNOSTRESS IN A SALES CONTEXT* [thesis, BASE. United States, North America. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edsbas&AN=edsbas.748430ED&site=eds-live&custid=ns016262

Althammer, S. E., Reis, D., van der Beek, S., Beck, L., & Michel, A. (2021). A mindfulness intervention promoting work–life balance: How segmentation preference affects changes in detachment, well‐being, and work–life balance. *Journal of Occupational and Organizational Psychology, 94*(2), 282-308. https://doi.org/10.1111/joop.12346

Andrews, F. M., & Crandall, R. (1976). The validity of measures of self-reported well-being. *Social Indicators Research, 3*, 1-19.

Andrews, F. M., & McKennell, A. C. (1980, 06/01/). Measures of Self-Reported Well-Being: Their Affective, Cognitive, and Other Components [research-article]. *Social Indicators Research, 8*(2), 127-155. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edsjsr&

AN=edsjsr.27521982&site=eds-live&custid=ns016262

Ayyagari, R., Grover, V., & Purvis, R. (2011, 12/01/). Technostress: Technological Antecedents and Implications [research-article]. *MIS Quarterly, 35*(4), 831-858. https://doi.org/10.2307/41409963

Azpíroz-Dorronsoro, C., Fernández-Muñiz, B., Montes-Peón, J. M., & Vázquez-Ordás, C. J. (2023). Technostress and work-family conflict in ICT-user employees during the COVID-19 pandemic: the role of social support and mindfulness. *Behaviour & Information Technology*, 1-23. https://doi.org/https://doi.org/10.1080/0144929X.2023.2220051

Bacon, L. D., & Bacon, L. D. (2001). *Using Amos for structural equation modeling in market research*. Lynd Bacon & Associates Limited and SPSS Incorporated Chicago, IL.

Ballantyne, C., Hunter, P. V., Potter, G. K., & Myge, I. (2021). Mindfulness and perceptions of physical health: The mediating role of perceived stress. *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement, 53*(3), 321. https://doi.org/10.1037/cbs0000255

Banerjee, A., & Chaudhury, S. (2010). Statistics without tears: Populations and samples. *Industrial psychiatry journal, 19*(1), 60. https://doi.org/10.4103/0972-6748.77642

Bartlett, L., Martin, A., Neil, A. L., Memish, K., Otahal, P., Kilpatrick, M., & Sanderson, K. (2019). A systematic review and meta-analysis of workplace mindfulness training randomized controlled trials. *Journal of occupational health psychology, 24*(1), 108. https://doi.org/10.1037/ocp0000146

Berghoff, C. R., Wheeless, L. E., Ritzert, T. R., Wooley, C. M., & Forsyth, J. P. (2017). Mindfulness meditation adherence in a college sample: comparison of a 10-min versus 20-min 2-week daily practice. *Mindfulness, 8*, 1513-1521. https://doi.org/10.1007/s12671-017-0717-y

Bhatti, N., Shar, A. H., Shaikh, F. M., & Nazar, M. S. (2010). Causes of stress in organization, a case study of Sukkur. *International Journal of Business and Management, 5*(11), 3.

Black, D. S. (2011). A brief definition of mindfulness. *Behavioral Neuroscience, 7*(2), 109.

Bodhi, B. (1984). The noble eightfold path: The way to the end of suffering.

Boonjing, V., & Chanvarasuth, P. (2017, 01/01/January 2017). Risk of overusing mobile phones: Technostress effect [Article]. *Procedia Computer Science, 111*, 196-202. https://doi.org/10.1016/j.procs.2017.06.053

Bostock, S., Crosswell, A. D., Prather, A. A., & Steptoe, A. (2019). Mindfulness On-The-Go: Effects of a Mindfulness Meditation App on Work Stress arid Well-Being. *24*(1), 127-138. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edsbl&AN=RN619298340&site=eds-live&custid=ns016262

Boyer-Davis, S. (2019, //Fall2019). TECHNOSTRESS: AN ANTECEDENT OF JOB TURNOVER INTENTION IN THE ACCOUNTING PROFESSION. *Journal of Business & Accounting, 12*(1), 49-63. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edb&AN=143486890&site=eds-live&custid=ns016262

Bradburn, N. M. (1969). The structure of psychological well-being.

Brennan, F. (2021). Technostress and leadership: a case study in higher education during the COVID-19 crisis. https://urn.fi/URN:NBN:fi:amk-202102112218

Brod, C. (1984). *Technostress : the human cost of the computer revolution*. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edsbvb&AN=edsbvb.BV000220363&site=eds-live&custid=ns016262

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84*(4),

822. https://doi.org/10.1037/0022-3514.84.4.822

Browne, R. H. (1995). On the use of a pilot sample for sample size determination. *Statistics in medicine, 14*(17), 1933-1940. https://doi.org/10.1002/sim.4780141709

Butler, B. S., & Gray, P. H. (2006, 06/01/). Reliability, Mindfulness, and Information Systems [research-article]. *MIS Quarterly, 30*(2), 211-224. https://doi.org/10.2307/25148728

Cambridge. (2020). https://dictionary.cambridge.org/dictionary/english/illusion

Caro, D. H., & Sethi, A. S. (1985). Strategic management of technostress: The chaining of Prometheus. *Journal of medical systems, 9*, 291-304. https://doi.org/10.1007/BF00992568

Champion, S. (1988). Technostress: technology's toll. *35*(3), 48. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edsgao&AN=edsgcl.6818988&site=eds-live&custid=ns016262

Chen, Y., Wang, X., Benitez, J., Luo, X., & Li, D. (2022). Does techno-invasion lead to employees' deviant behaviors? *Journal of Management Information Systems, 39*(2), 454-482. https://doi.org/10.1080/07421222.2022.2063557

Choi, S. B., & Lim, M. S. (2016, 08/01/). Effects of social and technology overload on psychological well-being in young South Korean adults: The mediatory role of social network service addiction [Report]. *Computers in Human Behavior, 61*, 245. https://doi.org/10.1016/j.chb.2016.03.032

Cohen, L., Manion, L., & Morrison, K. (2017). *Research methods in education*. routledge.

Cooper, D. R., Schindler, P. S., Cooper, D. R., & Schindler, P. S. (2006). *Marketing research*. McGraw-Hill/Irwin New York.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *psychometrika, 16*(3), 297-334. https://doi.org/10.1007/BF02310555

Cropanzano, R., & Wright, T. A. (2001). When a 'Happy' Worker Is Really a 'Productive' Worker: A Review and Further Refinement of the Happy-Productive Worker Thesis. *53*(3), 182-199. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edsbl&AN=RN101930440&site=eds-live&custid=ns016262

Crumpler, C. (2022). *What is Mindfulness? A Simple Practice for Greater Wellbeing*. heatlline.com.

Davids, T. (1959). Rhys, and William Stede. *The Pali-English Dictionary*.

de Jong, J. (2014, 2014/01/01/). Externalization motives and temporary versus permanent employee psychological well-being: A multilevel analysis. Great Britain.

De Smet, A., Loch, M., & Schaninger, B. (2007). Anatomy of a healthy corporation. (3), 64-73. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edsbl&AN=RN214652261&site=eds-live&custid=ns016262

Deng, L., Yang, M., & Marcoulides, K. M. (2018). Structural equation modeling with many variables: A systematic review of issues and developments. *Frontiers in psychology, 9*, 580. https://doi.org/10.3389/fpsyg.2018.00580

Dictionary, C. (2008). Cambridge advanced learner's dictionary. *Recuperado de: https://dictionary. cambridge. org/es/diccionario/ingles/blended-learning*.

Diener, E. (2000). Subjective Well-Being: The Science of Happiness and a Proposal for a National Index. *55*(1), 34-43. https://doi.org/10.1037/0003-066X.55.1.34 https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edsbl&AN=RN074551040&site=eds-live&custid=ns016262

Diener, E., & Emmons, R. A. (1984). The independence of positive and negative affect. *Journal of Personality and Social Psychology, 47*(5), 1105. https://doi.org/10.1037/0022-3514.47.5.1105

Dollard, M. F., Winefield, H. R., Winefield, A. H., & De Jonge, J. (2000). Psychosocial job strain and productivity in human service workers: a test of the demand-control-support model. *Journal of Occupational and Organizational Psychology, 73*(4), 501-510. https://doi.org/10.1348/096317900167182

Dragano, N., & Lunau, T. (2020, 07/01/). Technostress at work and mental health: concepts and research results. *Current Opinion in Psychiatry, 33*(4), 407. https://doi.org/10.1097/YCO.0000000000000613

Droit-Volet, S., Chaulet, M., Dutheil, F., & Dambrun, M. (2019). Mindfulness meditation, time judgment and time experience: Importance of the time scale considered (seconds or minutes). *PLoS One, 14*(10), e0223567. https://doi.org/10.1371/journal.pone.0223567

Edgar, F., Geare, A., & Zhang, J. A. (2017, 11/06/). A comprehensive concomitant analysis of service employees' well-being and performance [JOURNAL]. *Personnel Review, 46*(8), 1870-1889. https://doi.org/10.1108/PR-05-2016-0108

Elder, C., Nidich, S., Moriarty, F., & Nidich, R. (2014, Winter2014). Effect of Transcendental Meditation on Employee Stress, Depression, and Burnout: A Randomized Controlled Study [Article]. *Permanente Journal, 18*(1), 19-23. https://doi.org/10.7812/TPP/13-102

Fink, G. (2016). *Stress: The Health Epidemic of the 21st Century*. scitechconnect.elsevier.com. https://scitechconnect.elsevier.com/stress-health-epidemic-21st-century/

Florea, R., & Florea, R. (2016). Individual and organizational implications of work-related stress. *Economy Transdisciplinarity Cognition, 19*(1), 28.

Fuglseth, A. M., & Sørebø, Ø. (2014, 11/01/November 2014). The effects of technostress within the context of employee use of ICT [Article]. *Computers in Human Behavior, 40*, 161-170. https://doi.org/10.1016/j.chb.2014.07.040

Galanti, T., Guidetti, G., Mazzei, E., Zappalà, S., & Toscano, F. (2021). Work from home during the COVID-19 outbreak: The impact on employees' remote work productivity, engagement, and stress. *Journal of occupational and environmental medicine, 63*(7), e426. https://doi.org/10.1097/JOM.0000000000002236

Gall, M. D., Borg, W. R., & Gall, J. P. (1996). *Educational research: An introduction*. Longman Publishing.

Ghislieri, C., Emanuel, F., Molino, M., Cortese, C. G., & Colombo, L. (2017). New Technologies Smart, or Harm Work-Family Boundaries Management? Gender Differences in Conflict and Enrichment Using the JD-R Theory. *Frontiers in psychology, 8*, 1070. https://doi.org/10.3389/fpsyg.2017.01070

Glomb, T. M., Duffy, M. K., Bono, J. E., & Yang, T. (2011). Mindfulness at work. In *Research in personnel and human resources management*. Emerald Group Publishing Limited.

Grant, A. M., Christianson, M. K., & Price, R. H. (2007, 08/01/). Happiness, Health, or Relationships? Managerial Practices and Employee Well-Being Tradeoffs [research-article]. *Academy of Management Perspectives, 21*(3), 51-63. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edsjsr&AN=edsjsr.27747391&site=eds-live&custid=ns016262

Greene, P. (2020). *How Long Should You Meditate For? And How Often?* https://www.manhattancbt.com/archives/309/how-long-should-you-meditate/

Grégoire, S., & Lachance, L. (2015, 08/01/). Evaluation of a Brief Mindfulness-Based Intervention to Reduce Psychological Distress in the Workplace [Original Paper]. *Mindfulness, 6*(4), 836-847. https://doi.org/10.1007/s12671-014-0328-9

Griffith, R. L., Steelman, L. A., Moon, N., al-Qallawi, S., & Quraishi, N. (2018, 2018/01/01/). Guided Mindfulness: Optimizing Experiential Learning of Complex Interpersonal Competencies.

Group, T. W. (1998). The World Health Organization quality of life assessment (WHOQOL): development and general psychometric properties. *Social science & medicine, 46*(12), 1569-1585. https://doi.org/10.1016/0277-9536(95)00112-K

Grover, S. L., Teo, S. T., Pick, D., & Roche, M. (2017). Mindfulness as a personal resource to reduce work stress in the job demands-resources model. *Stress and Health, 33*(4), 426-436. https://doi.org/10.1002/smi.2726

Grummeck-Braamt, J.-V., Nastjuk, I., Najmaei, A., & Adam, M. (2021). A bibliometric review of technostress: Historical roots, evolution and central publications of a growing research field. http://hdl.handle.net/10125/71416

Grzywacz, J. G., Almeida, D. M., & McDonald, D. A. (2002). Work–family spillover and daily reports of work and family stress in the adult labor force. *Family relations, 51*(1), 28-36. https://doi.org/10.1111/j.1741-3729.2002.00028.x

Hair, J. F. (2009). Multivariate data analysis.

Hang, Y., Hussain, G., Amin, A., & Abdullah, M. I. (2022). The moderating effects of technostress inhibitors on techno-stressors and employee's well-being. *Frontiers in psychology, 12*, 6386. https://doi.org/10.3389/fpsyg.2021.821446

Hertzog, M. A. (2008). Considerations in determining sample size for pilot studies. *31*(2), 180-191. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edsbl&AN=RN225796166&site=eds-live&custid=ns016262

Hooper, D. C., J.; Mullen, M. R. (2008). Structural Equation Modelling: Guidelines for Determining Model Fit. *Electronic Journal of Business Research Methods, 6*(1), 53-60.

Hu, L. t., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal, 6*(1), 1-55.

https://doi.org/10.1080/10705519909540118

Ioannou, A., Lycett, M., & Marshan, A. (2022). The role of mindfulness in mitigating the negative consequences of technostress. *Information Systems Frontiers*, 1-27. https://doi.org/10.1007/s10796-021-10239-0

Ioannou, A., & Papazafeiropoulou, A. (2017, 2017/01/01/). Using IT Mindfulness to Mitigate the Negative Consequences of Technostress.

Israel, G. D. (1992). Determining sample size. https://doi.org/10.1177/104973200129118183

Jager, J., Putnick, D. L., & Bornstein, M. H. (2017). II. More than just convenient: The scientific merits of homogeneous convenience samples. *Monographs of the Society for Research in Child Development, 82*(2), 13-30. https://doi.org/10.1111/mono.12296

Jarukasemthawee, S., & Pisitsungkagarn, K. (2021). Mindfulness and eudaimonic well-being: the mediating roles of rumination and emotion dysregulation. *International Journal of Adolescent Medicine and Health, 33*(6), 347-356. https://doi.org/10.1515/ijamh-2021-0009

Järveläinen, J., Sell, A., & Walden, P. (2021, 01/01/). The impact of IT mindfulness on complex task performance. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edsbas&AN=edsbas.E874239C&site=eds-live&custid=ns016262

Jena, R. K. (2015, 10/01/October 2015). Technostress in ICT enabled collaborative learning environment: An empirical study among Indian academician [Article]. *Computers in Human Behavior, 51*(Part B), 1116-1123. https://doi.org/10.1016/j.chb.2015.03.020

Jeurissen, T., & Nyklícek, I. (2001). Testing the Vitamin Model of job stress in Dutch health care workers. *Work & Stress, 15*(3), 254-264.

https://doi.org/10.1080/02678370110066607

Juchnowicz, M., & Kinowska, H. (2021). Employee well-being and digital work during the COVID-19 pandemic. *Information, 12*(8), 293. https://doi.org/10.3390/info12080293

Junça-Silva, A., Pombeira, C., & Caetano, A. (2021). Testing the affective events theory: The mediating role of affect and the moderating role of mindfulness. *Applied Cognitive Psychology, 35*(4), 1075-1081. https://doi.org/10.1002/acp.3843

Juniper, B. (2011). Defining employee wellbeing. *Occupational Health, 63*(10), 25-25. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=ccm&AN=66846429&site=eds-live&custid=ns016262

Kabat-Zinn, J. (1982). An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: theoretical considerations and preliminary results. *General Hospital Psychiatry, 4*, 33-47. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=ccm&AN=107621363&site=eds-live&custid=ns016262

Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: past, present, and future. https://doi.org/10.1093/clipsy.bpg016

Kate, P. T. (2021). *Thai entertainment and media revenues to reach THB600bn in 2025*. www.pwc.com. https://www.pwc.com/th/en/press-room/press-release/2021/press-release-30-07-21-en.html

Khongmalai, O., Distanont, A., & Tunekkun, N. (2022). Impacts of Job characteristic and Technostress inhibitors on WFH Job performance: Context of Banking industry. *Management, 19*, 21.

Kim, D. G., & Lee, C. W. (2021). Exploring the roles of self-efficacy and technical support in the relationship between techno-stress and counter-productivity. *Sustainability, 13*(8), 4349. https://doi.org/10.3390/su13084349

Kline, R. B. (2023). *Principles and practice of structural equation modeling*. Guilford

publications.

Körner, U., Müller-Thur, K., Lunau, T., Dragano, N., Angerer, P., & Buchner, A. (2019, 2019/01/01/). Perceived stress in human–machine interaction in modern manufacturing environments—Results of a qualitative interview study. Great Britain.

Korosec-Serfaty, M., Vasseur, A., Léger, P.-M., & Sénécal, S. (2021, 2021/01/01/). Disentangling Technostress and Financial Stress Impacts on Users' Psychophysiological Responses and Coping Behaviors in the Context of Mobile Banking.

Kosasih, F. R., Yee, V. T. S., Toh, S. H. Y., & Suendermann, O. (2022). “Intellect”, a Mobile Health Application based on cognitive-behavioral therapy principles, improves Anxiety and Worry: A Randomized Controlled Trial with an Active Control and a 2-Week Follow-Up. *medRxiv*, 2022.2007. 2025.22278034.

Kuykendall, L., & Tay, L. (2015). Employee subjective well-being and physiological functioning: An integrative model. *Health Psychology Open, 2*(1), 2055102915592090. https://doi.org/10.1177/2055102915592090

Lades, L. K., Laffan, K., Daly, M., & Delaney, L. (2020). Daily emotional well-being during the COVID-19 pandemic [Article]. *British Journal of Health Psychology, 25*(4), 902-911. https://doi.org/10.1111/bjhp.12450

Laker, B. (2021). *94% Of Workers Are Stressed: KPMG Research Reveals Covid-19’s Lingering Effects On Employees*. https://www.forbes.com/. https://www.forbes.com/sites/benjaminlaker/2021/05/04/the-future-world-of-work-is-fascinating-reveals-new-research-from-kpmg/?sh=1e34b8ab6865

Langer, E. J. (1989). *Minding Matters: The Consequences of Mindlessness–Mindfulness* [book part]. Elsevier. https://doi.org/10.1016/s0065-2601(08)60307-x

Langer, E. J. (1992, 01/01/). Matters of mind: Mindfulness/mindlessness in perspective [article in journal/newspaper]. *Consciousness and Cognition ; volume 1, issue 3,*

page 289-305 ; ISSN 1053-8100. https://doi.org/10.1016/1053-8100(92)90066-j

Lawler, E., Cammann, C., Nadler, D., & Jenkins, D. (1979). Michigan organizational assessment questionnaire. *Journal of vocational behavior*. https://doi.org/10.1037/t01581-000

Le Boedec, K. (2016). Sensitivity and specificity of normality tests and consequences on reference interval accuracy at small sample size: a computer‐simulation study. *Veterinary clinical pathology, 45*(4), 648-656. https://doi.org/10.1111/vcp.12390

Leesa-Nguansuk. (2022). *Media spending set to hit B85.7bn in 2023*. www.bangkokpost.com. https://www.bangkokpost.com/business/2465220/media-spending-set-to-hit-b85-7bn-in-2023

Lomas, T., Medina, J. C., Ivtzan, I., Rupprecht, S., & Eiroa-Orosa, F. J. (2019, 2019/01/01/). Mindfulness-based interventions in the workplace: An inclusive systematic review and meta-analysis of their impact upon wellbeing. Great Britain.

Luhmann, M., Hawkley, L. C., Eid, M., & Cacioppo, J. T. (2012, 08/01/August 2012). Time frames and the distinction between affective and cognitive well-being [Article]. *Journal of Research in Personality, 46*(4), 431-441. https://doi.org/10.1016/j.jrp.2012.04.004

MAAT. (2022). *2022 Media & Advertising Spending Report*. http://mediaagencythai.com/. http://mediaagencythai.com/index.php/adex/adex/326-2022-media-advertising-spending-report-source-nielsen

Maier, C., Laumer, S., Weinert, C., & Weitzel, T. (2015, 05/01/). The effects of technostress and switching stress on discontinued use of social networking services: a study of Facebook use [Report]. *Information Systems Journal, 25*(3), 275. https://doi.org/10.1111/isj.12068

Mantzios, M., & Giannou, K. (2019). A real-world application of short mindfulness-based practices: a review and reflection of the literature and a practical proposition for an

effortless mindful lifestyle. *American Journal of Lifestyle Medicine, 13*(6), 520-525. https://doi.org/10.1177/1559827618772036

Memon, M. A., Ting, H., Cheah, J.-H., Thurasamy, R., Chuah, F., & Cham, T. H. (2020). Sample size for survey research: Review and recommendations. *Journal of Applied Structural Equation Modeling, 4*(2), 1-20.

Michel, A., Bosch, C., & Rexroth, M. (2014). Mindfulness as a cognitive–emotional segmentation strategy: An intervention promoting work–life balance. *Journal of Occupational and Organizational Psychology, 87*(4), 733-754. https://doi.org/10.1111/joop.12072

Minke, A. (1997). Conducting Repeated Measures Analyses: Experimental Design Considerations.

Mohan, A., Sharma, R., & Bijlani, R. L. (2011). Effect of meditation on stress-induced changes in cognitive functions. *The Journal of Alternative and Complementary Medicine, 17*(3), 207-212. https://doi.org/10.1089/acm.2010.0142

Molino, M., Ingusci, E., Signore, F., Manuti, A., Giancaspro, M. L., Russo, V., Zito, M., & Cortese, C. G. (2020). Wellbeing costs of technology use during Covid-19 remote working: An investigation using the Italian translation of the technostress creators scale. *Sustainability, 12*(15), 5911. https://doi.org/10.3390/su12155911

Nimrod, G. (2018). Technostress: measuring a new threat to well-being in later life. *Aging & mental health, 22*(8), 1086-1093. https://doi.org/10.1080/13607863.2017.1334037

OECD. (2021). *COVID-19 and Well-being*. https://doi.org/doi:https://doi.org/10.1787/1e1ecb53-en

Ong, C. W., Levin, M. E., & Twohig, M. P. (2020). Beyond acceptance and commitment therapy: Process-based therapy. *The psychological record, 70*, 637-648.

Ozimek, A. (2020). The future of remote work. *Available at SSRN 3638597*. https://doi.org/http://dx.doi.org/10.2139/ssrn.3638597

Palumbo, R. (2020). Let me go to the office! An investigation into the side effects of working from home on work-life balance. *International Journal of Public Sector Management, 33*(6/7), 771-790. https://doi.org/https://doi.org/10.1108/IJPSM-06-2020-0150

Pandey, S., & Pandey, A. (2021, 07//Jul-Sep2021). Study on Perceived Stress and Physical Stress associated with WFH during COVID 19 Pandemic. *Indian Journal of Forensic Medicine & Toxicology, 15*(3), 4295-4303. https://doi.org/10.37506/ijfmt.v15i3.15967

Pawar, B. S. (2016, 10/03/). Workplace spirituality and employee well-being: an empirical examination [JOURNAL]. *Employee Relations, 38*(6), 975-994. https://doi.org/10.1108/ER-11-2015-0215

Penn, R. L. (2016, 01/01/). Mitigation Strategies of Technostress on Supply Chain Management [text]. *Walden Dissertations and Doctoral Studies*. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edsbas&AN=edsbas.63AED087&site=eds-live&custid=ns016262

Perez-Pereda, M. J., Babvey, P., Ramirez-Marquez, J., Pepe, K., & Verma, D. (2022, 07/01/). Impacts of work-at-home policies on systems engineers and the general population [Report]. *Systems Engineering, 25*(4), 304. https://doi.org/10.1002/sys.21617

Petchsawang, P., & McLean, G. N. (2017, 2017/01/01/). Workplace spirituality, mindfulness meditation, and work engagement. Great Britain.

Pfaffinger, K. F., Reif, J. A. M., & Spieß, E. (2022, 2022/01/01/). When and why telepressure and technostress creators impair employee well-being.

Pfeffer, J. (2018). The overlooked essentials of employee well-being. *McKinsey Quarterly,*

3(2018), 82-89.

Pflügner, K., Maier, C., & Weitzel, T. (2021, 02/01/February 2021). The direct and indirect influence of mindfulness on techno-stressors and job burnout: A quantitative study of white-collar workers [Article]. *Computers in Human Behavior, 115*. https://doi.org/10.1016/j.chb.2020.106566

Pirkkalainen, H., Salo, M., Makkonen, M., & Tarafdar, M. (2017, 01/01/). Coping with Technostress: When Emotional Responses Fail [text]. *ICIS 2017 Proceedings*. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edsbas&AN=edsbas.C0E28F95&site=eds-live&custid=ns016262

Pradhan, R. K., & Hati, L. (2019, 01/01/). The Measurement of Employee Well-being: Development and Validation of a Scale [article in journal/newspaper]. *Global Business Review ; volume 23, issue 2, page 385-407 ; ISSN 0972-1509 0973-0664*. https://doi.org/10.1177/0972150919859101

Praissman, S. (2008, 04/01/). Mindfulness-based stress reduction: A literature review and clinician's guide [Report]. *Journal of the American Academy of Nurse Practitioners, 20*(4), 212. https://doi.org/10.1111/j.1745-7599.2008.00306.x

Ragu-Nathan, T. S., Tarafdar, M., Ragu-Nathan, B. S., & Tu, Q. (2008, 12/01/). The Consequences of Technostress for End Users in Organizations: Conceptual Development and Empirical Validation [research-article]. *Information Systems Research, 19*(4), 417-433. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edsjsr&AN=edsjsr.23015440&site=eds-live&custid=ns016262

Ramaci, T., Rapisarda, V., Bellini, D., Mucci, N., De Giorgio, A., & Barattucci, M. (2020). Mindfulness as a protective factor for dissatisfaction in HCWs: The moderating role of mindful attention between climate stress and job satisfaction. *International Journal of Environmental Research and Public Health, 17*(11), 3818. https://doi.org/10.3390/ijerph17113818

Reb, J., & Choi, E. (2014). *Mindfulness in organizations*. Nova Science Publishers.

Rexroth, M., Michel, A., & Bosch, C. (2017, 01/01/Number 4/2017). Promoting Well-Being by Teaching Employees How to Segment Their Life Domains. *Zeitschrift für Arbeits- und Organisationspsychologie A&O, 61*(4), 197-212. https://doi.org/10.1026/0932-4089/a000253

Roberts, N., Thatcher, J., & Klein, R. (2007). Tying context to Post-Adoption Behavior with information Technology: A conceptual and operational definition of mindfulness.

Rogers, C. R. (1961). The process equation of psychotherapy. *American journal of psychotherapy, 15*, 27-45. https://doi.org/10.1176/appi.psychotherapy.1961.15.1.27

Saganuwan, M. U., Ismail, W. K. W., & Ahmad, U. N. U. (2015). Conceptual framework: AIS technostress and its effect on professionals' job outcomes. *Asian Social Science, 11*(5), 97.

Sami, L. K., & Pangannaiah, N. (2006). "Technostress" A literature survey on the effect of information technology on library users. *Library review, 55*(7), 429-439. https://doi.org/10.1108/00242530610682146

Schneiderman, N., Ironson, G., & Siegel, S. D. (2005). Stress and health: psychological, behavioral, and biological determinants. *Annual review of clinical psychology, 1*, 607-628. https://doi.org/10.1146/annurev.clinpsy.1.102803.144141

Schultz, P. P., Ryan, R. M., Niemiec, C. P., Legate, N., & Williams, G. C. (2015). Mindfulness, work climate, and psychological need satisfaction in employee well-being. *Mindfulness, 6*, 971-985. https://doi.org/10.1007/s12671-014-0338-7

Segal, Z. V., Teasdale, J. D., Williams, J. M., & Gemar, M. C. (2002). The mindfulness-based cognitive therapy adherence scale: inter-rater reliability, adherence to protocol and treatment distinctiveness [Article]. *Clinical Psychology & Psychotherapy, 9*(2), 131-138. https://doi.org/10.1002/cpp.320

Selye, H. (1956). What is stress. *Metabolism, 5*(5), 525-530.

Shapiro, S., Rechtschaffen, D., & de Sousa, S. (2016). Mindfulness training for teachers. *Handbook of mindfulness in education: Integrating theory and research into practice*, 83-97.

Shapiro, S. L., Oman, D., Thoresen, C. E., Plante, T. G., & Flinders, T. (2008). Cultivating mindfulness: effects on well-being. *64*(7), 840-862. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edsbl&AN=RN231692069&site=eds-live&custid=ns016262

Sirgy, M. J., Efraty, D., Siegel, P., & Lee, D.-J. (2001, 09/01/). A New Measure of Quality of Work Life (QWL) Based on Need Satisfaction and Spillover Theories [research-article]. *Social Indicators Research, 55*(3), 241-302. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edsjsr&AN=edsjsr.27526956&site=eds-live&custid=ns016262

Slemp, G. R., Kern, M. L., & Vella-Brodrick, D. A. (2015). Workplace well-being: The role of job crafting and autonomy support. *Psychology of Well-being, 5*(1), 1-17. https://doi.org/10.1186/s13612-015-0034-y

Smith, C. (2013). *Are media professionals more stressed than ever before?* www.theguardian.com. https://www.theguardian.com/media-network/media-network-blog/2013/oct/18/media-professionals-stressed-work-career

Song, Y., & Gao, J. (2020). Does telework stress employees out? A study on working at home and subjective well-being for wage/salary workers. *Journal of Happiness Studies, 21*(7), 2649-2668. https://doi.org/10.1007/s10902-019-00196-6

Srivastava, S. C., Chandra, S., & Shirish, A. (2015). Technostress creators and job outcomes: theorising the moderating influence of personality traits. *25*(4), 355-401. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edsbl&AN=RN376196070&site=eds-live&custid=ns016262

Sternberg, R. J. (2002). Images of mindfulness. *Journal of Social issues, 56*(1), 11-26. https://doi.org/10.1111/0022-4537.00149

Stewart, T. (2023). *Marketing and media faced with 'worst-ever' talent shortage*. New Digital Age. https://newdigitalage.co/advertising/marketing-and-media-faced-with-worst-ever-talent-shortage/

Suh, A., & Lee, J. (2017, 02/06/). Understanding teleworkers' technostress and its influence on job satisfaction [JOURNAL]. *Internet Research, 27*(1), 140-159. https://doi.org/10.1108/IntR-06-2015-0181

Sullivan, L. M. (2008). Repeated measures. *Circulation, 117*(9), 1238-1243. https://doi.org/10.1161/CIRCULATIONAHA.107.654350

Swanson, E. B., & Ramiller, N. C. (2004, 12/01/). Innovating Mindfully with Information Technology [research-article]. *MIS Quarterly, 28*(4), 553-583. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edsjsr&AN=edsjsr.25148655&site=eds-live&custid=ns016262

Tacy, J. W. (2016, Summer2016). Technostress: A Concept Analysis. *Online Journal of Nursing Informatics, 20*(2), 8-8. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=ccm&AN=117367837&site=eds-live&custid=ns016262

Tangmunkongvorakul, A., Musumari, P. M., Thongpibul, K., Srithanaviboonchai, K., Techasrivichien, T., Suguimoto, S. P., Ono-Kihara, M., & Kihara, M. (2019). Association of excessive smartphone use with psychological well-being among university students in Chiang Mai, Thailand. *PLoS One, 14*(1), e0210294.

Tarafdar, M., Cooper, C. L., & Stich, J.-F. (2019, 01/01/). The technostress trifecta - techno eustress, techno distress and design: Theoretical directions and an agenda for research. *Information Systems Journal, 29*(1), 6. https://doi.org/10.1111/isj.12169

Tarafdar, M., Pullins, E. B., & Ragu-Nathan, T. S. (2015). Technostress: negative effect on

performance and possible mitigations. *25*(2), 103-132. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edsbl&AN=RN367147294&site=eds-live&custid=ns016262

Tarafdar, M., Tu, Q., Ragu-Nathan, B. S., & Ragu-Nathan, T. S. (2007, 07/01/). The Impact of Technostress on Role Stress and Productivity [research-article]. *Journal of Management Information Systems, 24*(1), 301-328. https://doi.org/10.2753/MIS0742-1222240109

Tarafdar, M., Tu, Q., & Ragu-Nathan, T. (2010). Impact of technostress on end-user satisfaction and performance. *Journal of Management Information Systems, 27*(3), 303-334. https://doi.org/10.2753/MIS0742-1222270311

Ter Hoeven, C. L., & Van Zoonen, W. (2015). Flexible work designs and employee well-being: Examining the effects of resources and demands. *New Technology, Work and Employment, 30*(3), 237-255. https://doi.org/10.1111/ntwe.12052

Thatcher, J. B., Wright, R. T., Sun, H., Zagenczyk, T. J., & Klein, R. (2018). Mindfulness in information technology use: Definitions, distinctions, and a new measure. *MIS quarterly, 42*(3), 831-848. https://doi.org/https://doi.org/10.25300/MISQ/2018/11881

Thompson, E. R. (2007). Development and Validation of an Internationally Reliable Short-Form of the Positive and Negative Affect Schedule (PANAS). *38*(2), 227-242. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edsbl&AN=RN204143547&site=eds-live&custid=ns016262

Tingaz, E. O., Solmaz, S., Ekiz, M. A., & Atasoy, M. (2022). The relationship between mindfulness and self-rated performance in student-athletes: the mediating role of depression, anxiety and stress. *Sport Sciences for Health*, 1-7. https://doi.org/10.1007/s11332-022-00935-y

Tov, W., & Chan, D. (2012). The importance of employee well-being.

Tuan, L. T. (2022, 04/01/April 2022). Employee mindfulness and proactive coping for

technostress in the COVID-19 outbreak: The roles of regulatory foci, technostress, and job insecurity [Article]. *Computers in Human Behavior, 129*. https://doi.org/10.1016/j.chb.2021.107148

Urbaniec, M., Malkowska, A., & Wlodarkiewicz-Klimek, H. (2022). The impact of technological developments on remote working: insights from the polish managers' perspective. *Sustainability, 14*(1), 552. https://doi.org/https://doi.org/10.3390/su14010552

Valikhani, A., Kashani, V. O., Rahmanian, M., Sattarian, R., Rahmati Kankat, L., & Mills, P. J. (2020). Examining the mediating role of perceived stress in the relationship between mindfulness and quality of life and mental health: testing the mindfulness stress buffering model. *Anxiety, Stress, & Coping, 33*(3), 311-325. https://doi.org/10.1080/10615806.2020.1723006

Van De Voorde, K., Paauwe, J., & Van Veldhoven, M. (2012). Employee Well-being and the HRM-Organizational Performance Relationship: A Review of Quantitative Studies. *14*(4), 391-407. https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edsbl&AN=RN328558577&site=eds-live&custid=ns016262

Van Gordon, W., Shonin, E., Zangeneh, M., & Griffiths, M. D. (2014). Work-related mental health and job performance: Can mindfulness help? *International Journal of Mental Health and Addiction, 12*, 129-137. https://doi.org/10.1007/s11469-014-9484-3

Warr, P. (1990). The measurement of well-being and other aspects of mental health. *Journal of occupational Psychology, 63*(3), 193-210. https://doi.org/10.1111/j.2044-8325.1990.tb00521.x

Weinert, C., Maier, C., & Laumer, S. (2015, 2015/01/01/). Why are teleworkers stressed? : An empirical analysis of the causes of telework-enabled stress. Germany, Europe.

Westlander, G. (1990). The long-term effects of working with computers. *Proceedings of*

Translating and the Computer 12: Applying technology to the translation process.

Wolf, M., Pintner, T., & Beck, R. (2011). Individual mindfulness and IT Systems use-Mitigating negative consequences of Information Overload. https://aisel.aisnet.org/ecis2011/64

Wongtongkam, N., Krivokapic-Skoko, B., Duncan, R., & Bellio, M. (2017). The influence of a mindfulness-based intervention on job satisfaction and work-related stress and anxiety. *International Journal of Mental Health Promotion, 19*(3), 134-143. https://doi.org/10.1080/14623730.2017.1316760

Wright, T. A. (2006). To be or not to be [happy]: The role of employee well-being. *Academy of Management Perspectives, 20*(3), 118-120. https://doi.org/10.5465/amp.2006.21903486

Wu, W., Chin, W., & Liu, Y. (2022, 06/10/). Technostress and the smart hospitality employee [JOURNAL]. *Journal of Hospitality and Tourism Technology, 13*(3), 404-426. https://doi.org/10.1108/JHTT-01-2021-0032

Yeganeh, B., & Kolb, D. (2009). Mindfulness and experiential learning. *Handbook for Strategic HR*.

Yun, H., Kettinger, W. J., & Lee, C. C. (2012, 07/01/). A New Open Door: The Smartphone's Impact on Work-to-Life Conflict, Stress, and Resistance [research-article]. *International Journal of Electronic Commerce, 16*(4), 121-151. https://doi.org/10.2753/JEC1086-4415160405

Zeller, J. M., & Levin, P. F. (2013). Mindfulness interventions to reduce stress among nursing personnel: An occupational health perspective. *Workplace health & safety, 61*(2), 85-89. https://doi.org/10.1177/216507991306100207

Zivnuska, S., Kacmar, K. M., Ferguson, M., & Carlson, D. S. (2016). Mindfulness at work: Resource accumulation, well-being, and attitudes. *Career Development International*. https://doi.org/10.1108/CDI-06-2015-0086

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