

# **LEBANESE AMERICAN UNIVERSITY**

The Impact of Technostress on Work Engagement: A  
Mediation Model Assessing the Role of Grit and Voice  
Behavior

By

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A thesis

submitted in partial fulfillment of the requirements for the  
degree of Master of Business Administration

Adnan Kassar School of Business

May 2022

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a Mediation Model Assessing the Role of Grit and Voice behavior

Program: Master of Business Administration

Department: Management

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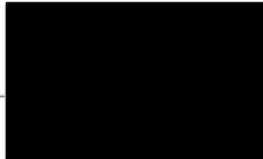
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# Dedication

To be kind is to see the darkness within us and the world. To be kind is to know that one must continue to build the strength to emit light towards every dark, no matter how scary and overwhelming it might be. To be kind is to acknowledge kindness. This thesis is dedicated to kind people who fight daily to make themselves and the world brighter.

# Acknowledgement

With extreme gratitude, I acknowledge the guidance of my thesis advisor, Dr. Leila Messarra, and that of the committee members, Dr. Jordan Ludders Srouer and Dr. Grace Dagher. Without your help, I could not have completed this thesis and gained the knowledge I did throughout.

Equally, I extend my sincerest appreciation to my family and those I consider family for constantly providing me with the support and confidence that strengthened my will to continue.

Finally, I thank the days, those that are good, and those that allow us to look forward to the better ones. Without the first, one cannot believe in their ability to achieve their dreams, and without the second, a person will not pursue to dream.

The Impact of Technostress on Work Engagement: A Mediation Model Assessing the  
Role of Grit and Voice Behavior

Khaldoun Tarabay

ABSTRACT

The emergence and constant development of technologies and newfangled digitalized systems in work environments play a role in shaping a myriad of employees' resulting behaviors. Nowadays, while high-tech dominates the business realm, numerous developing countries end up affected by the digital divide phenomenon where adoption and adaptation to modern technologies occur at a slower pace. Nevertheless, the Covid-19 pandemic's health measures forced most organizations in both developed and developing countries to transition towards Information and Communication Technology (ICT) for work. This abrupt change created technology-related workloads and obliged workers to acquire new digital skillsets, which consequently amplified stress. This thesis aims to investigate the impact of Technostress on Work Engagement while taking into consideration the role of Grit and Voice Behavior, amongst employed labor force in Lebanon. The study uses Structural Equation Modeling (SEM) to test seven hypotheses through analyzing completed questionnaires from a random sample of 186 employees within Lebanese territory. This thesis hopes that its findings can guide managers and policymakers by contributing to theoretical and empirical evidence on ways to increase employee motivation and improve overall organizational performance.

**Keywords:** Organizational Behavior, Technostress, Grit, Work Engagement, Voice Behavior, Information and Communication Technology, Organizational Performance.

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# List of Abbreviations

WE: Work Engagement

VB: Voice Behavior

TS: Technostress

COR: Conservation of Resources Theory

JD-R: Job Demands-Resources Model

ICT: Information Communication Technology

SEM: Structural Equation Modelling

# **Chapter One**

## **Introduction**

Within this chapter, the thesis will discuss the aim of the study as well as its rationale and significance to the business field. Subsequently, this chapter will discuss the background of the study and present the research questions. Finally, at the end of this chapter, the structure of the remainder of the thesis is provided.

### **1.1 Aim of the Study**

This is a thesis on the effects of emerging organizational trends on employees first, and on employee behavioral outcomes, second. This study investigates, in particular, the impact of Technostress on Work Engagement, taking into consideration the role of Grit and Voice Behavior, in the case of Lebanon.

### **1.2 Rationale and Significance to the Business Field**

A constantly changing environment represents a major challenge for employees and affects their performance (Rodrigues and Pinho, 2012). Changes could cause disturbances related to employees' performance and wellbeing, whether they originate from their work environment or from external factors. Over the past decades, the world in general, and the business realm in particular, have witnessed several abrupt transitions

that needed direct adaptation. Two major examples of change are digitalization and the COVID-19 pandemic. Technological development urged organizations to adjust instantaneously in order to maintain access to global markets, and so forth. Similarly, the novel coronavirus pandemic imposed measures of global state of emergency on all work fields. Remarkably, one of these measures necessitated remote working accompanied by an abundant use of technology (Saleem et al., 2021). To be exact, meeting job requirements while working from home, because of the COVID-19 epidemic, constrained employees to use information and communication technology (ICT) even when they had yet to become adopters (Saleem et al., 2021). Nevertheless, this task was rather a difficult one to accomplish in some developing countries where technology use is not well established (Lacsa, 2021). In spite of not being up to speed with technological advancements, a number of firms in developing countries had to adopt teleworking de rigueur. Interestingly, sudden technology-related workloads pressured workers to acquire new digital skillsets, which increased the occurrence of induced stress (LaTorre et al., 2019).

Consequently, the emergence and constant development of technologies and newfangled digitalized systems in work environments play a role in shaping employees' behavioral outcomes. Nonetheless, the scarcity of research that discuss the effects of implementing new technologies in organizations of the developing world alongside the outcomes of resulting stress has made it a problem for primary areas of business management inside these countries. In fact, outcomes of technology-induced stress together with other employee behaviors and stressors could be specific to developing countries, which

would bring modifications to previous results and contribute to behavioral management's literature.

Within the previous lines, the technological divide experienced by numerous developing countries in a business world dominated by technological development, as well as other behavioral input differences specific to countries with emerging economies, could interfere with employee performance as compared to developed countries' literature. In fact, according to the International Telecommunication Union (2019), in developed countries 87% of people are using the Internet, compared with 44% in developing countries. This suggests that usage of ICTs for work in 2019, was far less in developing countries than in developed countries, taking into consideration that most ICTs require users to access the internet.

In addition, according to Hofstede's cultural dimensions theory, Lebanon is estimated to be a country with a collectivistic culture, and one where people focus more on the quality of life as opposed to measuring success through standing out from the crowd. In addition, people of Lebanon are assumed to be risk averting, and who are also considered as restrained societies, suggesting that they do not put much emphasis on leisure time. When assessing organizational hierarchies, Lebanon is a country high in power distance, where centralization is popular, and in most of the time, authority is in the hands of top management (Almutairi, Heller & Yen, 2020). Accordingly, it is suggested that differences in culture may present differing findings for similar populations, highlighting the need for research centered towards culture specific countries.

Subsequently, drawing on the aforementioned, this thesis deems it essential to investigate the ways in which the use of technology affects employees' performance measured by work-engagement in the case of Lebanon, a developing country, while taking into consideration particular behavioral variables, namely Grit and Voice Behavior. Studying the possible correlation between these variables and bringing insight on the ways in which they affect, or not, one another in terms of organizational behavior in developing countries would be beneficial to business owners in these geographical areas of the world. This paper attempts to provide contextual information on factors that would optimize employee performance in Lebanon, and thus improving measures taken for employee well-being and the overall performance of companies.

### **1.3 Background**

The dynamic world of technology and its wide application in business operations has left no room for employees to perform job duties in a conventional manner.

Correspondingly, the continuous changes in information and communication technologies (ICTs) has promoted concern for employee wellbeing (Wang, Shu, & Tu, 2008; Tarafdar & Tu 2010). Nowadays, because of the ongoing Covid-19 pandemic, businesses are taking strict measures forcing a majority of employees around the world, including Lebanon, to shift to remote working, some without prior exposure to this method of operation, namely developing countries (Kramer & Kramer, 2020). This pervasive change has increased the potentiality of employees experiencing Technostress, a construct defined as "a modern disease of adaptation caused by an inability to cope with the new computer technologies healthily" (Brod, 1984, p.16). Technostress must be

treated as a high-risk concern since a high volume of research has associated it with negative outcomes, specifically burnout and diminished levels of job performance (Klaus, Wingreen, & Blanton, 2010; Tarafdar, Tu, & Ragu-Nathan, 2010).

When it comes to Work Engagement, literature on stress in general, highlights a negative relationship between work induced stress and employee engagement (Velnampy & Aravinthan, 2013). For instance, a study performed on a sample of Intensive Care medical staff showed that levels of distress were less among work-engaged staff members (Holmberg, Kemani, Holmström, Öst, Wicksell, 2019). Within context, researchers argue that a work-engaged employee exhibits high levels of energy, enthusiasm, and involvement towards work related tasks (Macey & Schneider, 2008; Tims, Bakker, & Derks, 2013; May, Gilson, & Harter, 2004).

Similarly, several studies have argued a positive relationship between employee engagement and another construct that is important in this thesis, which is Voice Behavior. The exercise of Voice Behavior has been suggested by Blader and Tyler (2009) to be a consequence of Work Engagement. Within the same lines, Hobfoll (2002) argues that employee resources are essential mechanisms that allow them to cope with the threat of ICTs and encourage resistance to ICT-induced stress. Accordingly, from an employee's perspective, in times of high stress they may use their voice as a tool to obtain resources that could accelerate their performance (Fuller, Barnett, Hester, Relyea, & Frey, 2007; Seibert, Kraimer, & Crant, 2001) and in turn alleviate some of the stressors (Dundon & Gollan, 2007).

In contrast, some may choose to limit their use of Voice Behavior as it may diminish their remaining resources. Holding their voices, employees explain the reasons as being due to the time, energy, and risks associated with Voice Behavior (Bolino & Turnley, 2005; Detert & Burris, 2007; Organ, 1988; Ng & Feldman, 2012). Consequently, the conservation of resources (COR) theory is specifically relevant (Hobfoll, 1989). The COR theory is based on two tenets, “resource conservation” and “resource accumulation”, both of which are counteracting predictions when assessing the use of Voice Behavior by Technostressed employees (Hobfoll, 1989).

Another variable in this study, “Grit” grew popularity among researchers after Dr. Angela Duckworth released her book “Grit: The Power of Passion and Perseverance” in 2016. She recognizes two dimensions that comprise Grit: (1) the perseverance of effort, and (2) the consistency of interest (Duckworth et al., 2007). According to Folkman (2013), when it comes to an individual’s appraising of a specific event, the availability of different psychological resources can influence the process and Grit can be considered a psychological resource. Therefore, it is more likely for Grit to have an inverse correlation with the levels of Technostress for an employee and promote their engagement at work.

## **1.4 Research Questions**

Past research has identified gaps and suggested recommendations for further investigation in order to knit stronger links between the mentioned constructs. Amongst them, a study on work induced stress conducted by Zhou, Yang, Wang, Luo (2019) recommended the exploration of potential mechanisms on work-related stress and Voice

Behavior to examine their roles in the association between these two variables. Further, Morison (2011) recommended investigating how the individual and contextual factors react with each other when considering performance. They proposed employing different potential paths from Grit leading to employee engagement in the objective of examining their interrelation. Additionally, Dugan et al. (2019) recommended that the relationship between Grit and Work Engagement be studied on a broader, more random sample population. Thus, in order to attempt to fill the gaps in the literature of organizational behavior, especially within the context of developing countries, the aim of this study is, first, to investigate the mediating role of Technostress on Grit and Work Engagement in the Lebanese working society. Second, it will explore the effect of Voice Behavior on Technostress and Work Engagement amongst Lebanese employees.

Hence, the study conducted in this thesis will ask:

**Q1:** How does Technostress influence the relationship between Grit and Work Engagement?

**Q2:** How does Voice Behavior affect the relationship between Technostress and Work Engagement?

This thesis proceeds as follows:

In chapter two, the thesis visits prominent parts of the literature review on the four variables at study, which are grit, technostress, employee voice behavior and work engagement.

In chapter three, this paper provides the theoretical frameworks adopted in the research, namely the “Job Demands Resources Model” and the “Conservation of Resources Theory”. Additionally, it discusses the logic behind the study’s seven hypotheses.

Following that, chapter four focuses on the methodological structure of the study, including its design, data collection process and measurement criteria.

In chapter five, the thesis highlights the study’s results vis-à-vis its scale’s validity and reliability. Further, the chapter presents its three models used for testing the hypotheses.

Within the lines of the final chapter 6, the thesis interprets the results and reaches a conclusion regarding the findings following the models. It discusses then the managerial implications as well as limitations of the study, culminating in recommendations for future research.

# Chapter Two

## Literature Review

In this chapter, the thesis visits prominent parts of the literature review on the four variables at study, which are grit, technostress, employee voice behavior and work engagement.

### 2.1 Grit

Grit is a noncognitive variable that has been of interest to researchers for more than a decade. The term was coined by Duckworth, Peterson, Matthews, & Kelly (2007) as reflecting “perseverance and passion for long-term goals” through continued effort and consistent interest (p. 1087). Seminal contributions have been made to the literature which have found Grit to be an important predictor of success (Duckworth et al. 2007; Duckworth & Quinn, 2009). Furthermore, it is suggested that Grit can help explain the inaccuracies between individuals’ aptitude test scores and actual performance (Duckworth et al. 2007).

Two dimensions have been identified for Grit: 1) Consistency of interests; and 2) Perseverance of efforts (Duckworth et al. 2007). In perspective, consistency of interests refers to the degree to which individuals are focused on, and are able to remain interested in, the attainment of their long-term goals; whereas perseverance of efforts

refers to the degree to which individuals are determined, resilient, and not discouraged by any setbacks they may face while pursuing these goals.

Over time, an extensive literature has developed on Grit and many outcomes in academia, business, and psychology have been recorded.

In their study, Duckworth et. Al (2007) found Grit to be an incremental predictor of success beyond IQ and conscientiousness among Ivy league undergraduate students.

Also, in an academic setting, Bowman, Hill, Denson & Bronkema (2015) found that Grit predicted high academic achievement and low intent to change majors and careers. The literature also records Grit to be associated with several academic outcomes such as academic motivation (Eskreis-Winkler, Shulman, Beal, & Duckworth, 2014), academic engagement (Datu, Valdez, & King, 2015, 2016), persistence in challenging tasks among highschool students (Lucas, Gratch, Cheng, & Marsella, 2015), and teacher effectiveness (Kraft & Duckworth, 2014).

Moreover, past literature recognizes Grit to be associated with positive psychological outcomes. Kleiman et. Al (2013) found that Grit lowered suicidal tendencies, in a similar manner, Datu et al. (2019) and Kleiman et al. (2013) found that Grit lowered depression symptoms, whereas Musumari et al. (2018) found it to be related to lower anxiety.

Professionally, Salles, Cohen, & Mueller (2014) found that Grit is linked to greater job satisfaction. In a 6-year longitudinal study, Baum & Locke (2004) discovered a link between Grit and professional success, a link that was found to be significant in later studies as well (Locke & Latham, 2013; Vallerand, Houlfort, & Forest, 2014).

Furthermore, Gritty individuals were found to exhibit less intention to turnover their jobs (Burkhart et al., 2014), and experience lower burnout levels (Salles, Cohen, & Mueller, 2014).

As a matter of fact, Grit is a variable that leaders of various industries share (Duckworth et al. 2007) and has shown to be positively related to entrepreneurial performance in many empirical studies (Mueller, Wolfe, & Syed, 2017) and job retention (Robertson-Kraft & Duckworth, 2014).

## **2.2 Technostress**

Technostress dates back to the early 80's when Brod (1984) first shed light on it and defined it as "'a modern disease of adaptation caused by an inability to cope with the new computer technologies healthily" (Brod, 1984, p.16). Furthermore, Arnetz and Wiholm (1997) referred to Technostress as "a state of arousal" as a result of employees' dependency on technology to perform routine work tasks. To be exact, the concept of Technostress emerged when organizations started relying on technology to stay in line with global markets. Despite technology's importance within the business realm, continuous use of information technology, amongst others, demonstrated adverse effects on workers' "psychological and behavioral well-being" (Tarafdar et al., 2015).

Although, when this concept was first brought to life in business literature, it discussed the effect of stressors that individuals face due to their incapability of adapting to new technology (Weil & Rosen, 1997), more recent studies investigate the impact of

Technostress on employees because of the continuous use and rapid change in information communication technology (Ayyagari, Grover, & Purvis, 2011).

Technostress is stipulated in the literature to refer to the technological stressors leading to unfavorable physical and/or psychological states (Brod, 1984; Arnetz and Wiholm, 1997; Tarafdar et al., 2007). However, in recent years there has been an increase in researchers' interest in assessing the psychological responses of Technostressors and their impact ((Ayyagari et al., 2011; Salanova, Llorens & Cifre, 2013). This lead to the emergence of the construct Technostrain, defined as “a combination of high levels of anxiety, fatigue, skepticism, and inefficacy related to the use of ICTs” (Salanova et al., 2013, p. 2). Moreover, Technostress was investigated in several contexts, many of which took into consideration the impact on professionals (Rajput, Gupta, Kesharwani, & Ralli, 2011; Kumar, Lal, Bansal, & Sharma, 2013; Tarafdar et al., 2014; Fieseler, Grubenmann, Meckel, & Muller, 2014; Weiner, Maier, Laumer, & Weitzel, 2014).

Accordingly, This research will adopt the point of view of Tarafdar et al. (2007) and focus on Technostress through the assessment of Technostressors.

Researchers have identified five dimensions that contribute to Technostress, which are collectively called Technostressors and are considered to be harmful stressors: (a) Techno-overload, (b) Techno-invasion, (c) Techno-complexity, (d) Techno-insecurity and (e) Techno-uncertainty (Tarafdar et al., 2007).

Tarafdar et al. (2014) explains each of the dimensions as: 1) *Techno-overload* a state where ICT users are required to work with high-speed for prolonged periods of time. 2) *Techno-invasion* a state where ICT users may expect to be contacted for a work-related

matter at any time or feeling continuously connected in such a way that confuses work-related and personal contexts. 3) *Techno-complexity* a state through which ICT users feel that their skills are insufficient to deal with the complexity of ICT related tasks. 4) *Techno-insecurity* a state where ICT users feel insecure about their ability to maintain their position at work as a result of imagining the possibility of being substituted by the new ICT or replaced with more ICT-skilled people. Finally, 5) *Techno-uncertainty* a state where ICT users feel “hesitant and disturbed since ICT is endlessly shifting and need upgrading” (Tarafdar et al., 2014).

### **2.3 Employee Voice Behavior**

Voice is an extra-role performance behavior, which are not a part of formal job requirements (Detert & Burris, 2007). LePine and Van Dyne (2001) define voice as “constructive change-oriented communication intended to improve the situation” (p. 326). Furthermore, voice assists organizations uncover unconventional and less common operational issues (Axtell, Holman, & Wall, 2006; Graham & Van Dyne, 2006; Dundon & Gollan, 2007). In fact, Withey & cooper (1989) consider shedding light on potential problems to upper management as a form of Voice Behavior.

Several studies have argued the existence of positive relationships that extend from voice to organizational performance and employee morale ((Klaas, Olson-Buchanan & Ward, 2012; Morrison, 2011, Morrison, 2014; Mowbray, Wilkinson, & Tse, 2015). Most research on the topic of voice have focused on “positive voice”, where employees express ideas that are oriented towards the betterment of the work situation (LePine & Van Dyne, 1998). This although, employees may choose silence over voice as it can

carry the risk of resulting in misunderstandings and disruption of interpersonal work relationships (Liang, Farh, & Farh, 2012)

Setting a timeline for literature on Voice Behavior, this paper starts with Hirschman (1970) who investigated employee's work-related actions, namely "exit, disloyalty and neglect". He related these factors to dissatisfaction or discontent of employees as a result of certain organizational policies. In addition, Robert's and O'Reilly's (1974) studied communication between leaders and subordinates. They concluded that communication could benefit organizations. This study helped the two researchers develop their communication scale (Roberts and O'Reilly, 1974). To be specific, in retrograde, voice concept could go back to the eighteenth century, the "pre-Hirschman" period, namely during the industrial revolution when workers voiced their thoughts and concerns (Kaufman, 2014, p.18).

First suggested by Hirschman (1970), then elaborated by Freeman and Medoff (1984), the concept of employee voice could affect performance of companies (Hirschman, 1970; Freeman and Medoff, 1984). Discussing the employee voice concept, Farrell emphasized its importance in companies (Farrell, 1983). In the same context, Millward et al. (1992) considered that Voice Behavior represents the capability of subordinates to influence decisions and actions of managers (Millward et al, 1992). With time, several studies adopted this term to signify processes and structures present in a certain firm that could encourage employees, in a direct or indirect manner, to speak up and participate in the organizational decision-making (Boxal and Purcell, 2003).

In order to highlight the significance of Voice Behavior in organizations, some scholars discussed the negative effects of employee silence on the organizational level. For instance, Van Dyne, Ang and Botero (2003) discussed both expressing and withholding Voice Behaviors. Their study showed the extent to which silence could affect employee's outcome and the company (Van Dyne et al, 2003). Employees who have a silence behavior could bring about more negative consequences to the firm than those who speak up (Van Dyne et al, 2003). The ambiguity of employee silence appeared in Brinsfield's (2014) research that studied the opposite effects of silence as compared to voice with regards to development in firms. Voice Behavior relates to advanced levels of development, in contrast to silence (Brinsfield, 2014). Therefore, Voice Behavior influences organizational development positively by challenging present firm functions.

Recent definitions of employees' Voice Behavior go beyond classical definitions that consist of raising valuable propositions for the development of the organization. Voicing one's mind on an organizational is considered a proactive behavior (Grant, 2013). In fact, employee voice could also include the expression of apprehension and pinpointing unfavorable elements that might harm organizations (Van Dyne et al, 2003). Types of voice differ based on employee motives. These types include "prosocial voice, defensive voice, and acquiescent voice" (Van Dyne et al, 2003). Prosocial voice consists of making beneficial ideas and suggesting solutions in a proactive manner. Employees exerting a prosocial Voice Behavior have a cooperative motivation. With a different motive, defensive Voice Behavior relates to employee's fear. Suggestions coming from defensive voice aim to protect oneself in the firm from threats and negative results. In

contrast, acquiescent voice consists of speaking up thoughts and ideas when employee considers resigning of the position he/she holds (Van Dyne et al, 2003).

Furthermore, scholars also introduced other forms of Voice Behavior based on different criteria. According to Morrison (2011), employee voice relies on the content and the message category. As a result, she specified three forms of Voice Behavior. The first consists of “suggestion-focused voice” that aims to ameliorate functions in the organization. The second form is “problem-focused voice”, which is the result of an existing problem in the firm or a probable detrimental factor. The third kind of Voice Behavior is “opinion-focused voice” that expresses an employee’s refusal of specific work-related practices that do not align with his/her own beliefs or opinions (Morrison, 2011).

Similarly, Liang et al (2012) analyzed Voice Behavior using a two-dimensional model that accounts for conceptual and discriminant variances in employees’ conduct. On the one hand, the first dimension puts forward “promotive Voice Behavior” where employees voice out suggestions, plans and proposals with the intent of helping in the improvement of the organizational status quo. On the other hand, the second dimension consists of “prohibitive Voice Behavior” where employees outline fallacies and indicate problematic applications within the organization in a constructive approach that could contribute to a more effective functionality of the firm (Liang et al, 2012).

Research has identified two Voice Behavior forms, which are “promotive voice” and “prohibitive voice”. The comparison and contrast between both voice forms is easily measured and behaviorally apparent. To be specific, Voice Behavior is promotive when

it is “future-oriented” for it allows employees to make suggestions and think of solutions that result in improving organizational standing. Nevertheless, prohibitive Voice Behavior could be past or future-oriented where employees pinpoint, report and try to forbid actions that they deemed detrimental for their job completion within the organization or that might have a damaging effect in the time ahead (Van Dyne et al., 2003).

According to Liang, Farh, C. I., & Farh, J. L. (2012), whereas both promotive and prohibitive voice have similar objectives of ameliorating operations and ways of *savoir-faire* within the working environment, the means to achieve this goal and the functions differ. For instance, on the one hand, promotive voice accentuates futuristic alterations to create better ways of performing work-related activities in order to increase effectiveness. On the other hand, prohibitive voice functions as means to avoid factors that might damage operational processes on the organizational level (Liang et al., 2012).

Both forms of Voice Behaviors ultimately lead to improvement on the employee and organizational levels. This thesis will focus on Voice Behavior as a major construct, combining the effects of both of its sub-forms.

## **2.4 Work Engagement**

The concept of Work Engagement is gaining a larger scope of attention from behavioral researchers around the world and recent research describes important relationships between Work Engagement and employee performance and career success (Bakker, 2022). In fact, research on this construct has existed for many years, this although the

many approaches to researching it has rendered it elusive (Thomas, 2009). Work Engagement was first conceptualised in research by Kahn (1990), who construed it as the “harnessing of organizational members’ selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances” (p. 694).

A work-engaged employee exhibits high levels of energy, enthusiasm, and involvement towards work related tasks (Macey & Schneider, 2008; Tims, Bakker, & Derks, 2013; May, Gilson, & Harter, 2004), whereas disengaged employees tend to be detached from their work on both an emotional and physical level (Truss, Shantz, Soane, Alfes, & Delbridge, 2013).

Building on Kahn’s (1990,1992) work, Rothbard (2001) also interprets engagement as a construct related to the role of employees in an organization, which diverges into two dimensions: 1) attention (“the cognitive availability and the amount of time one spends thinking about a role”; p. 656) and 2) absorption (“the intensity of one’s focus on a role”; p. 656).

Alternatively, the construct was proposed by Maslach and Leiter (1997) as the positive antithesis of burnout that can be measured by the Maslach Burnout Inventory scale (MBI), which resulted in studies on the construct in order to gain more insight into how to prevent burnout (Maslach & Leiter, 1997; Maslach, Schaufeli, & Leiter, 2001).

If said in the words of Schaufeli, Salanova, Gonzalez-Roma, & Bakker (2002), Work Engagement is “a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption” (Schaufeli et al., 2002, p. 74).

Vigor is a physical/energetic component that is characterized by high levels of energy and mental resilience during the job; Dedication is an emotional component characterized by the psychological presence and involvement in one's work and the experience of a sense of "inspiration, pride and challenge"; whereas Absorption is a cognitive component that is characterized by being positively, highly focused on one's work, in a way that makes it difficult to detach from work (Schaufeli & Bakker, 2010). Agreeably, Byrne et al. (2016) stated in his research that "the construct of engagement is not the same as the opposite of the burnout construct" (p. 1219). It can hence be assumed that Work Engagement is a state where employees have attached themselves, physically, mentally and emotionally in carrying-out work-related activities and are channeling this positive triangle into the process of performing them. Therefore, Work Engagement is a pivotal component for studying psychological and behavioral contexts in organizational settings.

Conclusively, views on engagement inspired by Kahn's (1990,1992) work refer primarily to the work role, whereas for those who view it as the positive antithesis of burnout it is the work activity (Schaufeli & Bakker, 2010).

With time, studies focused further on creating tangible measures for Work Engagement. One of the most prominent examples finds its roots in Saks' experimental study of 2006 that analyzed employee Work Engagement's antecedents and results by means of his specific measurement tools (Saks, 2006). In 2019, Saks adopted the Utrecht Work Engagement Scale (UWES) in order to compare results against his previous study. As a result, Saks' studies done in both aforementioned years proved a positive relationship

between job characteristics and observed organizational support on one hand, and every measured element of Work Engagement (Saks, 2006; Saks, 2019).

To elaborate, several studies drew causal links between work-related elements and the measured dimensions of Work Engagement. For instance, Bakker and Demerouti (2008) underlined a positive relationship between job characteristics as an antecedent to Work Engagement. In their study, these characteristics included “autonomy, skill variety and performance feedback” (Bakker and Demerouti, 2008). Similarly, May et al. (2004) highlighted another antecedent, which is job enrichment. In their paper, the latter also affects Work Engagement through a positive correlation (May et al., 2004).

Additionally, studies have interrelated job resources with engagement in a professional setting (Crawford et al., 2010).

Moreover, while studying distributive justice and its outcomes, Haynie et al. (2016) established a significant positive relationship between organizational justice and employee engagement (Haynie et al., 2016). In addition to justice, problem-solving tendencies, job complexity and interchange between leaders and employees are positively linked to Work Engagement (Christian et al., 2011). However, physical demands and certain conditions in the work environment, namely dangers and health hazards among other job circumstances, show a negative relationship with employee engagement (Christian et al., 2011).

Several studies explored additional possible antecedents. Going deeper into leadership styles and employee-leader exchange, recent literature emphasized the presence of a direct correlation between “transformational leadership, authentic leadership and ethical

leadership” and an increased Work Engagement of employees in organizations with similar cultures (Breevaart et al., 2016; Carasco-Saul et al., 2015; Vincent-Hoper et al., 2012).

Furthermore, a work-engaged employee exhibits high levels of energy, enthusiasm, and involvement towards work related tasks (Macey & Schneider, 2008; Tims, Bakker, & Derks, 2013; May, Gilson, & Harter, 2004), whereas disengaged employees tend to be detached from their work on both an emotional and physical level (Truss, Shantz, Soane, Alfes, & Delbridge, 2013).

Overall, based on extensive understanding of the Work Engagement literature, this concept finds a myriad of antecedents in a directly related fashion to elements that open up prospects for employee development in the work space, as well as factors associated with positive working climates (Crawford et al., 2010).

It has been argued that Work Engagement leads to several positive outcomes for organizations such as increased levels of job performance, organizational commitment, job satisfaction, an increase in organizational citizenship behavior and lower turnover intention and deviant work behavior (Salanova, Llorens, Cifre, Martínez, & Schaufeli, 2003; Sonnentag, 2003; Saks, 2006).

Hence, a variety of expected results and differing extents of employee perceptions regarding their professional and personal lives originate from Work Engagement. In specific, employee engagement predicts higher job satisfaction and commitment to the organization itself. Furthermore, employees who showed engagement had better resultant organizational citizenship behaviors (OCB) and a lower intention to quit (Saks,

2006; Bailey et al., 2017; Halbesleben, 2010). Within the same lines, employees' Work Engagement is a predictor of lower burnout levels and perceived stress, and higher life satisfaction (Bailey et al., 2017; Bakker and Demerouti, 2008; Byrne et al., 2016; Halbesleben, 2010).

# Chapter Three

## Frameworks and Hypotheses

### Development

The below chapter provides an overview of the theoretical frameworks adopted in the research, namely the “Job Demands Resources Model” and the “Conservation of Resources Theory”. Additionally, it discusses the logic behind the study’s seven hypotheses.

#### 3.1 Structural Frameworks

##### 3.1.1 The JD-R Model

The JD-R model is a theoretical framework that is very well established and has been supported by strong evidence since its development in 2006, almost two decades ago (Bakker and Demerouti, 2007). In job contexts, the model assumes that in the event that job demands are high and job resources are low, burnout increases, whereas when job resources are high, the negative effects of high job demands are offset and engagement is more likely to occur (Bakker and Demerouti, 2007). Consequently, research aiming to study the role of personal resources in the JD-R model resulted in the expansion of this theoretical framework through finding that personal resources, namely self-efficacy, organizational-based self-esteem, and optimism mediated the relationship between job

resources and engagement/burnout and influenced the perception of job resources (Xanthopoulou, Bakker, Demerouti, and Schaufeli, 2007).

### **3.1.2 The COR Theory**

According to the COR theory (Hobfoll, 2001), individuals are motivated to either retain, protect, or acquire resources while positioning “themselves so that they are less vulnerable to future resource loss” (Hobfoll, 2002, p. 317). The COR suggests there are primary and secondary resources. Primary resources can be divided into four types: 1) object resources that have a physical presence; 2) condition resources are states of being that enable access to additional resources (e.g., employment position, time); 3) personal resources including skills and traits; and 4) energy resources such as knowledge and external support, for which’s value can lead to obtaining additional values. It is important to note that the perceived value of each resource can vary significantly across individuals (Hobfoll, 2001).

COR theory postulates that stress occurs “(a) when central or key resources are threatened with loss, (b) when central or key resources are lost, or (c) when there is a failure to gain central or key resources following significant effort” (Deci, Olafsen, and Ryan, 2017).

## **3.2 Hypotheses Development**

### **3.2.1 Grit and Technostress**

Stress, a psychobiological process, is a response induced by the human body as a reaction to stimulators, it manifests itself through physical or emotional-cognitive signs (O'connor, Thayer, & Vedhara, 2020).

“Psychological stress refers to a relationship with the environment that the person appraises as significant for his or her well-being and in which the demands tax or exceed available coping resources' (Lazarus and Folkman 1986, p. 63).

According to Lazarus' (1991) cognitive-mediational theory, differences in the extent to which an individual experiences a psychobiological response to an event, occurring in an objectively equal environment, is the result of intervening processes that mediate the relationship between a stimuli and response. Factors such as motivational dispositions, personal resources (ex. Grit), and cognitive processing of information are some of the factors that mediate this relationship (Lazarus, 1991). Hence, through subjective appraisal of an event, a subject might experience differences in the emotional response in terms of quality, intensity, and duration (Lazarus, 1991). Therefore, it is implied that a subject's perception plays a major role in identifying whether a situation is to be deemed as stressful, through a process of appraising the level of threat the situation carries, as well as the availability of resources necessary to challenge and overcome the perceived occurrence by the subject.

Research on psychological occupational stress, or stress induced by work-related environments, dates back to the 70's when Beehr and Newman (1978) defined it as "A condition arising from the interaction of people and their jobs and characterized by changes within people that force them to deviate from their normal functioning."

When examining the impact of resources available to individuals on occupational stressors and on strain as an outcome of stress, Beehr and McGrath (1991) argued that social support, an external resource available to employees, has three effects: 1) A direct effect on reducing anxiety, 2) A buffering effect in that the external resource moderates the relationship between stressors and anxiety, and 3) A Preventative effect. Similarly, numerous studies have found substantial inverse links between personal resources and stress. Psychological hardiness (Abdollahi, Abu Talib, Yaacoub and Ismail, 2014), Stress Resiliency (Larrabee, Wu, Persily, Simoni, Johnston, Marcischak, Mott, and Gladden, 2010), Positive affectivity (Thian, Kannusamy, He and Klainin-Yobas, 2015), Psychological capital (Yim, Seo, Cho and Kim, 2017), and Self-regulatory mode (Lo Destro, Di Santo and Poerro, 2018) are personal resources that were found to relate significantly and negatively to occupational stress.

Analogously, the high rates through which technological diffusion penetrated occupational processes, drastically increasing the use of ICT technologies at work, has been increasing stress creators (techno-overload, techno-invasion, techno-complexity, techno-insecurity, techno-uncertainty) that brought about Technostress.

Even though the use of ICTs in the workplace can potentially lead to the formation of proactive behaviours (Thulin, Vilhelmson, Johansson, 2020), when Technostress

creators are high, it can lead to technostress— increased levels anxiety, fatigue, scepticism and inefficacy related to the use of ICTs (Salanova et al., 2007; Molino, Ingusci, Signore and Cortese, 2020; Wu et al., 2017; Wu, Wang, Mei and Liu, 2020; Calif and Brooks, 2020).

Derivative of the literature, it is deduced that motivational dispositions and personal resources are mediating factors of the stimuli-response relationship of stress.

Additionally, it became clear the impact of Technostressors on the well-being of individuals. Consequently, and grounded by Lazarus' (1991, 1993) cognitive-mediational theory, it is assumed that Grit, a personal resource that positively impacts a subject's motivational nature, might affect the way individuals perceive stress.

Accordingly, the following hypothesis is advanced:

**H1: Grit correlates inversely with Technostress.**

### **3.2.2 Grit and Work Engagement**

Grit is of contemporary salience in the field of research, its constituents of perseverance of effort and passion for long-term goals provide Gritty individuals with personal resources that can be helpful in sustaining challenging jobs (Duckworth, 2016) as individuals who show higher levels of Grit are more likely to perceive adverse situations in an optimistic way that count as opportunities for growth (Eskreis-Winkler et al., 2016).

In line with the previous suggestions, personal resources, otherwise known as psychological capital, are psychological sources within an individual that enable them to

have a positive appraisal of their ability to control their environment (Hobfoll, Johnson, Ennis, & Jackson, 2003; Gooty, Gavin, Johnson, Lance, Frazier, and Snow, 2009). In fact, personal resources have been shown to have an indirect impact on the relationship between job demands and work-related outcomes (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007; Peng et al., 2019; Boudrias et al., 2011) and are crucial for coping with those demands (Bakker and Demerouti, 2014). Interestingly, while considered a personal resource, the Grit construct's recency is projected through the limited number of studies available on the subject, especially in the context of occupational psychology, emphasizing the need for additional studies.

When studying the impact of Grit on the levels of burnout among Chinese high-school students, using Bakker and Demerouti (2007)'s Job Demands-Resources model, Teuber, Nussbeck, & Wild, (2020) found that Grit may prevent burnout for students who have high academic demands. In the workplace, Grit was shown to reduce burnout among medical residents (Walker et al., 2016; Dam et al., 2019), mental health nurses (Cleary, Jackson and Hungerford, 2014) and in the health workplace in general (Cleary, Schafer, McLean & Visentin, 2020).

Parallel to the JD-R theory, Kotze (2018) found that employees who recorded high in personal resources had a positive perception of job resources.

Accordingly, Work Engagement, which is considered by some the positive antithesis of burnout (Maslach et al., 2001) is agreed upon in the literature as a consequence of the abundance of appropriate job resources (Leiter & Bakker, 2010) a relationship that is supported by the JD-R.

Thence, considering the significant role of personal resources in the JD-R model, several researchers have suggested the presence of a significant relationship between Grit and Work Engagement (Dam et al., 2019; Dugan et al., 2019). According to Singh and Chopra (2018), consistency of interest and perseverance of efforts showed predictive qualities of Work Engagement. Similarly, Suzuki et al. (2015) found, when controlling for age, gender, income, and conscientiousness, that Grit and Work Engagement share a positive relationship. In partial support, Singh and Gambhir (2016) found the results for the correlation between Grit and Work Engagement were evidently low.

Therefore, taking into account Grit's personal resource components, the consensus among many researchers that Work Engagement is the positive antithesis of burnout and the notion suggested by the expanded JD-R that personal resources play a role in predicting Work Engagement, the following hypothesis is proposed:

**H2: Grit serves as a predictor for the outcome of Work Engagement.**

### **3.2.3 Technostress and Work Engagement**

According to Hobfoll (1989), both environmental and individual factors determine Work Engagement. The availability of emotional, physical and psychological resources is suggested to be rudimentary for predicting employee Work Engagement (Kahn, 1990). Personal resources are positive self-evaluations that provide individuals with a sense of self-efficacy and resilience to control and influence their environment (Hobfoll, Johnson, Ennis, & Jackson, 2003). In fact, self-efficacy in a study conducted on a sample of service industry employees within Lebanon, self-efficacy had a high influence on Work Engagement (Dagher, Chapa & Junaid, 2015).

In a similar manner, job resources are purported to have both intrinsic and extrinsic motivational qualities in that they satisfy the basic needs of employees and provide them with instruments necessary for successful attainment of goals (Schaufeli & Bakker, 2004).

Both personal and job resources buffer the negative impact of daily job demands as well as induce the pursuit of goals and facilitate their attainment ((Hackman & Oldham, 1980). Accordingly, the enhancement in well-being and increase in motivation and facilitation of goal attainment would predict engagement ((Hackman & Oldham, 1980; Hobfoll, 2001).

In the context of stress literature, intensive or excessive exposure to Technostressors may lead to harmful health conditions (Cooper et al., 2001). Attempts by individuals to alleviate perceived stress activates coping mechanisms that are limited in strength to the individuals' personal and job resources, hence making resourceful individuals less vulnerable to stress (Lazarus and Folkman, 1984).

Prior investigations have presented a negative relationship between occupational stress and Work Engagement (Velnampy & Aravinthan, 2013), raising questions for employers on whether stress can potentially cause them to lose top talents to disengagement (Cartwright and Boyes, 2000). In-line with the JD-R model, when faced with a ratio of excessive job demands to resources, employees' resources may become depleted in the long run and would eventually lead to substandard performance, burnout (Hockey 1997) and disengagement (Demerouti et al., 2001). "Employees consider job

hindrances more difficult to overcome and believe that their effort investment is less instrumental to achieve their goals” (Van den Broeck et al., 2010, p. 740).

In view of the evidence that hindrance demands correlate negatively with employee engagement (Rai, A., 2018), extended utilisation of ICTs and exposure to Technostressors, may negatively impact Work Engagement (Suh & Lee, 2017).

A study conducted by Vayre & Vonthron (2019) on the relationship between work-related internet use, both within and outside the workplace/working hours, revealed a negative relationship between Technostress and engagement. Analogously, 202 employees from the financial sector services in Turkey participated in a study by Taser, Aydin, Torgaloz, & Rofcanin (2021), which argued that Technostress mediated the relationship between remote e-working and flow, a close correlator to engagement

Taking into account past literature evident above, we therefore hypothesize that:

### **H3: Technostress correlates negatively with Work Engagement**

#### **3.2.4 Grit, Technostress and Work Engagement**

When it comes to job demands, Cavanaugh, Boswell, Roehling & Boudreau’s (2000) challenge-hindrance framework emphasizes the possibility of inter-individual variance in appraising job demands. This suggests that job demands can be appraised as both challenge (Eustress) and hindrance demands (distress) by different individuals (Webster et al. 2011). Contrary to hindrance demands, challenge demands relate positively to employee engagement (Rai, 2018).

To elaborate, individuals perceive stressors as challenges that help providing the opportunity to learn, make changes, accomplish and get a sense of compensation as a result of surmounting challenging situations (Cooper et al., 2001; Fay et al., 1998). Individuals decide to confront, as opposed to cope with, Technostressors when they consider them to bestow an opportunity for ameliorating one's competencies and task-completion in a work environment (Leung, 2011; Ohly & Latour, 2014). Therefore, it is essential to comprehend the circumstances in which workers would regard stressors as challenges and opportunities to improve.

Nevertheless, as previously mentioned, individual characteristics play a considerable role in workers' perception of stressors and the ways in which they deal with them. In fact, ICT research studied closely the impact of a myriad of personality traits on positive outcomes in the use of technology when individuals face stressors (Jahng et al., 2002; Devaraj et al., 2008). Actually, people with different personality traits handle organisational stress differently, which renders the stress outcome on job performance variable with respect to individual characteristics (See: Cohen & Edwards, 1989; Grant & Langan-Fox, 2006; Carver & Connor-Smith, 2010).

For instance, in studying the moderating effect of the Big-Five personality traits on job performance, Srivastava, Chandra and Sherish (2015) found that whereas Openness to Experience, Extraversion, and Conscientiousness each moderated the relationship between Technostress and Work Engagement positively and that of Technostress and burnout negatively, both Agreeableness and Neuroticism projected opposite results.

Besides individual characteristics, personal and job resources contribute significantly to the ambivalent nature of Technostress appraisal. According to Karasek (1979), organizational mechanisms to address stress in the workplace help foil the adverse effects of stressors. In fact, apropos of the use of ICT in the workplace, organizational support in the form of technical literacy facilitation, technical support provision and technology involvement was found to influence employees' perception of Technostress positively (Ragu-Nathan et al., 2008). Noticeably, the aforementioned resources played a role in increasing the self-efficacy motivation in ICT users. Hence, asserting the relationship between resources and perceived Technostress and the role that motivation plays in said relationship.

To Draw on this evidence, considering the proposed positive relationship between challenge demands and Work Engagement, the impact of personality traits and resources on the levels of perceived Technostress, and while Grit is a personality trait similar in its motivational qualities to Conscientiousness, we hypothesize the following:

**H4: Technostress mediates the relationship between Grit and Work Engagement.**

### **3.2.5 Voice Behavior and Work Engagement**

Voice Behavior is a form of proactive behavior (Fuller et al., 2007), and is considered a discretionary and extra-role behavior (Erum et al., 2020). In fact, amongst the different constituents of proactive behavior, Voice Behavior has received the most empirical attention (Fuller et al., 2007).

Proactive behavior is defined in the literature as “taking initiative in improving current circumstances or creating new ones; it involves challenging the status quo rather than passively adapting to present conditions” (Crant, 2000; p. 436)

According to Frese and Fay (2001), proactive behaviors are future-oriented and aim at improving an employee’s work environment; they encompass discretionary and extra-role behaviors.

Using two national samples from Spain and The Netherlands, Salanova and Schaufeli (2008) assessed the relationship between proactive behavior, Work Engagement, and job resources; they found that there is a significant relationship between Work Engagement and proactive behavior, and their results confirmed that in both sample, Work Engagement fully mediated the relationship between job resources and proactive behavior with an invariant strength across the two samples (Salanova and Schaufeli, 2008), thus suggesting that Voice predicts Work Engagement.

Employee voice reveals problems and their solution to organizations (Van Dyne & LePine, 1998), yet its benefits extend to the employees themselves (Nisar et al., 2020). Exercising voice has been found to relate significantly to employees having positive attitudes towards their job and the organization to which they belong (Van Dyne & LePine, 1998). The ability to express voice at work and the act of voicing out have been identified as critical factors in the motivation of employees (Holland, Pyman, Cooper, & Teicher, 2011; Mellahi, Budhwar, & Li, 2010).

The proactive behavior, voice, enables individuals to alter their environment in ways that is most suitable for them, hence increasing their intrinsic motivation and leaving

them with more resources (Bakker, 2011). To elaborate, given the impact of employee voice on the positive attitudes towards the job and organization, its drive towards change and improvement, as well as its motivational properties the exercising of voice can often be relied upon as means to maintain existing or acquire new resources (Qu et al., 2014).

The relationship between Voice Behavior and Work Engagement has been an interest for many researchers who have found a statistically significant correlation between the two constructs (Kwon, Farndale, & Park, 2016; Rees, Alfes, and Gatenby, 2013; Kassing, Piemonte, Goman, and Mitchell, 2012).

Interestingly, the direction of the relationship between Voice Behavior and Work Engagement has kept researchers far from reaching consensus. For instance, Ruck, Welch & Menara (2017) found that the majority of employee voice variables included in their study predicted Work Engagement, whereas as a form of proactive behavior, Blader and Tyler (2009) suggest that proactive behavior is a consequence of Work Engagement; a relationship which has been corroborated by Wong's, Laschinger's & Cummings' (2010) study which found Work Engagement to predict Voice Behavior among nurses.

According to the JD-R model, when the availability of resources for an employee exceed high levels of job demands, often engagement can be predicted. In turn, it can be deduced that Voice Behavior's use by employees for the maintenance and acquisition of resources, in addition to its intrinsic motivational aspects and its guidance towards positive emotions would lead to more engagement (Kwon et al., 2016; Rees et al., 2013).

Hence, in line with the JD-R model, it is hypothesized that:

## **H5: Voice Behavior predicts the outcome of Work Engagement.**

### **3.2.6 Technostress and Voice Behavior**

In order to cope with stress, employees rely on their personal and job resources. In fact, Job stressors (ex. Technostress) have a significant impact on the impoverishment of employees' resources (Halbesleben, 2006). However, when an employee lacks enough resources to initiate coping their perceptions of Technostress increases (Rosenthal and Pittinsky, 2006). The way individuals assess their ability to acquire resources relies heavily on the value of the resources to their work (Hobfoll, 1989). Hence, the more valuable a resource is to an employee, the more difficult it is for them to obtain it, resulting in a bias against perceivably redundant resources.

While practicing voice requires the use of resources (Yan and Xiao, 2016), as aforementioned proactive behaviors such as Voice Behavior are means for employees to seek and acquire more resources (Qu et al., 2014). Therefore, making the voice-stress relationship a compelling one.

When examining the voice-Technostress relationship, the COR theory presents us with two arguments: a) the resource reservation argument; and b) the resource acquisition argument. The resource reservation argument is built on the premise that individuals who perceive high levels of stress would be motivated to preserve their remaining resources on coping with the stress instead of practicing voice and risk losing any of their remaining resources. Contradictorily, the resource acquisition argument suggests that employees who perceive high levels of stress in the workplace would consider the

exercise of voice in order to acquire new resources or prevent the loss of resources on coping (Hobfoll 1989,2002; Burriss et al., 2008; Tangirala & Ramanujam, 2008).

Basing their research on the COR framework, Yan and Xiao (2016) found that when employees experienced loss of resources, they tended to avoid engaging in Voice Behavior for the fear of additional resource loss, whereas Webster et al.'s (2010) study found that employees who perceived a stressor as a challenge were more motivated to use voice to acquire or prevent the loss of resources. Drawing on these results, Nevicka et al., (2011) suggests that when stressors are too high and cause depletion of resources, employees would set their focus on protecting their existing resources, hence abstaining from the resource utilizing Voice Behavior. From the findings of previous literature, it can be deduced that the controversy over the results on the nature of the relationship between Technostress and employee Voice Behavior can be attributed to two factors: 1) the level of perceived stress; and, 2) the amount of resources available to the employees at the time of exposure to the stress. Accordingly, when resources are low at the time of exposure stress, employees would be motivated to reserve their resources, whereas when resources are high at the time of facing stressors employees would be motivated to acquire additional or prevent the loss of existing resources.

In accordance with the COR framework and the support of the literature, it is hence hypothesized that:

**H6: Technostress has a restricting effect on the exercise of Voice Behavior**

### **3.2.7 Technostress, Voice Behavior and Work Engagement**

As previously mentioned, Voice Behavior's potential for improving an employee's work environment, resulting in intrinsic motivation (Bakker, 2011), suggests that the exercise of voice can lead to the acquisition of new resources or the maintaining of existing ones (Qu et al., 2014). As such, the relationship between Voice Behavior and resources infers the role voice may take in the achievement of a state of Work Engagement for employees, due to the crucial part that job resources take in leading an employee towards an engaged state ((Salanova and Schaufeli, 2008). This implies that Voice Behavior may lead to engagement (Kwon et al., 2016).

The dimensions of Technostress all give rise to job demands for which an employee would have to utilize their resources to either cope with or confront Technostress.

Suggested by some to be an antecedent to Work Engagement (Kahn, 1990; Salanova and Schaufeli, 2008), job resources' fragility against excessive job demands presents as a threat to maintaining engagement at work. This goes in-line with the JD-R model, which states that excessive job demands to resources would lead to burnout (Hockey 1997). However, a surplus in the availability of resources against job demands can influence employees' perception of Technostress positively (Ragu-Nathan et al., 2008).

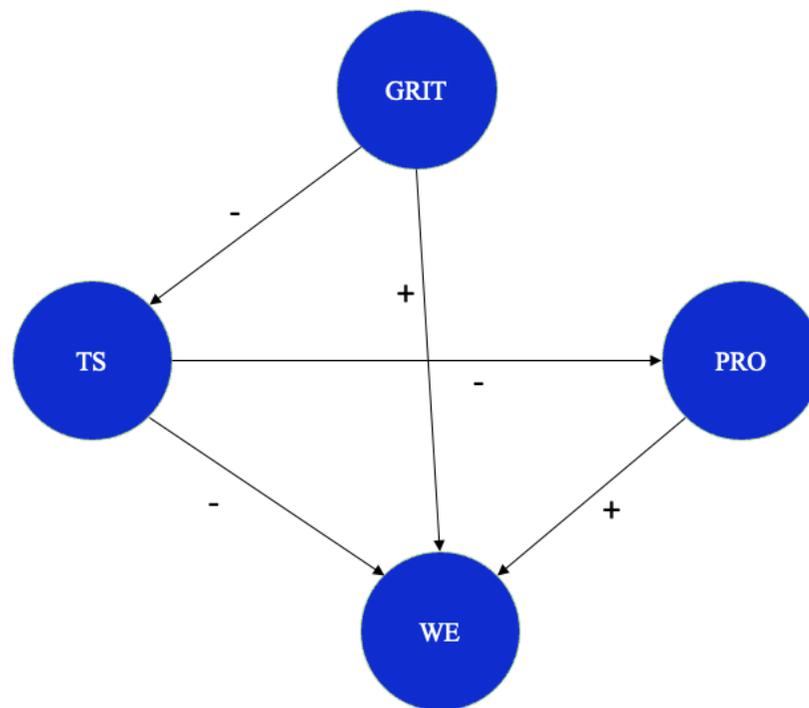
Within this context, the role of Voice Behavior in the acquisition and maintenance of resources becomes clear, which according to COR theory Technostress can either inhibit or promote the use of voice (Hobfoll 1989), indicating that employee perception of existing resources also can explain the variance in effect.

Within this framework, and in accordance with the JD-R and COR theory, the impact of Technostress on Voice Behavior through job resources, its impact on Work Engagement,

and taking into consideration the nature of the relationship between Voice Behavior and Work Engagement, we then hypothesize that:

**H7: Voice Behavior mediates the relationship between Technostress and Work Engagement**

### 3.3 The Conceptual Model



*Figure 1. The Conceptual Model*

# Chapter Four

## Methodology

This chapter begins with the design of the study, ethical considerations, and the sampling strategy. Next, the measures that comprised the online survey questionnaire are described in detail in an order respective to the actual survey structure.

### **4.1 Research design, sampling, and data collection:**

#### **4.1.1 Study Design**

This study is cross-sectional as data was captured for a single point in time, from a cross-section of the population (Hoe & Hoare, 2012). A survey design was adopted to collect data in order to achieve the aim of the current study through statistically examining correlations and mediations between variables, making the nature of this study quantitative. A total of 4 variables were examined to assess the mediating impact of Technostress on the work-related behaviour of the Lebanese working population through self-reported measures of each of the constructs of Grit, Technostress, Work Engagement, and Voice Behavior. The researcher did not aim to assess the causal or predictive nature of study variables; rather, the aim was to determine if relationships existed.

The 56-item survey/questionnaire was structured in such way that, Grit measures comprised 12 items, followed by 20 items to measure Technostress, 9 items to measure Work Engagement, and 10 items to measure employee Voice Behavior. The measures used to develop the survey questionnaire were adopted in the same form as valid and reliable in previous literature. The respondents were asked to place themselves on a five-point Likert scale for the constructs of Grit, Technostress, and Voice Behavior; and on a 7-point Likert scale for Work Engagement items. Finally, results were collected between April 1<sup>st</sup>, 2021, and April 27<sup>th</sup>, 2021.

#### **4.1.2 Ethical Considerations**

Prior to its start, the survey questionnaire emphasized participant's consent through an introductory consent form as well as a required question on whether they agree to undergo the survey. Additionally, the consent form assured participants of the anonymity and confidentiality of any data they provide for the survey. Participants were also assured that there are no known risks, harms or discomforts associated with this study beyond those encountered in normal daily life.

It is essential to note that the Institutional Review Board (IRB) examined and approved the survey question for compliance with ethics standards of research conducted on human subjects. (For reference, use the #IRB tracking number "LAU.SOB.LM1.6/Apr/2021").

#### **4.1.3 Sampling Design**

Surveys were communicated to the Lebanese population in the English language, as its use is dominant as a second language in Lebanon, through social media applications such as Twitter, Instagram, Facebook, and WhatsApp; either through direct messaging random people who fit the criteria, through friend referrals, or randomly through the public link available on social media.

The sample for this study consisted of Lebanese nationals and residents who are employed within Lebanon. To be eligible to complete the survey, participants had to fulfill the following criteria: (a) be employed within Lebanon, and (b) be a resident of Lebanon.

The data analysis performed throughout this study was performed on a total of 186 complete survey questionnaires.

## **4.2 Measures**

### **4.2.1 Demographic Questions**

This section of the survey was used to gather descriptive information of the sample, as well as to help in analyzing the profiles of the participants in the research objective context.

Single item questions were used to measure the following demographics: (1) Age group, (2) gender, (3) highest level of education received, (4) professional industry, (5) whether participant works in a family-owned business, (6) years of experience in the SAME

company, (7) current work position, and (8) self-report on Tech- Savviness (proficiency in the use of modern technology).

The nominal variable gender had three categories: male, female, and non-binary; and the ordinal variable Age, consisting of 10-year intervals ranged from 18-28, 29-39, 40-50, 51-60 to 61+, were both tested through descriptive statistics.

#### **4.2.2 Grit Measure**

In order to measure the independent variable Grit, this research adopted the Grit-O scale developed by Duckworth et al. (2007). Through self-reporting measure, the two-dimensional scale consists of 12 items using a 5-point scale (1 = not like me at all, 5 = very much like me), 6 of which measure the dimension “Perseverance of effort”, while the remaining 6 items measure the “consistency in interest” dimension of Grit. The scale included items such as: “I often set a goal but later choose to pursue a different one”; “New ideas and new projects sometimes distract me from previous ones” and “I become interested in new pursuits every few months”. In this study, the Cronbach's alpha for grit was 0.71.

#### **4.2.3 Technostress Measure**

For the measurement of the mediator variable, Technostress, we adopted Ragu-nathan et al. (2008). This instrument conceptualizes Technostress as a higher order construct with five first order constructs each having three to five measuring items. The 24-item scale uses a five-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”). It measures 5 dimensions of Technostress: Techno-invasion, with questions

such as “I spend less time with my family due to this technology”; Techno-overload, through questions such as “I am forced by this technology to work much faster”; Techno-complexity, through questions such as “I do not know enough about this technology to handle my job satisfactorily”; 4) Techno-insecurity, through questions like “I feel constant threat to my job security due to new technologies”; and 5) Techno-uncertainty, through questions like “There are always new developments in the technologies we use in our organization”. Following the CFA results of Ragu-nathan et al.’s (2008) study, 3 items were eliminated due to error correlations. Additionally, 1 item of the Technostress questionnaire was removed from the survey due to reliability. The Cronbach's alpha for Technostress in this study was 0.88.

#### **4.2.4 Work Engagement Measure**

The outcome variable Work Engagement was measured using the Utrecht Work Engagement Scale short version UWES-9 (Schaufeli and Bakker, 2003). The UWES-9 is a self-report scale scored on a 7-point rating scale (0 = never; 6 = always) using three items each to measure engagement’s three dimensions: vigor, dedication, and absorption. The scale included items such as “At my work, I feel bursting with energy”; “At my job, I feel strong and vigorous”; and “I get carried away when I’m working”. Using the Cronbach's alpha as a test of reliability, work engagement had a value of 0.80 in this study.

#### **4.2.5 Voice Behavior Measure**

The independent variable Voice Behavior was measured through a 10-item scale developed by Liang and Farh (2008) to measure individual Voice Behavior. The

questionnaire uses a five-point Likert scale ranging from (“strongly disagree”) to (“strongly agree”) to measure two dimensions of Voice Behavior through sample items like “Develop and make suggestions for issues that may influence the group” to measure the promotive voice dimension, and “Voice out opinions on things that might affect efficiency in the work unit, even if that would embarrass others” for the prohibitive voice dimension. Using the Cronbach's alpha as a test of reliability, Voice Behavior had a value of 0.86 in this study.

# Chapter Five

## Results and analysis

In this chapter, the thesis highlights the study's results vis-à-vis its scale's validity and reliability. Further, the chapter presents its three models used for testing the hypotheses.

### 5.1 Summary of results

A total of 186 participants completed the survey questionnaire. Gender was distributed between 3 non-binary (1.6%), 123 females (66.1%), and 60 males (32.3%). According to Worldbank (2021) data, the labor force in Lebanon accounts for 2,171,593 individuals of which 24.5% are females and 75.5% are males. Conclusively, the sample population for this study is unrepresentative of the population in terms of gender. The majority of respondents were of ages between 18 and 29.

When it comes to academic backgrounds, over half of the participants held a Bachelor's Degree, a majority of the rest held a Master's Degree, with the rest holding either Doctoral or High School diplomas. Moreover, the majority of respondents held non-managerial positions, however, 1.1% are entrepreneurs, 4.8% of reported being in top management positions, 8.6% in middle management, and 21% in first-line managerial positions, and the remaining 64% work non-managerial and positions. This indicates diversity among the sample population. The below Table 1 represents the frequencies and percentages of the demographic data.

Table 1. Description Statistics – Demographics

<b>Age</b>	Frequency	Percent	<b>Education</b>	Frequency	Percent
18-28	74	39.8	Bachelor's Degree	96	51.6
29-39	75	40.3	Doctoral Degree	9	4.8
40-50	28	15.1	High School Diploma	10	5.4
51-61	7	3.8	Did not attend	1	0.5
61+	2	1.1	Master's Degree	69	37.1
Total	186	100	Prefer not to say	1	0.5
			Total	186	100
<b>Gender</b>	Frequency	Percent	<b>Works in Family Owned Business</b>	Frequency	Percent
Non-binary	3	1.6		No	170
Female	123	66.1	Yes	14	7.5
Male	60	32.3	Total	186	100
Total	186	100			
<b>Current Position</b>	Frequency	Percent	<b>Experience within Same Company</b>	Frequency	Percent
Blank	12	6.5	1 year or less	35	18.8
Casual worker	1	0.5	1 to 2 years	26	14
Doctorate, Medical research	1	0.5	2 to 3 years	12	6.5
Freelance	1	0.5	3 to 4 years	17	9.1
First-line Management (Supervisor, Team Leader, Office Manager...)	39	21	4+ years	96	51.6
Homeroom teacher	1	0.5	Total	186	100
instructor	1	0.5	<b>Industry</b>	Frequency	Percent
Kindergarten teacher	1	0.5	Blank	1	0.5
Middle-Management (Branch Manager, General Manager, Department Manager...)	16	8.6	Banking	7	3.8
Non-managerial position	79	42.5	Education	61	32.8
Self-employed	1	0.5	Entertainment	3	1.6
Owner	2	1.1	Government	3	1.6
School principal	1	0.5	Health care	24	12.9
Social worker	1	0.5	Hospitality	8	4.3
Stage/Internship	1	0.5	Information Technology	6	3.2
Assistant	2	1.1	Manufacturing	1	0.5
Teacher	15	8.1	Marketing	10	5.4
Technical engineer	1	0.5	NGOs	12	6.5
Top Management (CEO, Board of Directors, Vice-President...)	9	4.8	Other	34	18.3
Web developer	1	0.5	Retail	9	4.8
Total	186	100	Telecommunication	6	3.2
			Whole-sale	1	0.5
			Total	186	100

### **5.1.1 Scale Validity**

To assess the validity of the scale, the open-source computer software R Studio was utilized to conduct a Principal Component Analysis (PCA), a data reduction technique, using the "FactoMineR" & "factoextra" packages.

Performing a PCA is essential in order to assess unidimensionality of each of the construct scales in the questionnaire (Hagell, 2014). Since the study is designed to measure specific constructs that have already been widely researched (Grit, Technostress, Voice Behavior and Work Engagement), we would want to ensure that all the questions of each of the construct's scale load on one dimension/factor so that the assessment measures each construct exclusively. The Principal Component Analysis returned a weak loading for all of the variables across the factors. Nevertheless, the Technostress items consistently loaded on a single factor and the first component or factor served to explain only 14% of the variability in the data. As such, the theoretical constructs with their acceptable Cronbach's alphas as reported in the previous chapter were adopted for this study.

#### **5.1.1.1 Common Method Bias**

In behavioral research, when performing an unrotated factor analysis, if only one component accounts for more than 50% of the covariance between the items and the criterion constructs, it is assumed that there exists common method bias (Podsakoff et al., 2003). Thus, based on the PCA performed for this study, component one accounts for

14% of the variance, < 50%. Hence, evidence suggests against the existence of CMB (see Table 2).

*Table 2. PCA- Eigen Values*

	Eigenvalue	Percentage of variance
comp 1	7.266668	<b>14.533337</b>
comp 2	6.718387	13.436773
comp 3	3.559184	7.118369
comp 4	2.502658	5.005315
comp 5	2.19589	4.391781
comp 6	2.020069	4.040139

Table 3 presents the PCA results.

Table 3. Principal Component Analysis- Factor Loadings

		Dim.1	Dim.2
<b>GRIT</b>	Grit.1	0.328302192	
	Grit.2	0.349432021	
	Grit.3	0.105374779	
	Grit.4	0.188256428	
	Grit.5	0.353301259	
	Grit.6	0.471043462	
	Grit.7	0.358575025	
	Grit.8	0.290240328	
	Grit.9	0.491575337	
	Grit.10	0.379898703	
	Grit.11	-0.099214532	
	Grit.12	0.548225245	
<b>Voice Behavior</b>	PROMVB.1	0.655068315	
	PROMVB.2	0.642095828	
	PROMVB.3	0.673173279	
	PROMVB.4	0.666638512	
	PROMVB.5	0.749895521	
	PROHVB.1	0.534370638	
	PROHVB.2	0.633177381	
	PROHVB.3	0.334235822	
	PROHVB.4	0.321972046	
	PROHVB.5	0.395557538	
<b>Technostress</b>	TS_TO.1		0.55749439
	TS_TO.2		0.49332204
	TS_TO.3		0.60000893
	TS_TO.4		0.69868378
	TS_TI.5		0.54300813
	TS_TI.6		0.62611544
	TS_TI.7		0.57119768
	TS_TC.8		0.58468142
	TS_TC.9		0.55222657
	TS_TC.10		0.56358933
	TS_TC.11		0.60676138
	TS_TC.12		0.64294902
	TS_TIS.13		0.62679418
	TS_TIS.14		0.55358927
	TS_TIS.15		0.67498292
	TS_TIS.16		0.44001899
	TS_TUC.17		0.37803357
	TS_TUC.18		0.43652467
	TS_TUC.19		0.43388526
	TS_TUC.20		0.23736339
<b>Work Engagement</b>	WE_VI.1	0.365811511	
	WE_VI.2	0.55964233	
	WE_VI.3	0.488583171	
	WE_AB.4	0.408948349	
	WE_AB.5	0.43853756	
	WE_AB.6	0.227030007	
	WE_DE.7	0.528887262	
	WE_DE.8	0.327852598	
	WE_DE.9	0.541028068	
<p><i>PROMVB= Promotive Voice Behavior; PROHVB= Prohibitive Voice Behavior; TS_TO=Techno-Overload; TS_TI=Techno-Invasion; TS_TC= Techno-Complexity; TS_TIS= Techno-Insecurity; WE_VI=Vigor; WE_AB=Absorption; WE_DE= Dedication</i></p>			

## 5.2 Scale Reliability

Cronbach's alpha tests of reliability and internal consistency were analyzed on the basis of the theoretical scales. According, to Brace, Kemp, & Snelgar (2012), Cronbach's alpha estimates identify the mean association between each pair of items and the number of survey items comprising a scale. When assessing Cronbach's alpha, the higher the estimate is to 1, the greater internal consistency (Tavakol & Dennick, 2011). Accordingly, alpha values were assessed and the results show that the three scales of Work Engagement, Technostress, and Voice Behavior are all estimated above the acceptable ( $\alpha > .70$ ) threshold (George and Mallery,2016). However, the Grit scale scored ( $\alpha=0.693$ ). To ensure reliability, Grit item 11 was removed from the scale which increased reliability to ( $\alpha=0.707$ ). Table 4 presents the Cronbach's alpha for each of the scales before removal of one item from the Grit scale, and table 5 presents scores after its removal.

Table 4. Cronbach's Alphas before dropping Grit 11

	<i>Grit</i>	<i>Voice Behavior</i>	<i>Technostress</i>	<i>Work Engagement</i>
<i>Grit</i>	<b><math>\alpha=0.693</math></b>			
<i>Voice Behavior</i>	0.278 ( $<.001$ )	<b><math>\alpha=0.858</math></b>		
<i>Technostress</i>	-0.195 -0.007	0.101 -0.169	<b><math>\alpha=0.880</math></b>	
<i>Work Engagement</i>	0.403 ( $<.001$ )	0.334 ( $<.001$ )	0.1 -0.173	<b><math>\alpha=0.797</math></b>
<i>Computed correlation used pearson-method with listwise-deletion.</i>				

Table 5. Cronbach's Alphas after removing Grit 11

	<i>Grit</i>	<i>Voice Behavior</i>	<i>Technostress</i>	<i>Work Engagement</i>
<i>Grit</i>	<b><math>\alpha=0.707</math></b>			
<i>Voice Behavior</i>	0.304 ( <i>&lt;.001</i> )	<b><math>\alpha=0.858</math></b>		
<i>Technostress</i>	-0.204 -0.005	0.101 -0.169	<b><math>\alpha=0.880</math></b>	
<i>Work Engagement</i>	0.445 ( <i>&lt;.001</i> )	0.334 ( <i>&lt;.001</i> )	0.1 -0.173	<b><math>\alpha=0.797</math></b>
<i>Computed correlation used pearson-method with listwise-deletion.</i>				

Once reliability had been established and the theoretical constructs adopted, the assessment of the model was carried out by deploying Structural Equation Modeling (SEM) using R-Studio through the “Lavaan” package.

### 5.3 One-Way ANOVA

To test for difference in the perceptions of Technostress between respondents who identified themselves as either, not Techsavvy, somewhat Techsavvy, or Techsavvy, a One-Way ANOVA was performed.

Table 6. Descriptives

<b>Descriptives - TS</b>			
<b>TechSavvy</b>	<b>Mean</b>	<b>SD</b>	<b>N</b>
NO	3.075	0.545	6
Somewhat	3.029	0.501	90
YES	2.819	0.636	90

Table 7. One-Way ANOVA – Tech-Savvy

ANOVA - TS					
Cases	Sum of Squares	df	Mean Square	F	p
TechSavvy	2.117	2	1.059	3.239	0.041
Residuals	59.812	183	0.327		
<i>Note.</i> Type III Sum of Squares					

The results of the One-Way ANOVA, presented in Table 7, show that at least one of the mean levels of technostress differs from the three groups and is significant at  $p = 0.041 < 0.05$ . As a result, a Post Hoc analysis was conducted to determine the difference between the groups. Results of the Post Hoc comparisons are presented in table 8.

Table 8. Post Hoc Comparisons – TechSavvy

Post Hoc Comparisons - TechSavvy					
		Mean Difference	SE	t	p <sub>tukey</sub>
NO	Somewhat	0.046	0.241	0.191	0.98
	YES	0.256	0.241	1.062	0.539
Somewhat	YES	0.21	0.085	2.464	0.039
<i>Note.</i> P-value adjusted for comparing a family of 3					

Results from Table 8 show that the difference between respondents who answered “Somewhat” and those who answered “NO” are significantly not different. This indicates that Technostress has a similar impact on both groups. Expectedly, people who responded “YES” to being Techno-Savvy are impacted by Technostress differently than those who responded “NO” or “Somewhat”, with a significance level of  $p = 0.039$ . It is important to note that, Techno-Savvy respondents are impacted less by Technostress

than those who are slightly Techno-Savvy and those who are not, with means of 2.819, 3.029, and 3.075, respectively.

#### **5.4 Structural Equation Model**

To describe the fit of an SEM model, the standardized root mean square residual (SRMR), root mean square error of approximation (RMSEA), comparative fit index (CFI), and the Tucker Lewis Index (TLI) are the most commonly used fit (Kline, 2010; Worthington & Whittaker, 2006).

According to Jöreskog & Sörbom (1993), a RMSEA value of  $< .05$  indicates a “close fit,” and that  $< .08$  suggests a reasonable model–data fit. Values for the CFI statistic range between 0.0 and 1.0 with values closer to 1.0 indicating good fit. Recent studies have shown that a value of  $CFI \geq 0.95$  is recognized as indicative of good fit (Hu and Bentler, 1999). Similarly, a TLI value of ( $> .90$ ) indicates a good model-data fit. These suggestions however do not have any statistically valid justification (Marsh, Hau, & Wen, 2004).

Fit indices are also likely to be influenced by the model size because they are functions of the chi-square statistic, which is prone to what is known as the model-size effect (Herzog, Boomsma, & Reinecke, 2007) a phenomenon that affects those results in an upward bias as the number of observations for a sample increase. For the chi-square test to be valid, one important assumption is that the sample size (N) should be sufficiently large (Shi, Lee, and Maydeu-Olivares, 2018).

SEM results for the original model proposed by this study shows a RMSEA= .094, a CFI = .539, and a TLI= .516. The goodness of fit indices estimated for the SEM model present levels below the commonly acceptable standards. However, the RMSEA value is lower than <.1 and close to the reasonable model–data fit of >.08 (Jöreskog & Sörbom, 1993). Similarly, CFI and TLI values are higher than >.5 and is closer to 0.1. Additionally, given the sample size  $n=186 < 200$ , the model-size effect must be taken into consideration, deeming the model of this study in the acceptable model-data fit range. Additionally, model has shown to have good indication of the state for the studied constructs in Lebanon. Table 9 presents the fit indices results for the proposed model.

*Table 9. Fit Indices- Original Model*

User Model versus Baseline Model:	
Comparative Fit Index (CFI)	0.539
Tucker-Lewis Index (TLI)	0.516
Root Mean Square Error of Approximation:	
RMSEA	0.094
90 Percent confidence interval - lower	0.09
90 Percent confidence interval - upper	0.099
P-value RMSEA $\leq 0.05$	0.00

In mediation analysis, there are two paths leading to the outcome variable, one starting from the independent variable through the mediator, and another directly between the independent and the outcome variables. For results to support mediation, the Baron and Kenny (1986) method of mediation analysis states that the following conditions must be met:

- The independent variable is shown to significantly influence the outcome variable.

- The independent variable is shown to significantly influence the mediating variable.
- The mediator is shown to significantly influence the outcome variable with the independent variable also considered in the regression a predictor.

Hence, besides its own path significance, the support of hypothesis H4: “*Technostress mediates the relationship between Grit and Work Engagement*” is contingent on the significance of the path for hypotheses H1: “*Grit correlates inversely with Technostress*” and H2: “*Grit serves as a predictor for the outcome of Work Engagement*, and H3: “*Technostress correlates negatively with Work Engagement*”. Similarly, hypothesis H7: “*Voice Behavior mediates the relationship between Technostress and Work Engagement*” is contingent on the significance of the path for H6: “*Technostress has a restricting effect on the exercise of Voice Behavior*”, H5: “*Voice Behavior predicts the outcome of Work Engagement*”, and H3: “*Technostress correlates negatively with Work Engagement*”.

Results from the SEM analysis are shown below in tables 10 and 11 and in Figure 2

Table 10. SEM- Regressions

<b>Regressions</b>								
			Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
TS~								
	Grit	(a)	-0.566	0.244	-2.318	0.02	-0.258	-0.258
WE~								
	TS	(b)	0.174	0.078	2.218	0.027	0.204	0.204
	Grit	(c)	1.048	0.357	2.936	0.003	0.561	0.561
	PRO	(e)	0.215	0.085	2.54	0.011	0.218	0.218
PRO~								
	TS	(d)	0.039	0.07	0.55	0.582	0.045	0.045

Table 11. SEM- Variances

Variances						
	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
Grit	0.083	0.042	1.988	0.047	1	1
.TS	0.376	0.098	3.854	0	0.934	0.934
.WE	0.19	0.075	2.54	0.011	0.654	0.654
.PRO	0.301	0.053	5.698	0	0.998	0.998

Table 12. SEM- Defined Parameters

Defined Parameters						
	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
ab TS	-0.098	0.062	-1.573	0.116	-0.053	-0.053
de PRO	0.008	0.015	0.54	0.589	0.01	0.01
total WE	0.95	0.328	2.899	0.004	0.509	0.509

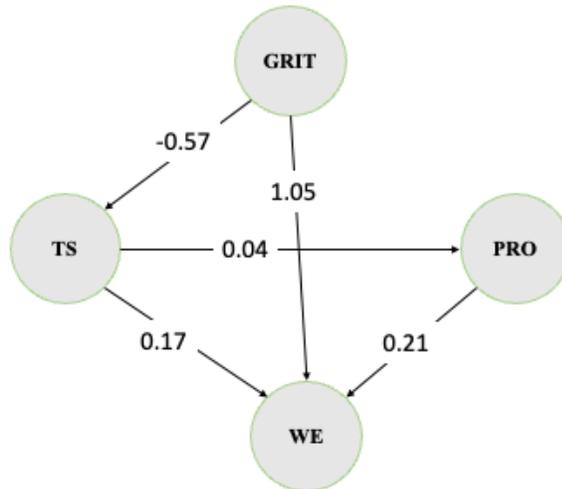


Figure 2. SEM Model Estimates

According to the regressions from table 10, the direct effect of Grit on Technostress has a path coefficient of -0.57 that is significant at the level  $p=0.02 < 0.05$ . This indicates that Grit has a negative influence on perceptions of Technostress. Thus, hypothesis H1 is supported. The coefficient of the path between Grit and Work Engagement presented a value of 1.05 with a significance of  $p=0.003 < 0.05$ , indicating that Grit has a strong positive and significant impact on Work Engagement. Hence, hypothesis H2 is supported. Moreover, the path coefficient from Technostress towards Work Engagement resulted in a value of 0.174 and a P-value of  $p=0.027$  demonstrating a positive and significant relationship between Technostress and Work Engagement. Consequently, the author of the study rejected Hypothesis 3. The two constructs do have a significant relationship, but it is positive not negative.

Results show that the three conditions for mediation, as suggested by Baron and Kenny (1986) have been met since there is a presence of significant influence between the independent and outcome variable, between the independent variable and the mediator, as well as a significant relationship between the mediator and the outcome variable. Consequently, the indirect effects shown in Table 12 were assessed.

The indirect effect of Grit on Work Engagement through Technostress was estimated to have a coefficient of -0.098, with a P-value  $p=0.116$ . This indicates that the indirect influence of Grit on Work Engagement through Technostress is insignificant. Hence, H4 is not supported.

As for the influence of Voice Behavior on Work Engagement, path estimates showed a coefficient of 0.21 and a P-value of  $p=0.011$ , signifying that Voice Behavior has a

positive influence on Work Engagement. Hence, H5 is supported. Furthermore, the path between Technostress and Voice Behavior presented a coefficient of 0.04 and a P-value of 0.55. As a result, hypothesis H6 is not supported. Fittingly, since the results show that the three conditions for mediation were not all met, the author of this study rejected H6 and H7.

## 5.5 Adjusted SEM- Model 2

Following the analysis of SEM Model, the model was redesigned and the insignificant path between Technostress and Voice Behavior was trimmed. The adjusted model will hereinafter be referred to as Model 2. Results are shown in tables 14, & 15 and Figure 3.

*Table 13. Fit Indices- Model 2 (Removed TS →PRO)*

User Model versus Baseline Model:	
Comparative Fit Index (CFI)	0.544
Tucker-Lewis Index (TLI)	0.522
Root Mean Square Error of Approximation:	
RMSEA	0.094
90 Percent confidence interval - lower	0.09
90 Percent confidence interval - upper	0.098
P-value RMSEA <= 0.05	0.00

Model fit results for model 2 returned fit indices similar to those in the original model, with slight increases in CFI from 0.539 to 0.544, slight increase in TLI from 0.516 to 0.522, and a constant RMSEA value of 0.094. SEM results for model 2 are shown in the below tables 14, 15, 16 & 17 as well as in Figure 3.

Table 14. SEM- Model 2 Regressions

<b>Regressions</b>								
			Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
TS~								
	Grit	(a)	-0.387	0.185	-2.097	0.036	-0.208	-0.208
WE~								
	TS	(b)	0.158	0.075	2.098	0.036	0.181	0.181
	Grit	(c)	0.91	0.288	3.164	0.002	0.562	0.562
	PRO	(e)	0.124	0.089	1.395	0.163	0.124	0.124

Table 15. SEM- Model 2 Variances

<b>Variances</b>						
	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
Grit	0.116	0.049	2.384	0.017	1	1
.TS	0.384	0.1	3.851	0	0.957	0.957
.WE	0.19	0.073	2.599	0.009	0.623	0.623
PRO	0.301	0.053	5.702	0	1	1

Table 16. SEM- Model 2 Defined Parameters

<b>Defined Parameters</b>						
	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
ab TS	-0.061	0.042	-1.44	0.15	-0.038	-0.038
total WE	0.849	0.272	3.117	0.002	0.524	0.524

Table 17. SEM- Model 2 Covariances

<b>Covariances</b>						
	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
Grit	~~					
PRO	0.081	0.024	3.326	0.001	0.431	0.431

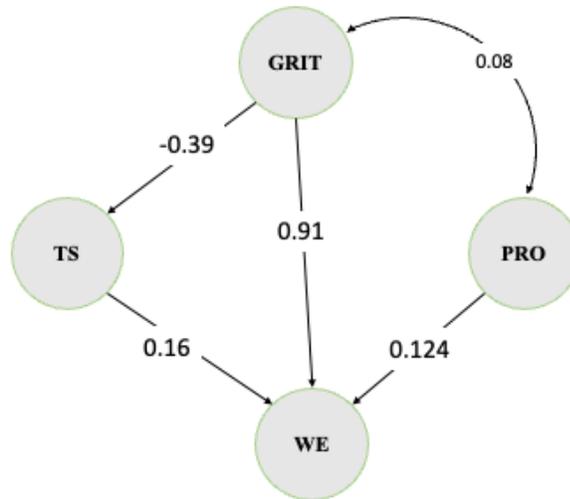


Figure 3. SEM Model 2 Estimates

Consistent with the regressions from table 14, the direct effect of Grit on Technostress has a path coefficient of -0.39 that is significant at the level  $p=0.017$ . The pathway from Grit to Technostress decreased in its influence from a coefficient of -0.566. This indicates that Grit still has a negative influence on perceptions of Technostress. Thus, hypothesis H1 is still supported.

The coefficient of the path between Grit and Work Engagement presented a value of 0.91, also showing a slight decrease from the former coefficient of 1.05 with a significance of  $p=0.002$ , indicating that Grit has a strong positive and significant impact on Work Engagement. Hence, hypothesis H2 is still supported. Furthermore, the path coefficient from Technostress towards Work Engagement resulted in a value of 0.16 and a P-value of  $p=0.036$  demonstrating a positive and significant relationship between Technostress and Work Engagement. Hence, the hypothesis H3 remains unsupported.

Similar to the original model, the indirect effects of Grit on Work Engagement through Technostress remain insignificant. Hence, H4 is still unsupported. Besides, after trimming the Voice Behavior-Technostress path, covariance between Grit and Voice Behavior returned a minimal 0.08 coefficient with significance at the  $p=0.001$  level, suggesting that the two variables variate together in the same direction, yet very slightly.

A Key finding of the adjusted model is that the relationship between Voice Behavior and Work Engagement became insignificant with a coefficient of 0.09 and a P-value of  $p=0.163$ . As a result, results from model 2 of the study renders H5 unsupported. From this change, it can be inferred that the significance of the relationship between the two variables in the original model was due to variance being carried from the Grit, Technostress and Engagement path, through to the Voice Behavior, Technostress and Engagement path.

### **5.6 Adjusted SEM- Model 3**

Literature on Voice Behavior and Work Engagement presents conflict when it comes to the direction of the relationship (see. Ruck, Welch & Menara, 2017; and Blader and Tyler, 2009).

Correspondingly, model 2 was adjusted to trim the newfound insignificant path between Voice Behavior and Work Engagement. The results of the new model, hereinafter referred to as Model 3, will be assessed. Results are shown in tables 19, 20, & 21, as well as in Figure 4.

Table 18. Fit Indices- Model 3

User Model versus Baseline Model:		
Comparative Fit Index (CFI)		0.543
Tucker-Lewis Index (TLI)		0.521
Root Mean Square Error of Approximation:		
RMSEA		0.094
90 Percent confidence interval - lower		0.09
90 Percent confidence interval - upper		0.098
P-value RMSEA $\leq$ 0.05		0.00

Model fit results for model 3 returned fit indices similar to those in model 2 for CFI, TLI, and RMSEA.

Table 19. SEM- Model 3 Regressions

Regressions								
			Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
TS~								
	Grit	(a)	-0.511	0.218	-2.346	0.019	-0.252	-0.252
WE~								
	TS	(b)	0.207	0.082	2.526	0.012	0.235	0.235
	Grit	(c)	1.159	0.359	3.224	0.001	0.65	0.65
PRO~								
	WE	(e)	0.393	0.106	3.691	0	0.399	0.399

Table 20. SEM- Model 3 Variances

Variances						
	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
Grit	0.098	0.045	2.172	0.03	1	1
.TS	0.377	0.098	3.854	0	0.937	0.937
.WE	0.187	0.072	2.614	0.009	0.6	0.6
.PRO	0.253	0.045	5.582	0	0.84	0.84

Table 21. SEM- Model 3 Defined Parameters

Defined Parameters						
	Estimate	Std.Err	z-value	P(> z )	Std.lv	Std.all
ab TS	-0.106	0.063	-1.678	0.093	-0.059	-0.059
total WE	1.054	0.33	3.188	0.001	0.59	0.59

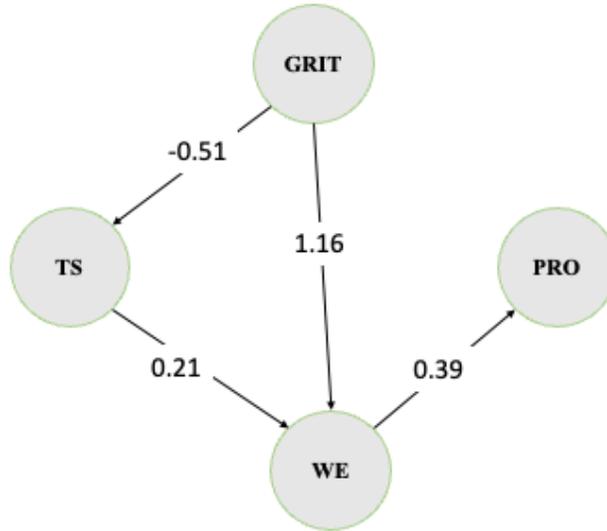


Figure 4. SEM Model 3 Estimates

Regressions in Table 14 provide evidence that, after the removal of the insignificant path from model 2, the direct effect of Grit on Technostress has a path coefficient of -0.511, an increased coefficient value than the -0.39 from model 2, that is significant at the level  $p=0.019$ . This indicates that Grit has a stronger negative influence in model 3 on perceptions of Technostress. Thus, hypothesis H1 is still supported.

The coefficient of the path between Grit and Work Engagement presented a value of 1.16 with a significance of  $p=0.001$ , indicating that Grit has significant predictive qualities of Work Engagement. Hence, hypothesis H2 is still supported. Moreover, the path coefficient from Technostress towards Work Engagement resulted in a value of 0.20 and a P-value of  $p=0.012$  demonstrating a positive and significant relationship

between Technostress and Work Engagement. Thus, hypothesis H3 remains unsupported.

Similar to the original model, the indirect effects of Grit on Work Engagement through Technostress remain insignificant at the 0.05 level, however, they are significant at the 0.10 level. This indicates that H4 is supported but at a lower level of confidence. This is likely due to the small sample size.

A significant finding from model 3 provides strong evidence on the direction of the Voice Behavior-Technostress path. The direct effect of Work Engagement was estimated with a coefficient of 0.393 and a significance level below 0.001. Hence, H5 is unsupported and instead, consistent with Ruck, Welch & Menara's (2017) findings, it can be deduced that Work Engagement predicts Voice Behavior.

# Chapter Six

## Discussion, Limitations, and Recommendations

Within the lines of this final chapter 6, the thesis interprets the results and reaches a conclusion regarding the findings following the models. It discusses then the managerial implications as well as limitations of the study, culminating in recommendations for future research.

### 6.1 Discussion

The aim of this study was to examine the relationships between Grit, Technostress, Voice Behavior, and Work Engagement among employed residents of Lebanon. In addition to the original model, the researcher examined two additional versions of the original model to see how that would impact these relationships, as in doing so the results might lead to further discoveries and support to previous literature.

The rationale behind the study is based on two premises: 1) A humanitarian premise in that employee well-being is a commonly overlooked aspect, especially in developing countries, and is not often considered as in assessing the overall health of an organization, deeming it crucial to shed light on the overall organizational benefits of healthy employees in the hopes that it would encourage more support and embeddedness

of employee well-being into organizational programmes and culture. 2) A business-oriented premise in that organizations' profit increasing and cost cutting goals are highly reliant on employee performance and behavior within the scope of work. Hence increasing the contextual knowledge of employers and decision-makers on emerging organizational behavior aspects and how they impact engagement and ultimately increase overall performance of employees, and the organization specifically, is essential for achieving these goals and can be considered a competitive advantage.

When comparing the different impacts of Technostress on the different levels of proficiency in the use of technology, through a self-report measure of whether respondents consider themselves Techno-Savvy, the results indicated that perceptions of Technostress are lower among respondents who answered "YES" to being Tech-Savvy and perceptions of stress are higher within respondents who voted otherwise. This is consistent with the literature suggesting that factors such as literacy facilitation on ICT-related knowledge within an organization would challenge employees' perceptions of Technostress in a way that reduces their perceptions and therefore experience of the stressors (Ragu-Nathan et al., 2008; Shah et al., 2021).

The first hypothesis this study tested was, H1: "*Grit correlates inversely with Technostress*". Analysis of the results revealed a significant inverse relationship between the two constructs. The prior indicates that, as the personality-trait level Grit increases, levels of experienced Technostress decrease. Consequently, the null hypothesis for H1 was rejected. This is consistent with Lazarus' (1991) cognitive-mediational theory in that motivational dispositions and personal resources can play an important role in the appraisal of stressful stimuli and on the approach which exposed

individuals undertake to face stressful experiences. Evidence from the results of this study is in support of research conducted by Lee (2017), which revealed a negative correlation between Grit and perceived stress, arguing that as a psychological resource, Grit makes individuals less prone to stress.

Hypothesis 2 aimed to assess whether “*Grit serves as a predictor for the outcome of Work Engagement.*” The hypothesis was supported in each of the 3 models with results providing strong evidence for Grit as a predictor of Work Engagement; This is especially since the correlation coefficient between the two constructs, in all three models, suggests that as Grit increases, Work Engagement increases by what can be more than a 100 percent of the level of increase in Grit. Therefore, the study rejected the null hypothesis for H2. These results are in-line the Bakker’s and Demerouti’s (2007) JD-R model in that personal resources are likely to lead to engagement. Additionally, the results of H2 provides additional support to the research of Singh and Chopra (2018) who found that both consistency of interest and perseverance of efforts showed predictive qualities of Work Engagement; as well as support to the findings of Dam et al., (2019) and Dugan et al. (2019) who have also found that there is presence of a significant relationship between Grit and Work Engagement.

Moreover, when testing for hypothesis H3, “*Technostress correlates negatively with Work Engagement*”, analysis of the results revealed a positive and significant relationship between Technostress and Work Engagement. Accordingly, evidence led to the rejection of H3. Consequently, within the context of the study, as Technostress levels increase Work Engagement, counterintuitively, increases. Interestingly, since data was collected amidst the peak of the Covid-19 pandemic, it can be assumed that the

uncertainty and unknown aspects of the pandemic actually enable employees to view Technostress as a partial solution, viewing it as challenge demands, therefore it impacted levels of Work Engagement positively. These results are consistent with the JD-R model's tenet that if levels of personal and job resources are higher than those of job demands, individual perceptions of stress would be low. To elaborate, Grit, being a trait-level psychological resource, enables individuals to have a positive appraisal of their ability to control their environment (Hobfoll, Johnson, Ennis, & Jackson, 2003). Furthermore, in the face of stress, individuals attempt to alleviate perceived stress through coping mechanisms that are limited in strength to the individuals' personal and job resources, hence making resourceful individuals less vulnerable to stress (Lazarus and Folkman, 1984). Within this context, we assume that our sample population were resourceful enough to be able to categorize Technostress as a challenge stressor, which has been found to reverse the correlation between stress and engagement into a positive one (Rai, 2018), indicating the curvilinearity of the relationship between the two constructs, Technostress and Work Engagement.

Whereas the results showed significant relationships between all three variables, analysis of the results of the first two models for H4: "*Technostress mediates the relationship between Grit and Work Engagement*" drew attention to the evidence that within the context of this study, Technostress had no significant mediating effect on the relationship between Grit and Work Engagement. Hence, H4 was rejected. Although, in model 3, the indirect effects of Grit on Work Engagement through Technostress were significant at the and H4 was supported but at a lower level of confidence. This is likely due to the small sample size. Interestingly, while Grit, in this study, predicts perceptions

of lower Technostress, and the impact of Technostress on Work Engagement is positive, signaling perceptions of motivational challenge stressors, Technostress does not mediate the relationship between Grit and Work Engagement in the first two models, and mediates the relationship partially in the third model. This suggests that whereas Technostress does not fully mediate said relationship, Grit indeed might have moderating effects on the relationship between Technostress and Work Engagement.

In the analysis of H5: “*Voice Behavior predicts the outcome of Work Engagement*”, results from the original model, which assesses Voice Behavior as a mediator for the relationship between Technostress and the outcome Work Engagement revealed that there is a positive impact from Voice Behavior on Work Engagement. Hence, H5 was supported. However, the relationship between Technostress and Voice Behavior was evidenced as insignificant. As a result, Baron’s and Kenny’s (1986) mediation conditions were not met, resulting in the rejection of both hypotheses H6: “*Technostress has a restricting effect on the exercise of Voice Behavior*”, and H7: “*Voice Behavior mediates the relationship between Technostress and Work Engagement*”. In the adjusted model 2, upon elimination of the Technostress to Voice Behavior pathway, the relationship between Voice Behavior and Work Engagement became insignificant within the context of the study, hence withdrawing support for H5. This signaled an existence of a relationship between the Voice Behavior and Work Engagement through a different path. The results were not surprising as a study on Work Engagement amongst frontline employees in Turkish hotels argued that people, who are more engaged in their work, were more likely to engage in Voice Behavior (Burke, Koyuncu, Fiksenbaum & Tekin, 2013), implying that Work Engagement predicted Voice Behavior(Wong’s,

Laschinger's & Cummings', 2010), as opposed to Ruck, Welch & Menara (2017) who found in their study that Voice Behavior predicted Work Engagement, a reasoning consistent with our hypothesis H5. Consequently, based on the conflict in the literature on the direction of the relationship between Voice Behavior and Work Engagement, model 2 was readjusted, and model 3 reversed the path between the previously insignificant relationship between Voice and Technostress. Results from model 3 presented a positive and significant relationship extending from Work Engagement towards Voice Behavior. As a result, H5 was rejected and the results showed support to those of Burke, Koyuncu, Fiksenbaum & Tekin, (2013); and Ruck, Welch & Menara (2017), implying that within the context of this study, as an independent variable, Work Engagement predicts Voice Behavior.

## **6.2 Conclusion**

The aim of this study was to examine the relationships between Grit, Voice Behavior, Technostress, and Work Engagement among employees located in Lebanon. Analysis of surveys completed by 186 employees revealed that people who consider themselves proficient in their use of ICTs are less impacted by Technostress than those who aren't, suggesting that incorporation of ICT literacy processes within organization might help mitigate the negative effects of Technostress. Grit predicted lower perceptions of Technostress and that Technostress influenced Work Engagement positively. Findings emphasize the value of Grit in predicting Work Engagement, yet the relationship between said constructs showed no significant indirect effects through Technostress, hence Technostress did not act as a mediator. Moreover, analysis of the results did not

show evidence of a significant relationship between Technostress and Voice Behavior. Interestingly, adjustments to the model provided evidence that Work Engagement predicted Voice Behavior, adding support to the literature through endorsing this direction of the pathway between the two variables.

This study was subject to limitations and several opportunities for future investigation emerged. The main takeaway for managers is that effort should be put into providing encouraging and training employees to increase their Grit, as well as implementing stress reduction factors into their organizations. Additionally, the main takeaway for employees is that perceptions of stress is influenced by several factors, many of which are within the control of the individual. Hence, assessment and improvement on areas of personal life and the job may counter the effects of stress leading to a more blissful career and an increased work performance.

### **6.3 Managerial Implications**

This study extends the literature on Technostress, Grit, Work Engagement, and Voice Behavior. Additionally, it complements the JD-R model, and COR theory.

Besides theoretical implications, the literature and results of this thesis provides practical implications for policymakers. It highlights several work-related employee assets and outcomes for which decision makers are encouraged to either seek or mitigate; further strengthening the understanding and providing a detailed picture on organizational matters within the context of Lebanon, and potentially countries with similar cultures. For instance, Technostress, identified in the literature as harmful to employee

performance and well-being (Tarafdar et al., 2007), was found in this study to have a positive impact on Work Engagement. This suggests that there can be several ways through which managers can challenge the impeding effects of the use of ICTs on employee and organizational performance. To elaborate, literacy facilitation and technical support provision are a few examples of how managers can integrate training and technical support into work processes to mitigate the negative effects of exposure to Technostressors and foster engagement (Ragu-Nathan et al., 2008; Ma et al., 2021). This is especially important since training programs aimed at improving employee self-efficacy at work also increases the employees' cognitive, emotional, and physical Work Engagement (Kuok & Taormina, 2017), and therefore overall performance. In addition, this study can help hiring managers in identifying best candidates for a job through assessments of Grit, found in this study to be a predictor of Work Engagement and a trait that allows its beholder to perceive stressors, specifically Technostress, as motivational instead of discouraging and performance hindering. Finally, this study sheds light on the importance of promoting an organizational culture where employees speak up. Exercising Voice Behavior, found in this study to also predict Work Engagement, has been identified as important for organizational stability and error detection (Parker & Collins, 2010; Crant, Kim and Wang, 2011). This allows managers to better predict, and even prevent impediments to the business environment and maintain the organization's competitiveness within the markets (Liang, Farh and Farh, 2012).

## **6.4 Limitations and Future Recommendations**

A limitation to this study is its cross-sectional nature. This is because data was collected at only one point in time making this method insufficient to capture enough evidence to support causal relationships among the constructs. Another limitation is that during the data collection period, Lebanon was suffering a severe economic crisis which may have affected the respondents' perception of the situation. A third limitation is that the sample population consisted of a male to female proportion that is irreflective of the Lebanese Labor force which consists of 24.5 % females and 74.5 % males. Within this context, it is recommended to replicate this study while controlling for economic impact on employees. Moreover, it is recommended to inspect the nature of the influence of Technostress on Work Engagement in the absence of Grit and while controlling for Job resources. Similarly, it is recommended to investigate influence of Grit on the relationship between Technostress and Work Engagement. Additionally, it is recommended that moderating variables such as Tech-Savvy or Work Experience be tested as moderators for the model, in order to see how that would impact the findings. Finally, it is recommended to capture a bigger sample for results that are more reflective in nature on the population, and to assess the model on employees of one industrial segment to produce industry-specific information.

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# Appendix I

## IRB Approval

  
المؤسسة اللبنانية للدراسات والبحوث  
Lebanese American University  
Institutional Review Board (IRB) لجنة المراجعة

**NOTICE OF IRB APPROVAL – EXEMPT STATUS**

<b>To:</b> Mr. Khaldoun Tarabay Dr. Leila Messarra School of Business	<b>APPROVAL ISSUED:</b> 6 April 2021 <b>EXPIRATION DATE:</b> 6 April 2023 <b>REVIEW TYPE:</b> EXEMPT CATEGORY B
<b>Date:</b> April 6, 2020	
<b>RE:</b> <b>IRB #:</b> LAU.SOB.LM1.6/Apr/2021 <b>Protocol Title:</b> A Study on the Impact of Technology Induced Stress on Work-related Behavior	

Your application for the above referenced research project has been reviewed by the Lebanese American University, Institutional Review Board (LAU IRB). This research project qualifies as exempt under the category noted in the Review Type.

This notice is limited to the activities described in the Protocol Exempt Application and all submitted documents listed on page 2 of this letter. **Final reviewed consent documents or recruitment materials and data collection tools released with this notice are part of this determination and must be used in this research project.**

### CONDITIONS FOR ALL LAU NOTICE OF IRB EXEMPTION DETERMINATION

**LAU RESEARCH POLICIES:** All individuals engaged in the research project must adhere to the approved protocol and all applicable LAU IRB Research Policies. **PARTICIPANTS must NOT be involved in any research related activity prior to IRB notice date or after the expiration date.**

**EXEMPT CATEGORIES:** Activities that are exempt from IRB review are not exempt from IRB ethical review and the necessity for ethical conduct.

**PROTOCOL EXPIRATION:** **PROTOCOL EXPIRATION:** The LAU IRB notice expiry date for studies that fall under Exemption is 2 years after this notice, as noted above. If the study will continue beyond this date, a request for an extension must be submitted at least 2 weeks prior to the Expiry date.

**MODIFICATIONS AND AMENDMENTS:** Certain changes may change the review criteria and disqualify the research from exemption status; therefore, any proposed changes to the previously IRB reviewed exempt study must be reviewed and cleared by the IRB before implementation.

**RETENTION:** Study files must be retained for a period of 3 years from the date of project completion.

**IN THE EVENT OF NON-COMPLIANCE WITH ABOVE CONDITIONS, THE PRINCIPAL INVESTIGATOR SHOULD MEET WITH THE REPRESENTATIVES OF THE IRB OFFICE IN ORDER TO RESOLVE SUCH CONDITIONS. IRB CLEARANCE CANNOT BE GRANTED UNTIL NON-COMPLIANT ISSUES HAVE BEEN RESOLVED.**

If you have any questions concerning this information, please contact the IRB office by email at [irb@lau.edu.lb](mailto:irb@lau.edu.lb)

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The IRB operates in compliance with the national regulations pertaining to research under the Lebanese Minister of Public Health's Decision No.141 dated 27/1/2016 under LAU IRB Authorization reference 2016/3708, the international guidelines for Good Clinical Practice, the US Office of Human Research Protection (45CFR46) and the Food and Drug Administration (21CFR56). LAU IRB U.S. Identifier as an international institution: FWA00014723 and IRB Registration # IRB00006954 LAUIRB#1

**Dr. Joseph Stephan**  
Chair, Institutional Review Board

**DOCUMENTS SUBMITTED:**

IRB Exempt Protocol Application	Received 16 March 2021
Proposal	Received 16 March 2021, amended 31 March 2021
Informed Consent	Received 16 March 2021, amended 30 & 31 March 2021
Survey	Received 16 March 2021
Link to the survey	Received 16 March 2021, amended 30 & 31 March 2021
<b>IRB Comments sent:</b> 29 March 2021 31 March 2021	<b>PI response to IRB's comments dated:</b> 30 March 2021 31 March 2021
NIH Training – Leila Messarra	Cert.# 2061311 (Dated 22 April 2015)
CITI Training – Khaldoun Tarabay	Cert.# 39185452 (Dated 28 October 2020)



# Appendix II

## Survey Questionnaire

5/16/22, 6:16 PM

A Study on the Impact of Technology Induced Stress on Work-related Behavior.

A Study on the Impact of Technology Induced Stress  
on Work-related Behavior.

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\* Required

## Informed Consent

Consent to participate in a Survey on:

( The Impact on Technostress on Work Engagement: a Mediation Model Assessing the Role of Grit and Voice Behavior)

I would like to invite you to participate in a research project by completing the following survey. I am a student at the Lebanese American University and I am completing this research project as part of my MBA course requirement. The purpose of this survey aims to assess the impact of Information Communication Technology (ICT) on work-related behavior.

There are no known risks, harms or discomforts associated with this study beyond those encountered in normal daily life. The information you provide will be used to enhance and improve the quality of our findings. You will not directly benefit from participation in this study. The study will involve 150 participants. Completing the survey will take approximately 15 minutes of your time.

By continuing with the survey, you agree with the following statements:

1. I have been given sufficient information about this research project.
2. I understand that my answers will not be released to anyone and my identity will remain anonymous. My name will not be written on the questionnaire nor be kept in any other records.
3. When the results of the study are reported, I will not be identified by name or any other information that could be used to infer my identity. Only researchers will have access to view any data collected during this research however data cannot be linked to me.
4. I understand that I may withdraw from this research any time I wish and that I have the right to skip any question I don't want to answer.
5. I understand that my refusal to participate will not result in any penalty or loss of benefits to which I otherwise am entitled to.
6. I have been informed that the research abides by all commonly acknowledged ethical codes and that the research project has been reviewed and approved by the Institutional Review Board at the Lebanese American University
7. I understand that if I have any additional questions, I can ask the research team listed below.
8. I have read and understood all statements on this form.
9. I voluntarily agree to take part in this research project by completing the following survey.

If you have any questions, you may contact:

Name (PI)	Phone number	Email address
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Khaldoun Tarabay	70-832121	<a href="mailto:Khaldoun.tarabay@lau.edu">Khaldoun.tarabay@lau.edu</a>
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If you have any questions about your rights as a participant in this study, or you want to talk to someone outside the research, please contact the:

Institutional Review Board Office,  
Lebanese American University  
3rd Floor, Dorm A, Byblos Campus  
Tel: 00 961 1 786456 ext. (2546)  
[irb@lau.edu.lb](mailto:irb@lau.edu.lb)

This study has been reviewed and approved by the LAU IRB:

IRB# LAU.SOB.LM1.6/Apr/2021

1. Do you wish to participate? \*

Mark only one oval.

Yes

No

Demographics

Any information you share is anonymous and confidential—it can in no way be linked to you.

2. Please select your age group:

Mark only one oval.

Under 18

18-28

29-39

40-50

51-60

61-64

Above 64

3. Please identify your gender:

Mark only one oval.

Male

Female

Non-binary

Prefer not to say

4. Highest level of education received?

*Mark only one oval.*

- I did not attend school
- High School Diploma
- Bachelor's Degree
- Master's Degree
- Doctoral Degree
- Prefer not to say
- Other: \_\_\_\_\_

5. To which professional industry do you belong?

*Mark only one oval.*

- Information Technology
- Banking
- Entertainment
- Education
- Health care
- Hospitality
- Manufacturing
- Retail
- Whole-sale
- Telecommunication
- Government & Public Service
- Marketing
- Non-governmental Institutions
- Other

6. Do you work in a business owned by your family?

*Mark only one oval.*

Yes

No

7. How many years of experience do you have in the SAME company?

*Mark only one oval.*

1 year or less

1 to 2 years

2 to 3 years

3 to 4 years

4+ years

8. What is your current work position?

*Mark only one oval.*

Non-managerial position

First-line Management (Supervisor, Team Leader, Office Manager...)

Middle-Management (Branch Manager, General Manager, Department Manager...)

Top Management (CEO, Board of Directors, Vice-President...)

Other: \_\_\_\_\_

9. Do you consider yourself Tech-Savvy (proficient in the use of modern technology)?

*Mark only one oval.*

YES

Somewhat

NO

Thank you for answering the following questions:

For the most accurate score, when responding, think of how you compare to most people -- not just the people you know well, but most people in the world.

10. I have overcome setbacks to conquer an important challenge. \*

*Mark only one oval.*

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

11. New ideas and projects sometimes distract me from previous ones. \*

*Mark only one oval.*

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

12. My interests change from year to year. \*

*Mark only one oval.*

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

13. Setbacks don't discourage me. \*

*Mark only one oval.*

- Very much like me
- Mostly like me
- Somewhat like me
- Not like me at all
- Not much like me

14. I have been obsessed with a certain idea or project for a short time but later lost interest. \*

*Mark only one oval.*

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

15. I am a hard worker. \*

*Mark only one oval.*

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

16. I often set a goal but later choose to pursue a different one. \*

*Mark only one oval.*

- Very much like me  
 Mostly like me  
 Somewhat like me  
 Not much like me  
 Not like me at all

17. I have difficulty maintaining my focus on projects that take more than a few months to complete. \*

*Mark only one oval.*

- Very much like me  
 Mostly like me  
 Somewhat like me  
 Not much like me  
 Not like me at all

18. I finish whatever I begin. \*

*Mark only one oval.*

- Very much like me  
 Mostly like me  
 Somewhat like me  
 Not much like me  
 Not like me at all

19. I have achieved a goal that took years of work. \*

*Mark only one oval.*

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

20. I become interested in new pursuits every few months. \*

*Mark only one oval.*

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

21. I am diligent (hard-working). \*

*Mark only one oval.*

- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
- Not like me at all

In the following questions, the term "This Technology" refers to any information and communication technology you may use for work-related activities. (e.g., E-mails, instant text messages, voice messages, Zoom, Microsoft Teams, Facebook...)

22. I am forced by this technology (Technology I use for work) to do more work than I can handle. \*

*Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

23. I am forced by this technology to work with very tight time schedules. \*

*Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

24. I am forced to change my work habits to adapt to new technologies. \*

*Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

25. I have a higher workload because of increased technology complexity. \*

*Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

26. I have to be in touch with my work even during my vacation due to this technology. \*

*Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly agree

27. I have to sacrifice my vacation and weekend time to keep current on new technologies. \*

*Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly agree

28. I feel my personal life is being invaded by this technology. \*

*Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly agree

29. I do not know enough about this technology to handle my job satisfactorily. \*

*Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

30. I need a long time to understand and use new technologies. \*

*Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

31. I do not find enough time to study and upgrade my technology skills. \*

*Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

32. I find new recruits to this organization know more about computer technology than I do. \*

*Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

33. I often find it too complex for me to understand and use new technologies. \*

*Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

34. I feel constant threat to my job security due to new technologies. \*

*Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

35. I have to constantly update my skills to avoid being replaced. \*

*Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

36. I am threatened by coworkers with newer technology skills. \*

*Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

37. I feel there is less sharing of knowledge among coworkers for fear of being replaced. \*

*Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

38. There are always new developments in the technologies we use in my organization. \*

*Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

39. There are constant changes in computer SOFTWARE in my organization. \*

*Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

40. There are constant changes in computer HARDWARE in my organization. \*

*Mark only one oval.*

- Strongly Disagree  
 Disagree  
 Neutral  
 Agree  
 Strongly Agree

41. There are frequent upgrades in computer networks in my organization. \*

*Mark only one oval.*

- Strongly Disagree  
 Disagree  
 Neutral  
 Agree  
 Strongly Agree

The following statements are about how you feel at work. Please read each statement carefully and decide if you ever feel this way about your job.

42. At my work, I feel bursting with energy. \*

*Mark only one oval.*

- Never  
 Almost never  
 Rarely  
 Sometimes  
 Often  
 Very often  
 Always

43. At my job, I feel strong and vigorous. \*

*Mark only one oval.*

- Never
- Almost never
- Rarely
- Sometimes
- Often
- Very often
- Always

44. When I get up in the morning, I feel like going to work. \*

*Mark only one oval.*

- Never
- Almost never
- Rarely
- Sometimes
- Often
- Very often
- Always

45. I feel happy when I am working intensely. \*

*Mark only one oval.*

- Never
- Almost never
- Rarely
- Sometimes
- Often
- Very often
- Always

46. I am immersed in my work. \*

*Mark only one oval.*

- Never
- Almost never
- Rarely
- Sometimes
- Often
- Very often
- Always

47. I get carried away when I'm working. \*

*Mark only one oval.*

- Never
- Almost never
- Rarely
- Sometimes
- Often
- Very often
- Always

48. I am enthusiastic about my job. \*

*Mark only one oval.*

- Never
- Almost never
- Rarely
- Sometimes
- Often
- Very often
- Always

49. My job inspires me. \*

*Mark only one oval.*

- Never
- Almost never
- Rarely
- Sometimes
- Often
- Very often
- Always

50. I am proud of the work that I do. \*

*Mark only one oval.*

- Never
- Almost never
- Rarely
- Sometimes
- Often
- Very often
- Always

### Voice Behavior

51. I proactively develop and make suggestions for issues that may influence the unit. \*

*Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

52. I proactively suggest new projects which are beneficial to the work unit. \*

*Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

53. I raise suggestions to improve the unit's working procedure. \*

*Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

54. I proactively voice out constructive suggestions that help the unit reach its goals. \*

*Mark only one oval.*

- Strongly Disagree  
 Disagree  
 Neutral  
 Agree  
 Strongly Agree

55. I make constructive suggestions to improve the unit's operation. \*

*Mark only one oval.*

- Strongly Disagree  
 Disagree  
 Neutral  
 Agree  
 Strongly Agree

56. I advise other colleagues against undesirable behaviors that would hamper (set-back) job performance. \*

*Mark only one oval.*

- Strongly Disagree  
 Disagree  
 Neutral  
 Agree  
 Strongly Agree

57. I speak up honestly with problems that might cause serious loss to the work unit, even when/though dissenting opinions exist. \*

*Mark only one oval.*

- Strongly Disagree  
 Disagree  
 Neutral  
 Agree  
 Strongly Agree

58. I dare to voice out opinions on things that might affect efficiency in the work unit, even if that would embarrass others. \*

*Mark only one oval.*

- Strongly Disagree  
 Disagree  
 Neutral  
 Agree  
 Strongly Agree

59. I dare to point out problems when they appear in the unit, even if that would hamper (set-back) relationships with other colleagues. \*

*Mark only one oval.*

- Strongly Disagree  
 Disagree  
 Neutral  
 Agree  
 Strongly Agree

60. I proactively report coordination problems in the workplace to the management. \*

*Mark only one oval.*

- Strongly Disagree  
 Disagree  
 Neutral  
 Agree  
 Strongly Agree

Listed below are statements that represent possible opinions that YOU may have about your work

61. The organization values my contribution to its well-being. \*

*Mark only one oval.*

- Strongly Disagree  
 Moderately Disagree  
 Slightly Disagree  
 Neutral  
 Slightly Agree  
 Moderately Agree  
 Strongly Agree

62. The organization fails to appreciate any extra effort from me. \*

*Mark only one oval.*

- Strongly Disagree  
 Moderately Disagree  
 Slightly Disagree  
 Neutral  
 Slightly Agree  
 Moderately Agree  
 Strongly Agree

63. The organization would ignore any complaint from me. \*

*Mark only one oval.*

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neutral
- Slightly Agree
- Moderately Agree
- Strongly Agree

64. The organization really cares about my well-being. \*

*Mark only one oval.*

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neutral
- Slightly Agree
- Moderately Agree
- Strongly Agree

65. Even if I did the best job possible, the organization would fail to notice. \*

*Mark only one oval.*

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neutral
- Slightly Agree
- Moderately Agree
- Strongly Agree

66. The organization cares about my general satisfaction at work. \*

*Mark only one oval.*

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neutral
- Slightly Agree
- Moderately Agree
- Strongly Agree

67. The organization shows very little concern for me. \*

*Mark only one oval.*

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neutral
- Slightly Agree
- Moderately Agree
- Strongly Agree

68. The organization takes pride in my accomplishments at work. \*

*Mark only one oval.*

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neutral
- Slightly Agree
- Moderately Agree
- Strongly Agree

Please select how you feel concerning each of the statements listed below.

69. I often seriously consider leaving my current job. \*

*Mark only one oval.*

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

70. I intend to quit my current job. \*

*Mark only one oval.*

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

71. I have started to look for other jobs. \*

*Mark only one oval.*

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

72. If interested in receiving the results of this study, please use the box below to register your email: (This option will not impact the anonymity or confidentiality of the answers you submitted, and will only be used to communicate the results with you, should you be interested.)
- 
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