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THE USE OF VIRTUAL CONFERENCE SOFTWARE (VCS) IN THE WORKPLACE
DURING COVID-19 IN NORTH AMERICA: AN EMPIRICAL VALIDATION OF
INNOVATION DIFFUSION THEORY

A Dissertation

by

KHALED I KHASAWNEH

Submitted in Partial Fulfillment of the
Requirements for the Degree of
DOCTOR OF PHILOSOPHY

Major Subject: Business Administration

The University of Texas Rio Grande Valley

December 2021

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DURING COVID-19 IN NORTH AMERICA: AN EMPIRICAL VALIDATION OF
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December 2021

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ABSTRACT

Khasawneh, Khaled I., The Use of Virtual Conference Software (VCS) in the Workplace During COVID-19 in North America: An Empirical Validation of Innovation Diffusion Theory. Doctor of Philosophy (PhD), December, 2021, 102 pp., 8 tables, 1 figure, references, 167 titles.

Today's uncontrollable as well as uncertain environment is seen to be forcing organizations to behave in accordance with different unexpected events and some actions must be taken to survive within such turbulent environment (Kantur & Say, 2015). Having unexpected events such as the ongoing COVID 19 pandemic, most organizations needed to be ready in order to adopt new business methods, techniques, and technologies in order to survive and be able to sustain their businesses. The advancements in technology have revolutionized most aspects of everyday life. In particular, the internet has been at the forefront of this revolution.

The COVID19 pandemic crisis has begun as a health crisis, but it quickly has been leading to a major and serious economic crisis as it struck the financial sector and the world economy (Abd al-Qadir et al., 2020). So far, COVID 19 resulted in deep and rapid negative effects that led to a contraction in the world's economies, in addition to the economy of each country alone. In addition, many companies as well as people have lost their business due to COVID 19. Hence, many companies shifted to focus on adopting new technologies to overcome the disruption they suffer to their businesses and daily routine.

Many companies have found solutions towards issues of supply chain management, customers' communication, and obtaining benefits from the features facilitated using Virtual Communication Software (VCS) like Zoom. Accordingly, the current study intends to corroborate the Innovation Diffusion Theory (IDT) ability to explain how a specific technology can be adopted during a crisis and if there are any differences between crisis and non-crisis times. Using primary quantitative data, the researcher collected 304 usable surveys to test the study hypotheses.

Majority of the study hypotheses has been supported and the innovation diffusion model proves to be a great explanatory framework for technology adoption even during a crisis. It was also found that the perceived seriousness of COVID-19 pandemic did affect employees' perspectives about their own life, family relations, and their overall work priorities.

DEDICATION

The completion of my doctoral studies would not have been possible without the love and support of my family. My Mother, Nariman Tawfeeq; my Father, Ibrahim Khasawneh; my Wife, Zain Sawai; my Mother-in-law, Reema Al-Syoof; my Father-in-law, Ghazi Sawai; and my beloved kids: Ibrahim, Hamzah & Noorzain have wholeheartedly inspired, motivated and supported me by all means to accomplish this degree. Thank you for your love and patience.

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CHAPTER I

INTRODUCTION

Background of the Study

Advancements in technology have revolutionized most aspects of everyday life. In particular, the internet has been at the forefront of this revolution. The decisions of whether individuals adopt some specific technologies among others and the time frame involved with such decisions have long been the subject of many studies across multiple disciplines. Such adoption impacts school, business, and everyday life. Statista (2017) shows that today, over three billion people have access to the internet, a phenomenon that has seen a portion of the literature labeling the internet as a basic need. Throughout past centuries, revolution has advanced from agricultural to industrial (Pal, 2008). The 21st century has witnessed a revolution, particularly in technology (Lawlor & Buckley, 2007). Smart phones, 3D printing, robots, and self-driven vehicles are all examples of technological innovations that are changing our world and the way people live.

A new technological innovation does not only affect communication, banking, trading, entertainment, government, and other sectors, but also marketing (Pal, 2008). Researchers in the marketing and technology fields have paid much attention to what individuals accept and adopt in the way of technological innovation. Adoption or acceptance is mainly empowered by individuals (Talukder, 2012). Innovations arise and are developed for different purposes. For

example, a social media technology mainly aims to reap profits. On the other hand, a technology might be developed in a science lab to cure a disease or offer a brand-new medication (Lane & Flagg, 2010). In both scenarios, the adoption of a new innovation can be influenced by a number of factors, such as reliability (Butler & Sellbom, 2002) or to improve human capabilities and performance (Talukder, 2012). There are other factors that help in adopting a new technology such as use satisfaction, diffusion, and individual commitment.

Several benefits accrue from technology, from efficiency of operations to financial inclusion. According to Khan (2018), technology plays a major role in changing business and the way data is presented and analyzed. Undoubtedly, there are always factors that can be highlighted to determine the appropriate usage of technological tools (Dowling, 2009).

The advances of these latest technologies have brought many important improvements to the workplace, but they have also made us realize the need of a better understanding of the process of technological change, innovation and user adaptation and acceptance. Such improved knowledge will enable organizations to better realize and use their inherent advantages.

Technology is defined here as specific tools, machines, or techniques of instrumental action. When features of technology are observed in various contexts, they may contain various meanings. To be more precise, these features of technology are the characteristics, functions, and attributes of the technology. Usually, they are employed as criteria when users select a specific software or hardware. For instance, the features that are related to virtual conferencing software, including ZOOM (Archibald, Ambagtsheer, Casey, & Lawless, 2019; Fittkau, Krause, & Hasselbring, 2015) are seen to be necessary when implementing a conference channel. In this case, as pointed out by Harrison and Datta (2007) the features of a technology indicate the tool of

the vendor-created software designed to complete the required tasks on behalf of users or to facilitate some required actions such as virtual conferencing using ZOOM or other similar software.

Over the last decade, the world has witnessed an increasing number of severe crises, which have risen along with the increasing complexity of society and technology (Lerbing, 1997). Recently, the world has been afflicted by the Novel Corona Virus (COVID-19), a highly-infectious, rapidly-mutating virus. COVID-19 has been life-altering, changing the face of our globe and nearly every human activity. It appears to have first arisen in Wuhan, China, as a variant or relative of the 2003 SARS virus. The high number of fatalities that the virus can cause has led the World Health Organization to declare it an outbreak with which countries all over the world must deal seriously.

Several serious social and psychological effects have resulted from the COVID-19 epidemic (Cosic, Popovic, Sarlija, & Kesedzic, 2020). According to Jarynowski, Wojta-Kempa, Płatek, and Czopek, (2020) the challenges caused by COVID-19 are considered as unexpected events. In this regard, it is indicated by Zhang Wu, Zhao, and Zhang (2020) that COVID-19 has not been documented before July, 2020. The Chinese Center for Disease Control and Prevention noted that the Corona virus has not been confirmed before. In January, 2020 the World Health Organization declared COVID-19 a public health emergency of international concern.

Since then, a number of books and monographs addressing the fields of crisis and risk communication have been published. Academics and lay persons alike have been able to see how television channels, radio stations, the World Wide Web, and every other media form have propagated discussions on abating or preventing COVID-19 effects. Although it is true that a

crisis situation can cause confusion and disturbance, at the same time, crises can provide the opportunity to increase knowledge levels and strategic competency. Seeger, Sellnow, and Ulmer, (2003) indicate that when an organization embraces the opportunity of acquiring new knowledge and enacting new strategies, it often to emerges with renewed strength, vitality.

The COVID-19 pandemic began as a health crisis, but changed quickly and dramatically into a major and economic crisis, as it struck the financial and economical sectors, resulting in deep and rapid negative effects that led to a contraction in the world's economies. In addition to the economical crisis of each country alone, it had a great impact on the decline of the global economy, as it reflected the repercussions of all countries. Hence, many companies shifted their attention either to enhancing existing technologies or creating new technologies to cope with this kind of unexpected event. Among these technologies is ZOOM software, which benefited from the pandemic of COVID-19 in terms of its popularity and usage. Nowadays, and due to the massive effect of the COVID-19, we can see that almost every business sector has switched their services to online mode in order to survive and continue operating.

Researchers in marketing and technology need to pay greater attention to how individuals accept and adopt a new technology during times of crisis. As we navigate through COVID-19, it becomes necessary to understand the impacts of innovation characteristics on the adoption of new technology to better cope with future crises. Understanding the factors that lie beneath innovation and digging deeper beneath the surface to grasp the factors that can influence adoption of new technologies during COVID-19 will help businesses navigate future crises through technology and software. Indeed, the utilization of these and other cutting-edge technologies could be indispensable in such times.

This dissertation will empirically explore the relationships between relative advantage, compatibility, observability, trialability, health concern for oneself, health concerns for family members, job security concern, loneliness; and technology adoption; and then the effect of technology adoption on turnover intention, job performance, and job satisfaction. This study will also examine the impact of the perceived seriousness of COVID-19 as a moderator between these relationships. The factors described above are explained in more detail in the following chapter (Literature Review).

Technology is well adopted and used in the developed world, as many innovations were made for people to meet their needs and to make communication easier. However, the bulk of the existing literature has primarily focused on the use of these innovations within a standard environment, where the adoption of an innovation is examined without any forces or external factors which might influence the users' adoption decision. Sullivan (2012), indicates that the need for video conferences to be a tool is unlimited. Thus, recent years have witnessed a gradual shift to studies focusing on examining technology adoption, measured as the respondents' intentions to use VCS at their workplaces, among users in different contexts.

Undoubtedly, even though COVID-19 has changed many behaviors and lifestyles, a high-performing workforce is the main determinant of success or failure in this current era of globalization and technology (Kerdpitak & Jernsittiparsert, 2020). Moreover, there is a large body of organizational research maintaining that workforce quality can be improved through motivation and engagement. Hence, quality of workforce along with organizational suitable technological resources can contribute towards differences in competitive market by generating unique capabilities (Ganahre, Bello, & Abdullah, 2018). Indeed, there are many factors can facilitate the adoption of technology, especially, when unexpected events such as COVID-19

appear and affect direct communication between people – including communication regarding technology.

Concerns and problems in society can be a factor affecting technology adoption, measured here as the respondents' intentions to use VCS at their workplaces. Concerns, such as the ongoing COVID-19 pandemic, in society have affected everyone, including individuals and families, to varying degrees. According to recent evidence, people who are kept in isolation or quarantine experience significant distress in the form of anxiety, anger, confusion, and post-traumatic stress symptoms (Brooks et al., 2020). The public's attitudes and understanding are predicted to have a significant impact on the level of adherence to personal preventive measures and, as a result, the clinical outcome.

In other words, the chance of an individual engaging in a given act is defined as behavioral intention (Fishbein and Ajzen, 1975). (Davis et al., 1989) discovered that the behavioral intent to use systems is strongly related to use, and that the behavioral intent is the primary driver of the user's behavior, with other factors influencing the user's behavior indirectly through the behavioral intention.

Fear, according to Steimer (2002), is a motivational state elicited by certain stimuli and leading to defensive or escape behavior. When established sociocultural references of the community and individual, such as disease etiology and traditional techniques of disease control and treatment, collapse or become discredited, the sense of terror is amplified. Individual fear behaviors materialize at the aggregate level when fear, the motivating state, translates into actions, and they can spread quickly and contagiously, in epidemic fashion, across groups of people who share the fear and see one another's behaviors.

There are numerous factors involved in achieving high performance in employees. These include employee and job fit, ongoing motivation, rewards, and employee organizational engagements. Likewise, Sumeya (2016) worked on the role of interpersonal communication and job performance and reported that communication helps in execution of job tasks and other responsibilities. Therefore, communication is also a crucial factor to determine employee job performance and organizational success (Sumeya, 2016). Luarn & Huang, (2015) also revealed that effective information systems of any government organization positively influence their employee performance. Also, turnover intention and job satisfaction can be affected.

For decades, job satisfaction has been studied. It is a favorable emotional state that results from evaluations of one's work or work experience. It is a subjective feeling that an employee has towards his or her job. Job satisfaction refers to an attitude or emotional response to one's tasks as well as the physical and social aspects of the workplace. Job satisfaction refers to how satisfied a person is with their work. It is a measurement of how much people enjoy (satisfaction) or detest (dissatisfaction) their occupations (Deng et al., 2021). Previous research has shown that satisfied employees are more likely to achieve higher levels of work performance and stay with the company (Duraisingam et al., 2009). Accordingly, turnover intention can be reduced.

Conceptual Model

Figure 1.1 on the next page shows the factors which might affect adoption of technology. The main factors are relative advantage, compatibility, observability, trialability, health concern of oneself, health concern of family members, job security concern, loneliness and technology adoption; and then, the effect of technology adoption on turnover intention, job performance, and job satisfaction. This study will also examine the impacts of perceived seriousness of COVID-

19 as a moderator between these relationships.

In the conceptual model below, arrows indicate the direction of relations, with the perceived seriousness of COVID-19 acting as a moderator on technology adoption, turnover intention, employee's job performance and employee's job satisfaction.

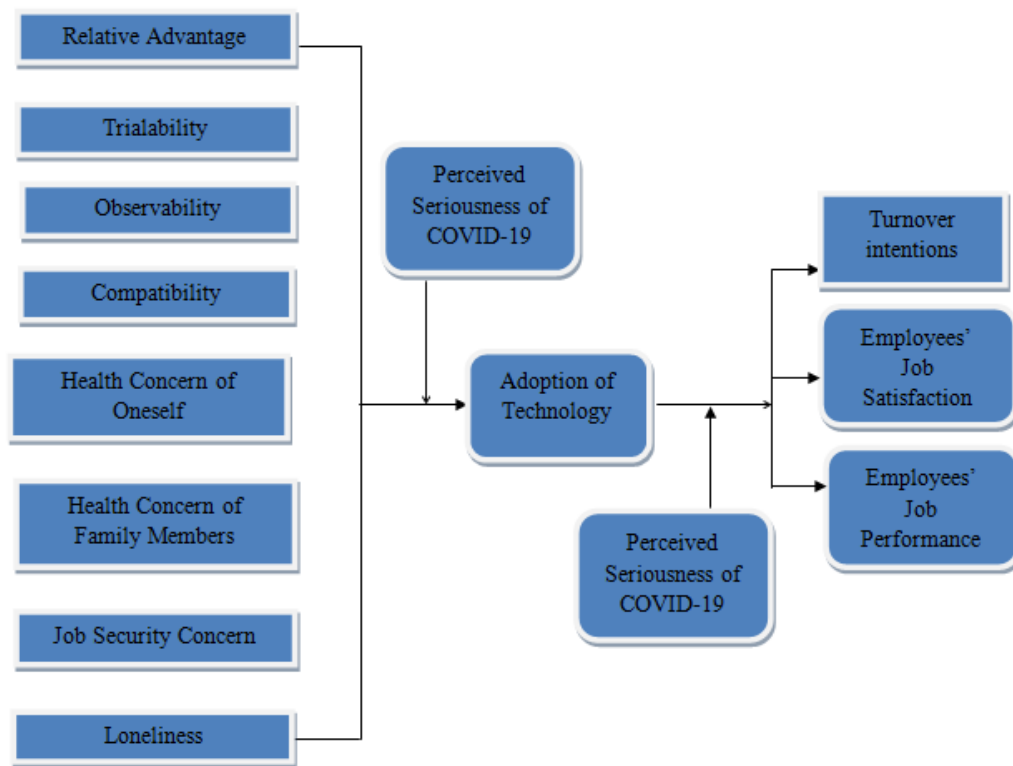


Figure 1.1: Conceptual Model of the Study

Research Objectives

This investigation is mainly conducted to explore the virtual conferencing software use in the workplace during COVID-19 pandemic to be an empirical study regarding the Adoption of technology and its effect on job satisfaction, job performance, and turnover intention. To accomplish this overall goal, some sub-goals are presented:

- a. To investigate the effect of compatibility, relative advantage, trialability, observability, health concern of oneself, health concern of family members, job

- security concern, and loneliness on technology adoption, measured as the respondents' intentions to use VCS at their workplaces.
- b. To examine the moderation effect of the perceived seriousness of COVID-19 on the relationship between compatibility, relative advantage, trialability, observability, health concern of oneself, health concern of family members, job security concern, loneliness; and technology adoption.
 - c. To identify some of the factors which explain consumers' current and long-term behavior in adoption of technology.
 - d. To investigate the effect of technology adoption, measured as the respondents' intentions to use VCS at their workplaces, on job performance, job satisfaction, and turnover intention.
 - e. To examine the moderation effect of perceived seriousness of COVID-19 on the relationship between technology adoption on one hand; and job performance, job satisfaction, and turnover intention on the other.

Research Questions

The study will answer the following questions:

Q1. Do (relative advantage, compatibility, observability, trialability, health concern of oneself, health concern of family members, job security concern, and loneliness affect the adoption of technology during a crisis?

Q2. To what extent does perceived seriousness of COVID-19 moderate the relationship between relative advantage, compatibility, observability, trialability, health concern of oneself,

health concern of family members, job security concern, and loneliness; and technology adoption, measured as the respondents' intentions to use VCS at their workplaces, ?

Q3. What are the factors that affect consumers' technology adoption the most?

Q4. What is the effect of technology adoption on job performance, job satisfaction, and turnover intention?

Q5. To what extent does perceived seriousness of COVID-19 moderate the relationship between technology adoption and job performance, job satisfaction, and turnover intention?

Hypotheses of the Study

In any study, the decision to accept or reject the hypothesis is based on statistical significance. Statistical significance is considered as a description for a result or experiment when the probability is less than the significance level. For this study, the researcher is proposing the following hypotheses which will be statistically tested in chapter 4:

H₁-The following factors impact successful technological adoption: relative advantage, compatibility, observability, trialability, health concern of oneself, health concern of family members, job security concern, and loneliness.

H_{1a}. Relative advantage has a positive impact on technology adoption.

H_{1b}. Compatibility has a positive impact on technology adoption.

H_{1c}. Observability has a positive impact on technology adoption.

H_{1d}. Trialability has a positive impact on technology adoption.

H_{1e}. Health concern for oneself has a positive impact on technology adoption.

H_{1f}. Health concern for family members has a positive impact on technology adoption.

H_{1g}. Job security concern has a positive impact on technology adoption.

H_{1h}. There is a negative impact of loneliness on technology adoption.

H₂. The perceived seriousness of COVID-19 is a moderator on the relationship between the factors of: relative advantage, compatibility, observability, trialability, health concern of oneself, health concern of family members, job security concern, and loneliness; and technology adoption.

H_{2a}. The perceived seriousness of COVID-19 acts as a moderator on the relationship between relative advantage and technology adoption.

H_{2b}. The perceived seriousness of COVID-19 acts as a moderator on the relationship between compatibility and technology adoption.

H_{2c}. The perceived seriousness of COVID-19 acts as a moderator on the relationship between observability and technology adoption.

H_{2d}. The perceived seriousness of COVID-19 acts as a moderator on the relationship between trialability and technology adoption.

H_{2e}. The perceived seriousness of COVID-19 acts as a moderator on the relationship between health concern for oneself and technology adoption.

H_{2f}. The perceived seriousness of COVID-19 acts as a moderator on the relationship between health concern for family members and technology adoption.

H_{2g}. The perceived seriousness of COVID-19 acts as a moderator on the relationship

between job security concern and technology adoption.

H2h. The perceived seriousness of COVID-19 acts as a moderator on the relationship between loneliness and technology adoption.

H3. Technology adoption positively affects job performance.

H4. Technology adoption reduces turnover intention.

H5. Technology adoption positively impacts job satisfaction.

H6. The perceived seriousness of COVID-19 acts as a moderator on the relationship between technology adoption and job performance.

H7. The perceived seriousness of COVID-19 acts as a moderator on the relationship between technology adoption and turnover intention.

H8. The perceived seriousness of COVID-19 acts as a moderator on the relationship between technology adoption and job satisfaction.

The Importance of this Research

This study broadly relates to business fields. This study will explore the use of ZOOM and other virtual conferencing software (VCS) in the workplace during COVID-19 pandemic, while providing recommendations to improve crisis response in any area affecting the business field. It will also identify factors that can help organizations to effectively train and educate marketers entering the business field to better deal with the dynamicity of the marketplace. This also proves important for universities, colleges, schools, and other educational organizations, institutions of higher education can benefit from this study by developing the best learning systems and courses for their students. Without staying abreast of the coming future, the

educators in the business field might not be able to address their students' needs or to prepare them for a fierce and unstable business environment.

The present study recognizes the task's difficulty which decision-makers in business education as well as company managers' face. Therefore, in this study, it is among our objectives to try to better understand the state of the future as it relates to the business field, as well as providing further recommendations in order to improve upon the field itself and in the educational programs simultaneously. Additionally, the dissertation findings could be useful for researchers, business organizations, and practitioners, as it will help in determining if the characteristics of innovation affect the adoption of new technology during crisis in a similar way they do during a normal and stable economic environment. Moreover, the study will also identify which factor affects the adoption of technology the most. This can simplify strategic planning for organizations focusing on reinforcing the adoption of technology.

Limitations of this Research

At its best, the present investigation is limited to exploring the use of virtual conferencing software in the workplace during the COVID-19 pandemic by implementing an empirical study of "Diffusion of Innovation Theory". In addition, this study uses the following factors: compatibility, relative advantage, trialability, observability, health concern of oneself, health concern of family members, job security concern, and loneliness in order to see their effect on adopting a newly-developed product, and then the effect of this technology adoption, measured as the respondents' intentions to use VCS at their workplaces, on job performance, satisfaction and turnover intention of employees. In addition, it attempts to see the moderating effect of such relations.

There is a separate limitation regarding question 11 of the questionnaire (refer to Appendix A for the full questionnaire). This question asks respondents which country they work in. The choice of “other” might conceivably include countries other than those in North America, which is the geographic limitation of the study. Future studies can choose to focus on certain geographic area(s) or even might compare between different parts of our planet to examine how this factor affect employees’ perceptions and actions.

Organization of the Dissertation

The present study is organized according to the necessary chronological processes in the hope of understanding the current and future status regarding COVID-19, along with providing a potential roadmap for potential future crises and responses. The study will try to specify some realistic recommendations based on a scientific study and corroborated findings to be useful for the education programs of business and management fields.

Chapter 1 introduces the study by presenting a wider overview of the related documents and the processes employed in order to reach the conclusion put forth. Chapter 2 includes a literature review of the pertinent literature utilized for deciding on a suitable research methodology as well as describing some previous associated researches.

Chapter 3 outlines the research methodology. Chapter 4 provides the results, discussion and analysis, while chapter 5 provides conclusions, implications and recommendations. The two final chapters additionally provide some descriptions regarding the respective visioning methods. To be more specific, the main focus of Chapter 4 is on the medium-range future, while Chapter 5 primarily deals with the long-range future. Chapter 5 also discusses some recommendations for further research, and the overall conclusion of the study.

CHAPTER II

REVIEW OF LITERATURE

Introduction

The literature review establishes this research in the context of the existing knowledge of the field. It specifically covers new technology adoption, providing rationale and addressing gaps in the current research and corroborating the methods of research which have been used in studying this kind of problem.

This section then defines the study variables, as addressed by the current literature. These variables include relative advantage, compatibility, observability, trialability, health concern for oneself, health concern for family members, job security concern, loneliness, turnover intention, and technology adoption. The next two sections will address job performance and then job satisfaction.

Job Performance

Job performance in an organizational context is defined as how a worker performs on the job or at work (Umrani et al., 2019). The concept of job performance in literature is stated as the net outcome of individual efforts that commence with capabilities and knowledge of tasks which presents the amount of achievement and accomplishment of the function of tasks (Al-Hawary &

Banat, 2017). Finally, the concept and meaning of job performance can be labeled as results or outcomes of an employee relating to an assigned task (Howladar, Rahman, & Uddin, 2018).

Job Satisfaction

The word ‘satisfaction’, is derived from the Latin ‘*satis*’ which means “enough” and *facere* “make or do”. It denotes the state of being satisfied, or contentment (Dictionary Com; Oliver, 2010). According to Okaro, Eze, and Ohagwu (2010) there have been many attempts by various authors to define the term “job satisfaction”. Mishra (2013) defines job satisfaction as a general attitude that arising from specific attitudes in three areas: individual characteristics, specific job factors and group relationships outside the job. In fact, several researchers and authors suggest that there is no clear agreement regarding its definition (Bernal, Castel, Navarro, & Torres, 2005; Oplatka & Mimon, 2008). Thus, the job satisfaction concept has no universal definition (Oplatka & Mimon, 2008).

The Significance of Job Satisfaction

The topic of job satisfaction among employees has received much research attention employees (Gautam, Mandal, & Dalal, 2006; Okaro et al., 2010). Moreover, Judge and Klinger (2008) reveal that job satisfaction, in organizational sciences, has a significant role in several models and theories of individual behavior and attitudes. Similarly, the topic of job satisfaction has attracted the interest of several researchers (e.g., Pelit et al., 2011; Seibert et al., 2004). According to Singh and Jain (2013) job satisfaction of employees is the strongest factor that influences the employees’ overall life satisfaction. All of these studies reflect the importance of job satisfaction to both the organization and employees. Previous research has revealed a link between work’s various aspects and job satisfaction, which may prove important in its own right.

For instance, workers who are more satisfied in the organization would be more productive (Al-Hussami, 2008; Okaro et al., 2010). According to Al-Hussami (2008) the employees who are satisfied tend to be more creative and productive.

Furthermore, Al-Hussami (2008) emphasizes that these satisfied employees are likely more committed to their employers. Conversely, job satisfaction is linked with employee empowerment (Idris et al., 2018; Joo & Shim, 2010). Some studies show that job rotation may cause job dissatisfaction among employees (Dickhout et al., 2018; Ho et al., 2009). The mental and physical wellbeing of the employees is linked to their satisfaction (Akhtar, Hashmi, & Naqvi, 2010; Klassen, Usher, & Bong, 2010) and understanding this kind of relationship is crucial. Hence, “Job satisfaction is very important for the well-being of an individual given the amount of time he/she spends on the job during his/her lifetime” (Rutebuka, 1996, p.1).

With regard to the significance of employee job satisfaction, Mishra (2013) notes that job satisfaction is a general attitude arising from specific attitudes in three areas: employee individual characteristics, specific job factors, and group relationships outside the job. Some researchers and authors (e.g., Akhtar et al. 2010; Judge & Klinger, 2008), report that employee attitude employees affect employee job satisfaction. In this regard, Akhtar et al. (2010) job satisfaction of employees refers to their feelings and attitudes they have about their jobs. Some researchers maintain that investigating employee job satisfaction is important since it helps improve the organization (Al-Ajlouni, 2015; Qudah et al., 2014) and its productivity.

Therefore, carrying out such a study in order to evaluate employee satisfaction inside the company is essential. It has been found that job satisfaction is related to life satisfaction. This kind of correlation is seen as mutually reinforcing, meaning that people who are satisfied with job tend to be satisfied with their life and people who are satisfied with their life tend to be

satisfied with job (Mishra, 2013). It has been proven that there is a positive relationship found between both job satisfaction and organizational commitment. This is reported by several research papers involving qualified professionals (Al-Hussami, 2008). To summarize, this literature indicates that job satisfaction has a potentially significant impact on employee attitudes and feeling towards the organizations.

Turnover Intention

According to March & Simon, (1958), turnover intention refers to the probability that an employee will voluntarily leave their job in the period ahead. Mobley (1977) considered turnover intention as the best and most intuitive predictor of actual turnover behavior. He also pointed out that it is a summative factor of other turnover-related factors and is significantly related to employee turnover. Extensive study on turnover has been conducted by researchers in different fields. Shader, et al., (2001) proposed that job and role stress are important factors leading to turnover intention. In another study, Han et al., (2009) indicated that factors such as self-efficacy, job burnout, working hours, workplace and work pressure are predictors of turnover. Scanlan (2013) also discovered that all indicators of job happiness were significantly related to turnover intentions.

Types of Turnover

Turnover can be classified as both voluntary and involuntary. And since its rate is often associated with other variables, such as job satisfaction, it is important to distinguish between voluntary and involuntary turnover. Otherwise, estimating such a relationship in terms of whoever leaves work will be inaccurate. When an employee leaves his job voluntarily, it is called voluntary turnover. This type of turnover creates significant cost, both in terms of direct

cost, such as replacement; and in terms of indirect cost, such as the loss of social capital or pressure on remaining staff (Perez, M., 2008). Taylor, (1998) also divided voluntary turnovers into functional and dysfunctional turnovers. Functional turnovers comprise the resignation of substandard performers. Dysfunctional turnovers comprise the exit of effective performers.

Dysfunctional turnovers are further classified into avoidable turnovers, caused by lower compensation, poor working conditions and other organization-controlled factors; and unavoidable turnovers beyond organizational control, such as family moves, serious illness, or death. Involuntary turnover refers the decision of management to force the employee to leave the organization. Functional turnovers are the resignations of substandard performers, and dysfunctional ones signal the exit of effective performers. Dysfunctional turnovers are also classified into avoidable turnovers, resulting from poor working conditions, low compensation, or other organizational factors within the organization's control; and unavoidable turnovers, such as critical illness, death, family moves, or other factors beyond the organization's control.

Effects of Turnover Intention

Turnover intention, according to March & Simon (1958), is the likelihood that a person would voluntarily leave their employment in the near future. Mobley (1977) thought turnover intention was the most accurate and straightforward predictor of actual turnover behavior. He also mentioned that it is a summative element of other turnover-related issues and has a strong relationship with employee turnover. Researchers from several fields have carried out substantial investigation on turnover intention. Additionally, turnover intention is the greatest and most intuitive predictor of actual turnover behavior, and it relates to the likelihood that an employee would willingly leave their work in the next few months. Scholars from numerous fields have conducted substantial research on turnover intentions (Deng et al., 2021).

Phillips (1990) indicated that employee turnover imposes many invisible or hidden costs, which are passed on to remaining co-workers, such as training replacement workers. Other turnover costs include employee morale, human resources and capital, and productivity. These all ultimately impact firm profits. Several investigators have argued that higher employee turnover, if not managed as well, has a negative impact on the profitability of the firm (Duraisingam et al., 2009; Tiarniyu et al., 2009).

Innovation Diffusion Theory (IDT)

Innovation diffusion theory (IDT) was first proposed by E. M. Rogers in 1995 as a model to explain the adoption and diffusion of innovation and technology within an organization in order to predict organizational outcomes (Kurnia, Choudrie, Mahbubur, & Alzougool, 2015). Rogers (2002) defines diffusion as communication focusing on messages dealing with new ideas. This presents some uncertainty degree for an organization or individual. “The four key elements in the diffusion of new ideas are (1) innovation, (2) communication channels, (3) time, and (4) the social system” (Roger, 2002, p.990).

An innovation is defined as an object, idea, or practice which is perceived as new by the individual or other agents of adoption. According to Roger (2002), the characteristics that specify the rate of innovation adoption are as follows: compatibility, relative advantage, trialability, and observability. Innovations requiring major changes in potential adopters’ behavior generate more challenges in the adoption process than those requiring minor changes because of greater risk and uncertainty. In addition, communication channels employed within social systems for sharing information regarding the innovations as well the required time to pass this information influence the decision of adoption (Kurnia et al., 2015).

Innovations are first adopted by individuals, and then spread at different rates to others. Some are adopted quickly while others may not be adopted at all. Still others may be proposed but thereafter neglected. The notion of innovations' key attributes was supported by extensive evidence based on sociological models explaining adoption rate variance (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004). Greenhalgh et al. (2004) offers several conclusions. Innovations with unambiguous and clear advantage (e.g., efficiency or effectiveness) are more easily adopted, as are those that are well-matched with the adopters' norms and perceived needs.

In addition, some innovations may first be adopted on a trial or experimental basis. These are assimilated and adopted more easily. Moreover, if the innovation's benefits are visible to the intended adopters, they will be easily adopted. When it is possible for the adopters to adapt, modify, or otherwise refine the innovation to more closely match their needs, it is more easily adopted. In service organizations, complex innovations can be seen as having a "hard core" (the innovation's irreducible elements) and a "soft periphery" (organizational systems and structures crucial for full implementation); the soft periphery's adaptiveness is the innovation's key attribute.

Greenhalgh et al. (2004) also mentioned that innovations are less likely to be adopted when there is a high degree of outcome uncertainty, or when individuals perceive innovation as personally risky. On the other hand, if the innovation is perceived as an improvement in work or task performance by the intended users, it will be more easily adopted. Innovations are also more easily adopted if the knowledge that is needed for their use can be codified and transferred from one context to another. Finally, when a technology is seen to be supplied as an "augmented product" (e.g., with a help desk, customization, and/or training), it will be more easily assimilated.

As for individuals and innovation, many people are considered as passive recipients. Agents of innovation look for innovations, and then implement these on a trial basis on selected recipients to assess their effectiveness. The passive recipients will develop either positive or negative feelings (e.g., challenge, worry, and complaints) related to these innovations. Additionally, these individuals “work around” innovations, gain experience with them, modify them to suit a particular task, and attempt to redesign or improve them through discussion with other users.

IDT argues that the initial stages of innovation adoption are influenced by external sources or mass media, because there are few available users who can impact the process by word-of-mouth (López-Nicolás, Molina-Castillo, & Bouwman, 2008). Rogers (1995) indicated that there are several perceived innovation characteristics which can clarify the rates showing when innovations are being adopted. These characteristics are: relative advantage, compatibility, trialability, and observability. Rogers (1995) added that it is also shown that these characteristics have value when the adoption rate of an innovation has been determined.

Rogers (1995) defined relative advantage as "the degree to which an innovation is perceived as better than the idea it supersedes" (p. 15). In other words, innovations are adopted faster if users perceive them to be better than what they currently have. As for the compatibility, Rogers (1995, p.15) defines it as "the degree to which an innovation is perceived as being consistent with existing values, past experiences, and needs of potential adopters". Innovations that are consistent with social system values and norms will be adopted at faster rates than innovations that are incompatible with existing values and norms.

On the other hand, complexity of an innovation is based on one's perception of how much effort will be required to use and understand the innovation (Rogers, 1995). Innovations

that are more complicated and difficult to learn will be adopted more slowly than less complicated ones. As for trialability, it is defined as "the degree to which an innovation may be experimented with on a limited basis" (Rogers, 1995, p. 16). Innovations that can be tried before committing to a full adoption are adopted at faster rates than innovations that require a commitment to full adoption from the onset. Finally, Rogers (1995, p. 16) defined an innovation's observability as being based on the visibility of the results obtained by implementation. People can adopt innovations that they can readily as well as quickly observe the results from use rather than innovations whose results are not readily observed.

Relative Advantage

Relative advantage refers to "the degree to which an innovation (technology) is thought to be superior to the notion it replaces" (Ratten, 2015, p. 221; Rogers, 2003, p. 229). Among innovative communication technologies, ZOOM is seen as an innovative video conferencing platform that has a number of unique characteristics which boost its potential appeal (Archibald, et al., 2019). At the organizational as well as individual level, virtual conferencing software, including ZOOM and equivalent competitive packages has its own importance.

H_{1.a}: The perceived relative advantage of a VCS is positively related to its adoption

Compatibility

Compatibility refers to "the extent by which an innovation is perceived as being compatible with the current values [and] needs of possible adopters, and past experiences" (Rogers, 2003, p. 240). ZOOM as a tool is seen as compatible with the current user generation's lifestyle, especially during the current COVID-19 pandemic. Hence, users of video call and online meeting software would be more compatible with ZOOM use as it has already become

familiar. Rogers (2003), in this regard indicated that users might not realize a new alternative's need until these users are being aware of the new innovation as well as its characteristics.

H_{1,b}: The perceived compatibility of a VCS is positively related to its adoption

Trialability

Rogers (2003) defines trialability as the extent to which an innovation can be experimented with on a limited basis before being adopted. ZOOM as a communication tool is an entirely different application from other similarly-purposed ones. For example, ZOOM is known to be a collaborative, cloud-based videoconferencing service that offers some characteristics containing group messaging services, secure recording of sessions, and online meetings (ZOOM Video Communications Inc., 2016). As with comparable platforms such as Skype, ZOOM offers the ability to communicate in real time with geographically dispersed individuals via computer, tablet, or mobile device. However, unlike many similar Internet Protocol technologies, ZOOM possesses a number of additional advantages that enhance its potential research utility (Archibald et al., 2019). Hence, confirming the chance for attempting an innovation might boost the gradual adoption of the tool.

H_{1,c}: The perceived trialability of a VCS is positively related to its adoption

Observability

Observability is another important factor. This term refers to “the degree to which the results of an innovation are visible to others.” Some inventions are simply communicated and observed by other members of society, while other ideas are too complicated to be described to or observed by other members (Rogers, 2003, p. 258). Thus, the adoption rate of an innovation would increase based on the ability of potential adopters to demonstrate the usefulness of an

innovation (Yusuf, Meera, Ghani, Manap, & Larbani 2015, p. 129). In the case of ZOOM, the easier the efforts required to demonstrate and master the usefulness and benefit of such software, the faster its adoption will be.

H_{1,d}: The perceived observability of a VCS is positively related to its adoption

Fear Related Behavior

Steimer (2002) defines fear as a motivational state aroused by specific stimuli that give rise to defensive behavior or escape. Fear is a defining expression of the acute stress response, detectable physiologically and sensed palpably by the individual. The experience of fear is magnified when the traditional socio-cultural references of the collective and the individual, such as the cultural etiology of diseases and the traditional approaches to disease control and treatment, collapse or become invalidated. When the motivational state of fear transforms into actions, individual fear behaviors manifest at the aggregate level, spreading rapidly and contagiously, in epidemic fashion, among groups of persons who share the fear and observe the behaviors of one another. This may trigger an exponential trajectory of fear cascades in the larger public realm. The behavioral manifestations of the stress response, in which fear plays a prominent role, have been described as the fight or flight response (McEwen, 2007), or more inclusively, as the freeze, flight, fight, fright, faint behavioral repertoire (Bracha 2004).

Fear-related behaviors (FRBs) are individual or collective behaviors and actions erred by a perceived threat or actual exposure to potentially traumatizing events. The study of FRBs is best conducted collaboratively, linking expertise from the disciplines of disaster psychiatry, medical anthropology, disaster behavioral health, public health, emergency medicine, emergency management, and risk governance. Examining FRBs illustrates the central role played by

psychological reactions that transform into behaviors that in turn, produce a range of consequences in situations of mass threat. Co-authors and colleagues representing these complementary disciplines are currently exploring how to quantify and model FRBs to provide actionable guidance for planning and intervening in future pandemics as well as a broader range of disasters and extreme events. Initial observations regarding FRBs include the following:

- a. They are amenable to modification in a manner that decreases the risk of physical and psychological harm and improves public physical and mental health. The corollary is that fear and fear reactions can also be manipulated to amplify risk.
- b. Creating an operational definition of FRBs is an important step toward quantification, detection, monitoring, and timely modification.
- c. FRBs can be modeled and used for scenario development and complex action, e.g., planning, risk governance and technology adoption.
- d. To the extent that risk-elevating FRBs can be prevented, mitigated, or modified, harm such as morbidity, mortality, economic costs, and sociocultural consequences may be diminished. Moreover, mitigation of FRBs will support the effectiveness of governance systems and public order, especially in least-developed countries (Shultz et al., 2016).

COVID-19 is a rapidly mutating and contagious disease affecting a number of populations worldwide. The total number of deaths reported by the World Health Organization (WHO, 2020b) exceeded 693,000 confirmed cases from 204 countries as of 2020 – and totals are still rising. As a new disease, COVID-19 has been the most devastating since the Spanish Flu of the 1920s. Its emergence and spread have had a global impact, causing confusion, anxiety and

fear among the general public. The perceived seriousness of COVID-19, health concern for oneself and family members have been readily apparent during the pandemic course.

Health Concern for Oneself and Family Members

Social stigma has arisen as certain populations are targeted as being the reason for this outbreak (WHO, 2020a). It is vital to avoid this stigma as it can make people hide their illness and not seek health care immediately. WHO is providing guidance and public information to help people manage fear, stigma, and discrimination during COVID-19 (WHO, 2020ca). As research continues, facts keep changing as more information becomes available.

Many myths are also prevalent in the general population regarding the prevention and management of the infection. In this time of widespread use of social media, these myths along with fake news around corona are also spreading rapidly. These are sometimes very disturbing for certain individuals.

Several sites including the World Health Organization (WHO) are providing authentic and up-to-date information about the ongoing COVID-19 pandemic (WHO, 2020a). Governments are also urging people not to share messages without fact-checking. Since the onset COVID-19, there has been an increased use of masks (Feng et al., 2020) and sanitizers, often resulting in shortages or temporary unavailability. A shortage of personal protective equipment endangers health workers worldwide (WHO, 2020a). The absence of appropriate protective measures is a major cause of concern among medical personnel. This is especially the case in any densely-populated country without a robust healthcare infrastructure, including the North America region. It is a cause for concern.

There is also a degree of panic in the general public, due to the intermittent mask or other medical shortages. Governments, media, doctors, researchers, celebrities, police and other stakeholders have appealed to the public to avoid public gatherings including sports, religious ceremonies, family functions, in-person school classes and other meetings to slow the spread of infection (McCloskey et al., 2020). While many people have heeded these regulations and guidelines, many others flout or ignore these guidelines.

Recent evidence indicates that individuals who are kept in isolation and quarantine experience significant distress in the form of anxiety, anger, confusion and post-traumatic stress syndrome (Brooks et al., 2020). Public attitudes and knowledge are expected to have a large degree of influence on the adherence to personal protective measures, and ultimately clinical outcomes. Hence, it is important to study these areas.

Mental health issues are other major concerns. Personal and family concerns are expected to increase daily during this epidemic. There is a paucity of research evaluating these concerns, especially considering their relevance.

Advances in conferencing technology have given people more ways to seek information and communicate. This helps people cope with disaster situations and supports subsequent recovery. Advances in information, communication, and conferencing technologies may have changed local communities, although these effects are still being investigated (Kavanaugh, Reese, Carroll, & Rosson, 2005; Wellman, Quan-Haase, Witte, & Hampton, 2001). As information, communication, and conferencing technologies permeate all aspects of life, the boundaries between online interactions and physical presence and proximity blur (Hampton & Wellman, 2001). Online city resources and town web portals have increased civic engagement and participation in some preexisting geographical communities (Carroll et al., 2006). For

example, Hampton and Wellman (2003) mentioned that the local broadband telecommunications spread has encouraged a greater community sense in some neighborhoods.

At the same time, people are increasingly able to join distant or distributed communities online. However, despite the communication technology, which has fostered thousands of online, non-local communities, physical locale continues to be important for people's security, sense of well-being, and community attachment (e.g., Mesch & Manor, 1998). One difficulty in studying the effects of technology on local communities is that physically bounded communities comprise many institutions, social networks, and cultural contexts, which change slowly through time. Attachment to place-based community is developed slowly and often unconsciously. People tend to take their communities for granted as they go about daily life (Brown & Perkins, 1992).

COVID-19 disrupts community processes and people's usual means of communicating and obtaining information. This study used the COVID-19 disease disruption to follow trajectories of adoption and the use of available virtual conferencing software (ZOOM and others) in the workplace during COVID-19 in North America. This study particularly focuses on individuals working toward reconstituting themselves and their communities, in order to measure technology adoption and job satisfaction through both job performance and perceived fears, e.g., health concern for oneself or family members. The creative adaptation of technology for coping can provide a lens on the role of familiar and new technologies in community processes.

Job Security

During recent months, the local labor market lost tens of thousands of jobs and job opportunities, due to the outbreak of COVID-19 and the accompanying wholesale closure of economic sectors. This prompted the federal government to issue defense orders to facilitate

states' affairs, and from these, came defense orders of other countries and ensuing results. Indeed, many notifications regulate labor relations between employees and employers.

In light of COVID-19 and its negative global repercussions, many young people have lost their jobs, while others live under the stresses of job insecurity, and fear of the future and unknown. A continuing problem in the study of job security is the lack of discussion to define and measure it. Many studies failed to elaborate on construct and use indicators to measure job security (Maryatmi, 2020; Yousef, 1998). Job insecurity is related to how people perceive the sustainability of their current job. Individuals stay insecure when a place where people now work cannot guarantee continuity of work in the future, so it can be assumed that job security or lack thereof (secure/insecure) is determined by the likelihood of its future sustainability (Maryatmi, 2020). A worker is in a security sense with his/her work if they feel their sustainability over the job. The study, Aspects of Job Security Research conducted by Trivellas, Reklitis, & Platis, (2013) concludes that in general, the aspect that is usually used to measure job security during this time reflects the fears of future work (Platis, Reklitis, & Zimeras, 2015). In the definition put forward, it can be argued that there are two aspects of job security - the sustainability of jobs and job stability or cargo contents (Maryatmi, 2020).

Job security is an important aspect of employee identity and life. Its occurrence or non-occurrence influences employee lives, making it a fruitful area to investigate. Once it is known and quantified, human capital can be saved (Alam, Ismail, & Mishra, 2010). Job security is the reaction of the employees towards their organizations and the roles which they play in the uplift of their organization. This is surely dependent on their level of job security (Madhavan, 2001).

Employees are forced to focus on creating value in their jobs in order to secure their positions in the face of heightened competition and performance expectations in today's world (Ahmad, et al., 2020). The continuous trends in changing work arrangement definitions and downsizing have left more employees fearing that they are facing the risk of losing their jobs, especially during COVID-19 and with the sudden shift of adopting technology.

Loneliness/Isolation

Loneliness refers to the feeling of distress that develops in an individual when social relationships are perceived as less satisfying than the desired level. It is the gap between an individual's desired and actual social relationships (Shah et al., 2019). Furthermore, loneliness and social isolation are risk factors for all causes of mortality and morbidity with results similar to other risk factors, including as lack of exercise, smoking, high blood pressure, and obesity. Additionally, loneliness has been linked to decreased resistance to cognitive decline, infection, and mental health conditions such as depression and dementia (Fakoya et al., 2020).

Feeling lonely and isolated together is often reported in the literature. However, there is a difference between the two terms. Social isolation is an objective condition while loneliness is a subjective feeling. Loneliness arises due to the perceived gap between actual and desired social relationships, while isolation develops due to the absence of social contact with society and individuals, family and friends. They differ from one another, with distinct pathways to adverse health effects (Shah et al., 2019).

In order to understand the concept of loneliness more accurately, one must consider how the social environment acts on the individual, either causing or perpetuating loneliness, as well as the individual personality and the ways they operate within their social environment. When the

environment does not adequately fulfill social judgments, a well-modified social personality can develop behaviors and thought processes that are usually attributed to lonely individuals. Therefore, it is also likely that loneliness stems in part from factors in a person's social environment (including one's place of work) rather than exclusively by personal deficiencies (Wright, 2005).

Loneliness/ Isolation at work

Loneliness at work is often confused with social isolation. Social isolation means a complete cessation of contact with the individual's close social environment and the community, along with avoiding contact with others. Social isolation results in the emergence of emotional and/or psychological disturbances in the individual. Sadness, anger, and anxiety are the main symptoms of social isolation. Loneliness at work, on the other hand, indicates some problem in social interactions without any specific interruption of the social environment. An individual who feels lonely at work does not disconnect from the social environment. On the contrary, this individual shows a willingness to engage in interactions with people and asks for social support from their managers, colleagues and junior employees. Accordingly, loneliness is an early symptom that indicates that an individual may be forced into social isolation (Kaymaz et al., 2014).

Intention to Use Virtual Conference Software (Technology Adoption)

Behavioral intention is defined as “the probability of an individual to perform a specific behavior” (Fishbein and Ajzen, 1975). Several theoretical models have been used to assess behavioral intent. The most popular are the logical action theory (TRA), the technology acceptance model (TAM), and the planned behavior theory (TPB). All three theoretical models

were then expanded by combining them with the specific elements of each field of study, to form a wide range of extension models (Long & Khoi, 2020).

ZOOM software allows simultaneous interactions. In this online environment, individuals use a webcam and microphone to chat in real time, enabling interactions similar to those that occur in a traditional environment. Up to 200 people can actively participate in the live sessions, and an additional 3,000 people can view the session passively (Alfadda & Mahdi, 2021).

Davis et al., (1989) found that the behavioral intent is closely related to use, and that behavioral intent is the main determinant of user behavior, with other factors indirectly doing so through behavioral intention. Hill & Smith & Mann, (1987) also indicated that behavioral intentions highly predict an action. Finally, DeSanctis, (1983) argued that the strength of the use of a decision support system or the expected motivation is related to subsequently using the system. In summary, a number of previous studies have indicated that the behavioral intent to use a system is a reasonable indicator of the system's future use. The literature also suggests that identifying the factors that influence the behavioral intent to use a system is important to our understanding of their role in the successful implementation of information systems.

COVID-19 Pandemic as a Moderator

A moderator variable, according to Bennett (2000), is employed in order to explain the strength or the weakness in the relationship between two variables. In addition, "a moderator is a variable that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable" (Baron & Kenny, 1986, p.1174). In other words, "a moderator is a third variable that modifies a causal effect" (Wu & Zumbo, 2008, p.368). Consequently, the COVID-19 pandemic in this study will be chosen as the variable

moderating the relationship between the effects of innovation characteristics on the use of virtual conferencing software in the workplace. The reason for choosing the COVID-19 pandemic as a moderator is its probable effect on such a relationship.

It is known that a moderating factor can affect the relationship between variables positively or negatively; hence, in this study, it is hypothesized that relative advantage, compatibility, observability, trialability, health concern of oneself, health concern of family members, job security concern, loneliness are positively related to adoption of technology. Moreover, the existing perceived seriousness of COVID-19 as a moderator is assumed to affect these relationships. According to the new reality the COVID-19 pandemic imposed on individuals, organizations, and governments, many business models and daily routines of both individuals and businesses have been abruptly halted or forced to completely change to fit the new change the pandemic brought to the world where we live in today.

Technology during COVID-19

Extreme disruptions are events that interrupt the regular flow of goods or services within a system (Blackhurst, Dunn, & Craighead, 2011), such as pandemics. Extreme disruptions have devastating effects for business and supply chain performance (Papadopoulos et al., 2017), and hence efficiency, profitability, and survival of companies and educational institutions. Their effects are multiplied and exacerbated as manufacturing, services, and commerce are globally connected (Hughes et al., 2019; Senyo, Liu, & Effah, 2019). The COVID-19 pandemic is poised to create a fresh productivity boost for the world economy, to accelerate the digital transformation of all industries and create opportunities for a new generation of entrepreneurs to build solutions for the modern workplace.

The boom in using iclouds, new communications and conferencing techniques, and workplace collaboration software has led businesses in new directions during the COVID-19 pandemic in ways that would not have been possible even a decade ago. In addition, businesses discovering the productivity benefits of letting their staff work flexibly through the usage of innovative technologies like ZOOM, Slack, MS Teams, Google Meet, and Asana are likely to become permanent features of the modern, flexible workplace.

Driven by the fact that the safety of many companies is crucial for the global economy (Storey, 2016), it is important for these companies to have plans for securing business continuity. Having such plans can be viewed as “identifying and managing the risks which threaten to disrupt essential processes and associated services, mitigating the effects of these risks, and ensuring that recovery of a process or service is achievable without significant disruption to the enterprise” (Gibb & Buchanan, 2006). To this end, companies use technology. There are two main schools of thought to business continuity using digital technology. The first is ensuring that such technology-enabled processes and services can run business continuously. Secondly, having appropriate in-place mechanisms through support systems to ensure key business processes and staff interactions can be conducted digitally while processes and data are backed up.

As an example, with the advent of COVID-19 in the United Kingdom, organizations had to adapt to use digital technology employed by governments to respond to COVID-19. The used platforms, for instance, for videoconferencing can allow hosts to analyze their participants’ attentiveness in real time, record participants’ voice, chats, faces, and their home surroundings.

For example, telemedicine, which is the deployment of information communication technology to deliver healthcare digitally, can be adopted to limit physical human interaction and

consequent risk of infection (Okereafor, Adebola, & Djehaiche, 2020). Telemedicine use has been increasing during the COVID-19 pandemic, as a tool that reaches patients' homes. In this context, telemedicine and virtual software platforms offer an affordable, effective, and attractive option. Thus, they can be utilized to manage the pandemic (Hakim, Kellish, & Atabek, 2020). In the present COVID-19 pandemic, social distancing and quarantine have been adopted as effective methods to reduce the spread of COVID-19. Teleconferencing aids this by minimizing COVID-19 exposure.

It is indicated by Strusani and Hounghonon (2020) that discussions with technology investors and market experts indicate COVID-19 could accelerate innovation and technology adoption. Established companies that survive could integrate innovations into their business models; new companies may emerge that alter competition and markets; and consumers could adapt their behaviors rapidly as well. Businesses may leverage digital technologies to adapt and innovate, to try out new business models, develop new business processes and practices, and to redefine models for collaboration and teamwork. These trends are likely to occur in upper-middle-income economies, and potentially in lower-income economies as those develop foundational elements such as digital connectivity and skills (Strusani & Hounghonon, 2020). China is already offering evidence of how COVID-19 will drive digitalization in upper-middle-income countries (Narayandas, Hebbar, & Li 2020).

Accordingly, it can clearly be seen that technology adoption, measured as the respondents' intentions to use VCS at their workplaces, is different during COVID-19 pandemic relative to normal times. The first few months of 2020 have witnessed an increased usage of technologies. Compared with usage in the first quarter of 2019, the usage of mobile internet grew faster in the first quarter of 2020 as citizens, governments, and businesses experienced dramatic

changes in how they interact as a result of the COVID-19 pandemic, lockdowns, and other attendant restrictions (Al-Jazeera, 2020).

For example, COVID-19 has forced schools around the world to close, affecting the education of more than 1.5 billion children and youth, according to the United Nations Educational, Scientific and Cultural Organization (UNESCO). Governments have acted quickly to help parents, teachers and students to create a digital learning solution to provide some level of continuity with the pre-COVID-19 world. In other words, this pandemic has forced us to reinvent the way we work, learn, provide assistance, share and value social relationships; and thus, there is no doubt that communications and digital services are critically important to many people around the world as they deal with COVID-19 (Al-Jazeera, 2020).

The possibility of online education and remote work has resulted in a real-life adaptation and provided an impetus to the development remote health care solutions by the necessity to isolate people away from each other. Indeed, video conferences and social networks help us stay in touch with our families, teachers, students, and friends. Our online media services provide us with entertainment as we spend hour after hour at home. Accordingly, some virtual conferencing software like ZOOM becomes necessary (Al-Jazeera, 2020).

ZOOM or Equivalent VCS as a Need During COVID-19

The Zoom Company (commonly written as ZOOM and referred to as that here) has benefited during 2020 from COVID-19, and has achieved great success. In a report published by the American VOX website, writer Rani Mola said that ZOOM began trading in the stock market in April 2019, and was known at that time as a modern general technology company that made real profits. One year later, the world announced closures due to the Corona pandemic,

transforming the ZOOM application from a popular program among technology companies to an application that people depend on in all their communications (Al-Jazeera, 2020).

For many, the ZOOM teleconferencing application has become the primary lifeline for communicating with the outside world, with the provision of free calls, which last up to 40 minutes, and the option of unlimited calls with a paid subscription. This has allowed people to perform many formerly face-to-face tasks. In one documentary by Al-Jazeera (2020), experts indicated that while the ZOOM teleconferencing application was merely one of many, it quickly captured the public's imagination and the largest market share in consequence. Indeed, ZOOM has gained years of experience in just months. At this time last year, ZOOM had about 10 million meeting participants daily, but now it has 350 million. ZOOM has been one of the most downloaded iPhone and iPad applications this year, beating its competitors, including Instagram and YouTube. The company's profits this year have quadrupled over the previous year's (Al-Jazeera, 2020).

Empirical Studies Using Technology Adoption

Many researchers investigated technology adoption (e.g., Al-Gahtani, 2011; Al-Jabri, & Sohail, 2012; Chuttur, 2009; Joo, & Kim, 2004; Kim, Lee, & Law 2008; Liao Palvia, & Chen, 2009; Min, So, & Jeong, 2019; Park Roman, Lee, & Chung, 2009). Al-Jabri and Sohail (2012) examined a number of factors that can affect the adoption of mobile banking. Their study used Diffusion of Innovation as a main theory. They found that the following factors positively affected adoption: relative advantage, compatibility, and observability. In contrast, extant literature on the subject found that complexity and trialability had no significant effect on technology adoption. Other studies have found that perceived risk negatively affects adoption.

Joo and Kim (2004) conducted a study to identify the factors that can influence the adoption of e-marketplace from an IDT innovation perspective. Their study found that external pressures as well as organization size positively affected the organizational adoption regarding e-marketplaces.

Al-Gahtani (2011) tried to integrate the well-established Technology Acceptance Model (TAM) with three constructs: risk, trust, and credibility. These have a paramount significance in predicting the acceptance of online transactions by the individual. Al-Gahtani's study also sought empirical support in order to extend the TAM model with its three related constructs to Saudi Arabia's e-transactions. PLS and SEM tools were implemented to analyze the data. The findings of the study revealed that risk, credibility, and trust play a significant role toward Saudi acceptance of on-line transactions. Add to that, Al-Gahtani (2011) found that there is a broader picture for the acceptance of electronic transaction in Saudi Arabia. The use of internet was found to be popular as well as the four demographic variables were combined into the chosen model.

Chuttur (2009) provided a historical overview of TAM by summarizing the TAM evolution, its extensions, key applications, criticisms, and limitations from published articles which were selected related to the model. The result of the investigation indicated that even though TAM is seen as the highly cited model, many studies have mixed opinions about its practical effectiveness and theoretical assumptions. Chuttur's study also concluded that research in TAM has insufficient relevance and rigor that would make the model fully valid for the IS community as a well-established theory.

As for Kim et al. (2008), the objective of their study was to investigate the relationships

between the antecedents for user acceptance of hotel front office systems, information perceived value, and system quality by adopting an extended TAM. They distributed 320 questionnaires. Their findings were that technology becomes gradually sustainable as a critical source for competitive advantages in the hospitality industry. In spite of the technology's increasing use in hospitality industry, few researchers conducted investigations that have looked for the relationship between the TAM framework and the external variables in order to explain the acceptance behaviors of hospitality organizations. Empirically, this study offered practical directions to increase the acceptance of hotel front office systems software by frontline employees.

Liao et al. (2009) compared the Cognitive Model (COG), TAM, and Expectation Confirmation Model (ECM), testing the three models' hypotheses and comparing their respective explanatory power and path coefficients across three different stages of IS continuance: short-term users, long-term users, and initial adopters. Finally, the study attempted to propose an enhanced Technology Continuance Theory (TCT) based on COG, TAM, and ECM characteristics and evaluate the explanatory power of TCT and the model fit as well as comparing it with COG, TAM, and ECM. A questionnaire was distributed to achieve these goals. The study found that COG, TAM, and ECM have quite varied norms relating to the underlying constructs.

These dictate the behavior of users which also indicate these models have varied explanatory powers regarding their weakness and strengths. The study explained the variations in the adoption behavior of users across different stages for the usage of information system. On the other hand, the user satisfaction determined the intention of continuance that was formulated between perceived performance and expectations as a direct function for the confirmation.

Furthermore, the attitude of the adopter determined the information system's final and long-term success. The attitude was derived from the post-expectations of adopters caused by the cognitive assimilation and dissonance.

Moreover, Park et al. (2009) examined factors that impacted people's use and adoption of digital library systems. They tested the TAM applicability in the context of developing countries. The study attempted to examine the differences and similarities in the significant predictors of digital library acceptance in a range of continents and countries. A survey was distributed among 16 institutions in Asia, Central and Latin America, and Africa. The study found many important findings related to TAM applicability. Some confirmed the significant impact of perceived ease on perceived usefulness as proposed by TAM. As expected, the knowledge domain directly affected the ease of use. Their findings not only supported previous studies such as Thong, et al. (2002) and Venkatesh and Davis (2000), but also provided significant implications for the implementation of ICT.

Min et al. (2019) investigated consumer adoption of Uber mobile through two theoretical models, IDT and TAM. The study suggested that relative advantage, compatibility, observability, and social influence significantly influenced perceived ease of use as well as perceived usefulness, subsequently affecting attitudes of consumer and the intentions of adoption. This study demonstrated the successful integration of two classic adoption theories.

Al-Gahtani (2011) studied the context of Saudi Arabia. Al-Gahtani (2011) also investigated electronic transactions acceptance. Chuttur (2009) explored the overview of TAM. Chuttur's study did not include any empirical implementations as it addressed possible future development and direction. Kim et al. (2008) identified the acceptance behavior of hotel front

office systems, but it did not investigate the e-commerce and its context is Korea. While Liao et al. (2009) tried to compare three models and proposed the enhancement for the TCT, and evaluated the model fit and explanatory power of TCT.

Park et al. (2009) looked into the developing countries context but studied digital library systems using TAM. These four studies used IDT, TAM and other models for varied purposes. ZOOM software adoption was not investigated, and the unexpected outbreak of COVID-19 was not used as a moderator. Because of this and previous factors, there is a need for the present study.

In the existing literature, some researchers have conducted studies related to the same issue (e.g., Al-Dwairi, Al-Shraideh, & Abu-Shanab, 2018; Harasis, Qureshi & Rasli, 2018; Yaseen, & El Qirem, 2018). For instance, Harasis et al. (2018) systematically reviewed the literature on the intentions of continuous usage among articles from 2009 to 2015. In their survey, some of the models have been discussed to explain the e-commerce continuity. The survey concluded that even though considerable development was found in the literature of continuous intention, there was still a necessity to present a more integrative and comprehensive model for the intention of continuance usage for the users of e-commerce than afforded by existing models. They recommended looking at new models, and emphasized that more studies should be conducted.

Al-Dwairi et al. (2018), on the other hand, focused on mobile adoption using TAM. Yaseen and El Qirem (2018) explored e-banking services in Jordan. Their study did not include all factors of IDT. In contrast to the previous studies, the present study will look at the use of

virtual conferencing software (ZOOM) in the workplace during COVID-19 as an empirical validation of Adoption of Innovation Theory.

CHAPTER III

METHODOLOGY

Introduction

This chapter outlines the research methodology, beginning with the research design and proceeding to the population, sampling, instruments, data collection and analysis.

Research Design

Creswell (2014) defined research design as inquiry types which provide the needed direction for processes or procedures in studies using mixed, quantitative, and qualitative methods. Research design builds the structure of the research in a scientific method. It systemizes the research in a way that shows how the investigation took place and answered the research questions. It articulates the required data, methods used and how these answered the research questions.

In this vein, it was stated by Wellington and Szczerbinski (2007) that the purpose of the quantitative approach is to explain, control for, and predict social phenomena. In addition, Sakaran (2003) indicated that a quantitative approach attempts to explain as well as solve complex issues. A quantitative approach is able to address the study's objectives by implementing empirical valuations, including numerical measurements and analysis (Zikmund, Babin, Carr, and Griffin, (2013). They also pointed out that the common quantitative research

purpose is to test specific research questions or hypotheses. Sekaran (2003) also mentioned that a quantitative research design enables researchers to focus on a particular issue, pursue a rigorous method, and generate valid conclusions. Awang (2010) defined a questionnaire “as a set of structured questions designed to collect the data required for research” (p.131).

This study used an online questionnaire in order to reach a sufficient number of respondents for a valid and representative sample size (Wilkinson & Birmingham, 2003). The questionnaire is one of the most popular and widely-used instruments in the social sciences (Dörnyei, 2007). It is easy to construct, and capable of quickly gathering the necessary information and sample size.

In this study, the items in the questionnaire related to the innovation diffusion theory constructs –specifically relative advantage, trialability, compatibility, and observability were adapted from Atkinson (2007). She did great efforts in identifying a valid and reliable measurement scale that can capture the variables role on technology adoption in an online setting, a very similar context to this study. The survey measurement scale also included perceived seriousness of COVID-19 related items from Cloud Adoption Statistics (See appendix A for the full scale).

In general, the survey items were adapted from the existing body of literature related to the variables in scope. Adapted items were slightly reworded to fit the study context. All the items will be tested for validity and reliability at the time of analysis. Questions from 1 to 12 addressed respondent demographic characteristics, including age, education, gender, occupational category (blue collar, white collar or professional), income level, whether parent or non-parent, and other demographic characteristics. Questions 13-15 addressed VCS software used and levels of usage.

The researcher wanted to have some statistics about the VCS most commonly used and the frequency of its use. Respondents were asked to specify which VCS they use mainly and how many times they use VCS daily and for how many hours. This will help the researcher to understand the perspective of the respondents as they answer the survey questions and such statistics can be used in the future, although it is not the focus of the current study, to identify any potential preferences or tendencies toward using one VCS compared to the other. For the purposes of this study, no differentiation was made between ZOOM, Microsoft, Google or other conferencing software.

In the final set of questions, used to measure the study variables, questions 16-28 specifically addressed the study variables of relative advantage, compatibility, trialability, and observability which were adapted from Atkinson (2007) work as has been pointed earlier, while health concern for oneself and health concern for family members were adapted from (Roy et al, 2020) work that was also completed during the ongoing COVID-19 pandemic. Job security concern items were utilized based on the work of De Bustillo & De Pedraza (2010).

Perceived seriousness of COVID-19 scale was adapted from Nguyen et al (2020) work that identified health risk and concerns among front line health-care workers as well as Shultz et al (2016) preliminary work in this field. Technology adoption measurement scales from (Van De Bogart and Wichadee, 2015; Atkinson, 2007) were adapted, while Roodt (2004) and Metcalf et al (2015) scales were adapted to measure respondents turnover intentions. According to Scanlan (2019) and Alias et al (2018) turnover intention can be defined as “a process of employee to leave the current job or his willingness to separate from the organization”.

The study adapted loneliness measurement scale, mainly, from Li et al (2021) but took guidance from Akin (2010) work. As for a commonly studied construct like job performance, the

researcher found many scales and most relevant items were picked and utilized in this study (Manzoor et al, 2019; Ramos-Villagrasa, 2019; Moqbel and Nah, 2017). Job satisfaction is a popular research topic too and the researcher found several items and ideas that were employed in the current research (Al-Rubaish, Adbur Rahim, Abumadini, and Wosornu, 2011; Spector, 1985; Smith, Kendall, and Hulin, 1969).

As for the items that used Likert scale to identify the respondents' level of agreement or disagreement, respondents had five choices from where they can choose from 1 to 5 for each item. These five levels were: Strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree. These were later quantified as a five-point Likert scale with 1 corresponding to strongly disagree and 5 corresponding to strongly agree.

Population and Sample Size

The sample is the main part of participants who are actually examined by the researcher in any empirical investigation (Dornyei, 2007). The exact sample size can be different in qualitative and quantitative approaches (Mason, 2010). This study employed a quantitative approach, specifically an online questionnaire. The target population consisted of employees using virtual conference software at universities and educational institutions throughout North America. The sample size of the population in the present study was 412, as recommended by Krejcie and Morgan (1970). Data cleaning and elimination of outliers later reduced the number of observations that qualified for analysis to 304.

According to Zikmund et al. (2010) it is important for any researcher to explain the unit of analysis employed in the investigation. The unit of analysis is defined by Lutfi as follows: "The unit of analysis refers to the particular subject from which the data was collected for

analysis. Evidence from earlier social science works has established that a unit of analysis may be a business unit, group, individual, or the entire firm” (Lutfi, 2017, p.130). The unit of analysis in this study was the individual employee.

The current research is an effort to understand the adoption use of virtual conferencing software in the workplace during COVID-19. Data was collected from employees at different companies and educational institutions throughout North America. While ZOOM comprises the majority of virtual conferencing use, other software packages are also used, such as Google Meet and Microsoft Teams, among others. The type of VCS package was not deemed significant for the scope of this study.

There are two types of research sampling design, classified as probability and non-probability (Awang, 2010). In probability design, all population members have the same opportunity to be selected, providing the ability to generalize to the population. This is not the case in non-probability sampling (Creswell, 2014). This study used a non-probability sampling design.

Quantitative Data Collection

Zikmund, et al. (2013) define quantitative data as a research which answers its objectives by empirical assessments using numerical analysis and measurement. For the purpose of this study, an online survey using Qualtrics was created. All the applicable rules and recommendations from the Institution Review Board (IRB) have been followed. As a result of the pandemic, all preliminary tests and the main survey were conducted online to limit physical contact. All data was collected from the MTurk from May 30th to June 7th, 2021. Thus, Amazon Mechanical Turk –known as MTurk- was used to collect the data from a set of Amazon workers

-also known as turkers- who fulfill the screening criteria that has been set to filter the study participants.

The MTurk system allows the researchers to pick participants based on several different criteria, among the most widely used criteria are the number of approved hits submitted by a worker and the percentage of approved hits compared to the total lifetime submitted hits by an Amazon worker. These two specific criteria reflect the rating of Amazon workers and are utilized by researchers to pick the most fit and highly qualified workers to fill their surveys or participate in their research (MTurk, 2021). For this study, highly rated workers residing in North America were the only two screening factors used to qualify Amazon workers to take the survey.

After any response has been submitted, a thorough review was performed to screen which respondent has actually put some efforts to fill all the survey questions attentively. Questions 1-15 were descriptive in general. Questions 16-28 were quantified by assigning numerical values on a five-point Likert scale for descriptive statistics and numerical analysis. The researcher checked the time a respondent spent filling the survey and the overall answers making sure only few questions left blank. Surveys submitted within less than 3 minutes and/or had more than 5 unanswered questions were excluded from the analysis.

CHAPTER IV

ANALYSIS AND DISCUSSION

Introduction

As stated in previous chapters, this study aims to investigate the use of virtual conferencing software in the workplace during COVID-19 in North America. The scope of the study comprises the five questions posed on pages 14-15.

The data of this study are presented for analysis in accordance with the research objectives. Based on the nature of the study, the data was collected by a questionnaire. Out of 412 total observations collected, only 304 eventually were qualified to enter the analysis process.

Before moving forward to the analysis, it was necessary to clean the data of suspicious response patterns, including straightlining (respondents who answer the same field for each and every question), inconsistent answers, missing data, data distribution and outliers (Hair, Hult, Ringle, & Sarstedt, 2014). Creswell (2012), states data must be investigated for values unrelated to the accepted range.

Descriptive statistics calculations for the mean, frequency, standard deviation, and Cronbach's Alpha were employed; and correlation matrix and regression analysis have been performed using Structural Equation Modeling (SEM) software called WarpPLS 7.0.

Analysis of the Survey Instrument for Internal Consistency

To verify the reliability of the survey instrument, Cronbach's Alpha and the composite reliability coefficients calculations were employed, giving the values in table 4.2.1, below. This table shows that the measurement scale is reliable as the calculated numbers for the Cronbach Alpha and the Composite reliability coefficient are more than 0.70 in all the variables except two that still exceeded 0.60, which is still acceptable. Cronbach's alpha coefficients ranged from 0.71 to 0.96, supporting internal consistency among measurement items within each construct. To confirm the overall fit of the final measurement model, the study further tested the composite reliability of each construct revealing acceptable composite reliability, ranging from 0.79 to 0.93.

Table 4.1: Internal Consistency of Variables

Variable	Cronbach's Alpha Score	Composite reliability coefficients	Internal Consistency	Number of Items
Relative Advantage	0.813	0.866	Satisfactory	6
Compatibility	0.809	0.863	Satisfactory	6
Trialability	0.645	0.79	Acceptable	4
Observability	0.719	0.79	Satisfactory	6
Health of Oneself	0.800	0.87	Satisfactory	4
Health of Family	0.752	0.835	Satisfactory	5
Job Security	0.760	0.862	Satisfactory	3
Perceived Seriousness of COVID-19	0.766	0.823	Satisfactory	8
Technology Adoption	0.776	0.80	Satisfactory	2
Turnover	0.905	0.93	Satisfactory	5
Loneliness	0.893	0.921	Satisfactory	5
Job Performance	0.746	0.845	Acceptable	5
Job Satisfaction	0.838	0.876	Satisfactory	8

Questionnaire Analysis

Three different software were used to clean, process, and analyse the data. Excel and SPSS have been both used to run the descriptive statistics of the demographic data, the later has

been used to verify the measurement scale reliability. Further, an SEM software called WarpPLS 7.0 was used to run the structural equation modeling analyses using linear partial least square regression tests between the independent and dependent variables as well as testing the moderation effect of the perceived seriousness of COVID-19 on the study variables.

It is also worth mentioning that most of the demographic questions have been coded as categorical variables. For example, gender, has been given a binary code. Moreover, the five possible fields for respondents' answers for questions 16 through 28 used Likert scale as follows: Strongly disagree was assigned the value of 1; disagree, 2; neither agree nor disagree (neutral), 3; agree, 4; and strongly agree, 5.

Descriptive Statistics

The step of descriptive statistics is deemed to be the first statistical analysis step. In the present study, descriptive statistics were carried out on demographic variables, as discussed further in details below.

Descriptive Statistics of Demographic and VCS Information. Respondents' demographic variables included the respondents' personal characteristics like gender, age, and income. In addition, other questions asked the respondents about their usage habits and choices related to Virtual Conferencing Software (VCS) including their frequency of virtual conferencing software use and the VCS brand used.

The respondents' demographic data statistics are shown in table 4.2 below. As the table represents, females composed 32.5% of the sample, while males were 67.5%. In regard to participants race, the table below shows that 71.86% of respondents describe themselves as White, 14.48% as African descent and 14.48% as Hispanic. 5.19% describe themselves as

Asian, 5.19% as Native American/Canadian Indigenous, while 1.09% described themselves as “Other”.

Table 4.2: Demographic Data Statistics

Variable	Frequency	Percentage
Gender		
Male	205	67.49%
Female	99	32.51%
Race		
White	219	71.86%
African-Descent	44	14.48%
Hispanic	18	6.01%
Asian	16	5.19%
American Indian	4	1.37%
Other	3	1.09%
Age		
16-24	5	1.64%
25-45	223	73.50%
46-60	64	21.04%
61 or Older	12	3.83%
Education Level		
Less than High School	1	0.27%
High School	7	2.19%
Associate Degree	11	3.55%
Bachelor Degree	195	64.21%
Master Degree	83	27.32%
Doctoral Degree	7	2.46%
Are you a Parent		
Yes	252	83.06%
No	48	15.57%
Prefer not to Say	4	1.37%
School Aged Children		
Yes	220	72.40%
No	76	24.86%
Prefer not to Say	8	2.73%
Work Experience		
Less than 5 years	44	14.48%
6-10 years	150	49.45%
11-15 years	62	20.49%
16 or more years	48	15.57%

Table 4.2, cont.

Annual Salary		
Less than \$24,000	29	9.56%
\$24,000-\$48,000	68	22.40%
\$49,000-\$72,000	113	37.16%
\$73,000-\$96,000	65	21.31%
\$97,000 or more	29	9.56%
Employment Type		
Full Time	289	95.08%
Part Time	14	4.37%
Unemployed	1	0.55%
Working Class		
Blue Collar	61	20.22%
White Collar	243	79.78%
Country you Work from		
USA	285	93.75%
Canada	17	5.60%
Mexico	2	0.06%

N=304

Table 4.2 also shows respondent ages. Those 25 to 45 years were the majority among the respondents, comprising 73.5% of the study sample. This age group represents the usual working middle class adults who, in the twenty first century, possess qualities that older senior workers are lacking. One quality of this group is their relative advancement in technology use. However, researchers need to better understand this group category because much of the data we have today applies to older generations who didn't get exposed to technology use and the challenges and advantages it brings.

Respondents were asked about their family structure. As COVID-19 is a highly infectious disease, this structure is expected to play a role in defining respondents' reaction to the new realities the pandemic is enforcing on us. That is including issues related to work, study, husband and wife relations, children and taking care of their needs, leisure and how to spend free time. Thus, as table 4.2 shows, respondents were asked if they have school aged children living with

them, 72.5% of the respondents indicated that they have school-aged children living with them, while 24.9% of respondents did not. There was a non-response rate of 2.7% to this question from respondents who preferred not to specify their current status.

Statistics also show that most of the respondents (83.1%) were parents, while 15.6% were not. Non-responders were 1.4%. With the majority of the respondents being parents with school-aged children, researchers anticipated that the ongoing COVID-19 pandemic should have major effects on the way they live their day and how they work in order to be able to provide enough sustenance to their household. This group was expected to show more tendencies to work from home and more concern for their health and their loved one's health.

In regard to respondents' annual income, 9.56% of respondents earned less than \$24,000 annually, 22.40% of respondents earned between \$24,000 and \$48,000, and 37.16% had a salary between \$48,001 and \$72,000. Furthermore, 21.31% earned between \$72,001 and \$96,000, while 9.56 per cent earned in excess of \$96,000 annually. Respondents were asked about their highest level of education too. Since our main topic of investigation is related to technology, a highly educated sample is expected to reflect more technology savviness and better attention to their health and their family members' wellbeing.

Table 4.2 above shows the highest number of respondents had bachelor's degrees (64.2%), while the lowest number had not completed high school (0.3%) with only one respondent. Numbers show that 79.8% of the respondents were white collar (office/professional) and 20.2% were blue collar (manual/general labor). Professional (e.g., doctors or lawyers) was not broken out from white collar in this study. As per job experience measured in number of years, 14.48% of respondents have five years or less of experience. 49.45% have between 6 and

10 years (the largest category). 20.49% of the participants have 11 to 15 years, while 15.57% have 16 or more years of experience.

The table also shows that 95.08% of all respondents have full time jobs, while 4.37% work part-time. Only one respondent indicated that he is currently unemployed with a percentage of 0.55% of the sample. A working, highly educated, middle class is the main theme of this study sample side by side with the new reality that the pandemic has brought and the tireless efforts from institutions to adapt to the unprecedented challenges that COVID-19 presented to their survival, it will be interesting to examine how all this reflects on technology adoption, employee's job satisfaction, turnover, and job performance simultaneously.

Looking further at the data, we find that the sum of the most chosen categories consists of the middle working class in North America. This class has its own distinct characteristics and lifestyle that have been well documented in literature and subsequently are expected to show more responsible choices and higher concern for their health. In addition, as this middle class has relatively unstable income compared to the monthly expenditure especially with a family, this group should reflect more job concern and less turnover intention especially during the time of a crisis.

When asked about how many times per day do the respondents use ZOOM, MS Teams, or similar virtual conference software (VCS) for work, statistics shows that 30.33% of respondents use VCS more than five times per day (the highest percentage); 10.66% used VCS four to five times per day; 22.68% used VCS three to four times per day; 20.77% used VCS two to three times per day; while 15.57% used VCS less than two time per day (Table 4.3). The lowest percentages were for those who use VCS four to five times a day, followed by those who used VCS less than two times per day. Indeed, this presents that most of respondents are using

VCS weekly. This is true as COVID-19 has forced companies, education institutes and many other organizations to communicate using online channels such as ZOOM, Google Team, and other software programs to run its own programs such as businesses they have, education they offer and any other services provided to people.

When it comes to how many hours in total per day do respondents spend on ZOOM, MS Teams or similar virtual conference software (VCS), table 4.3 above demonstrate that majority of the study respondents are dense technology users who are constantly online and usually spend 3-5 hours every day in average to perform and fulfill their daily life duties and responsibilities.

Table 4.3: VCS Usage Statistics

Variable		
VCS Use per day	Frequency	Percentage
Less than 2 times per day	47	15.57%
2-3 times per day	63	20.77%
3-4 times per day	69	22.68%
4-5 times per day	32	10.66%
More than 5 times per day	93	30.33%
VCS Hours per Day		
Less than 2 hours	59	19.67%
2-3 hours	62	20.49%
3-4 hours	52	17.21%
4-5 hours	41	13.39%
More than 5 hours per day	90	29.23%
VCS Software		
ZOOM	207	68.03%
Google Meet	42	13.93%
Microsoft Teams	35	11.48%
Webex	2	0.82%
Skype for Business	2	0.55%
All of the above	15	4.92%
Other	1	0.27%
TOTAL	304	100.00%

The table shows that 29.23% of respondents use VCS more than 5 hours a day. 13.39% use VCS 4-5 hours per day, 17.21% use VCS 3-4 hours per day, while 20.49% of respondents use VCS 2-3 hours per day. 19.67% use VCS less than 2 hours per day. As explained earlier, since life has been changed due to COVID-19, this study's participants tended to use VCS daily. Indeed, this table illustrates that 80.32% of respondents use ZOOM, MS Teams, Google Meet or other VCS programs daily for more than 2 hours.

As for which Virtual Conference Software (VCS) do the respondents mainly use on a daily basis, Zoom proved to be a leader in this field with more than two-thirds (68.03%) of respondents indicating they are using ZOOM, followed by Google Meet at 13.93%. 11.48% of the participants said they use Microsoft Teams, while 4.92% used more than one software package at a time. Webex, Skype for Business and "Other" rounded out the VCS packages at .82%, .55% and .27% respectively. This suggests that software that are well developed, user friendly, and readily accessible have more potential to survive fierce market conditions and that the characteristics and qualities of a software program play a significant factor in it being selected from among other choices offered to customers in the market.

Inferential Analysis

This section discusses the inferences that may be gleaned from the data. It addresses the research goals outlined in Section 1.3.

Table 4.4 Regression Results for Technology Adoption

Variables	Model 1	Model 2	Model 3
<u>Control Variables</u>			
Gender (Female=1, Male=0)	-0.07 (0.12)	-0.03 (0.32)	-0.04 (0.22)
Race (White=1, Other=0)	-0.18 (<0.001)***	-0.10 (0.04)**	-0.10 (0.04)**
Age (Ordinal)	-0.007 (0.45)	-0.03 (0.29)	-0.01 (0.41)
Education (Ordinal)	-0.02 (0.35)	-0.06 (0.13)	-0.06 (0.16)

Table 4.4, cont.

Fulltime (Fulltime=1, Other=0)	-0.002 (0.49)	-0.03 (0.28)	-0.02 (0.37)
Work Type (w/collar=1, Other=0)	0.01 (0.41)	0.04 (0.27)	0.05 (0.20)
Work Experience (Years)	-0.04 (0.27)	0.02 (0.36)	0.01 (0.45)
Income (\$\$\$)	0.13 (0.01)***	0.04 (0.25)	0.02 (0.35)
Country (US=1, Other=0)	0.16 (0.002)***	0.03 (0.32)	0.03 (0.33)
Main Effects			
Relative Advantage		0.42 (<0.001)***	0.43 (<0.001)***
Compatibility		0.10 (0.04)**	0.10 (0.04)**
Trialability		-0.06 (0.17)	-0.08 (0.07)*
Observability		0.18 (<0.001)***	0.18 (<0.001)***
Health Concern for self		-0.02 (0.34)	0.00 (0.50)
Health Concern for Family Members		0.03 (0.27)	0.11 (0.03)**
Job Security		-0.03 (0.29)	-0.07 (0.12)
Loneliness		0.02 (0.38)	0.02 (0.36)
COVID-19 PercSer		0.06 (0.16)	0.09 (0.06)*
Moderating Effects			
RelAdv X PercSer			0.33 (<0.001)***
Compatibility X PercSer			-0.27 (<0.001)***
Trialability X PercSer			0.10 (0.04)**
Observability X PercSer			-0.17 (0.001)***
Self Health X PercSer			0.07 (0.12)
Family Health X PercSer			0.04 (0.22)
Job Security X PercSer			0.10 (0.04)**
Loneliness X PercSer			-0.04 (0.26)
R square	0.09	0.48	0.51
R square change		0.39	0.03
N (number of observations)	304	304	304

*** Significant at the 0.01 level.

** Significant at the 0.05 level.

* Significant at the 0.10 level.

While the unstandardized coefficients are reported, the numbers in the parentheses are for the P-values

With technology adoption as the dependent variable, we ran three models, one with the control variables only, one with main effects and the control variables only, and the third includes the interaction terms, control variables, and main effects as table 4.4 above shows. We run moderation analyses to gain insights into the interaction effect of the perceived seriousness of COVID-19 and the main independent variables on the decision to adopt VCS. The adjusted R

square for the final full model is 0.51, which indicates that the full research model explained 51 percent of the variance in the decision to adopt VCS. All of the variance inflation factors (VIFs) are well below 5 (e.g. AVIF 3.650), exhibiting no concern for multi-collinearity (Allison, 2012; O'Brien, 2007).

Goodness of fit is seen to be a significant research goal (e.g., Henseler, & Sarstedt, 2013; Sarstedt, 2017; Tenenhaus, Amato, & Vinzi, 2004). A quick look at the model fit and quality indices reflects the ability of the model to explain the variables interaction to produce a proposed outcome to a significant level (Hair et al., 2010). Average path coefficient (APC) = 0.097, $P=0.022$; Average R-squared (ARS) = 0.51, $P<0.001$; Average adjusted R-squared (AARS)=0.462, $P<0.001$; Average block VIF (AVIF)=3.650, which is acceptable if ≤ 5 , ideally it should be ≤ 3.3 ; Average full collinearity VIF (AFVIF)=3.710, acceptable if ≤ 5 , ideally ≤ 3.3 , and the Statistical suppression ratio (SSR)=0.750, which is acceptable if ≥ 0.7 (Kock, N. 2021). The findings from the regression analysis are presented next, while the results from the main effects model are in the middle column of Table 4.4, we report the full model (right column of Table 4.4) as the final numbers through the results and discussion.

In regard to the control variables, the regression coefficients obtained were as follows: Female ($\beta = -0.04$, p value > 0.10), white ($\beta = -0.10$, p value < 0.05), age ($\beta = -0.01$, p value > 0.10), education level ($\beta = -0.06$, p value > 0.10), fulltime-time employee ($\beta = -0.02$, p value > 0.10), employment type ($\beta = 0.05$, p value > 0.10), work experience ($\beta = 0.01$, p value > 0.10), total income ($\beta = 0.02$, p value > 0.10), and country employee working at (US=1, Other=0) ($\beta = 0.03$, p value > 0.10) are included as control variables. These variables are used to control for different demographic characteristics and professional aspects of the participants as they seem to usually affect individuals' ultimate decision making process (Swanson, Burch & Tedrow (1996);

Kintner and Pol (1996); Briley et al. (2014); Falk et al. (2010); Jian Wang et al. (2010); Hofstede (1980)).

As shown in the table above, the analysis found that while Relative Advantage ($\beta = 0.43$, p value < 0.01) has a significant coefficient at the 1% level, Compatibility ($\beta = 0.10$, p value < 0.05) has a significant coefficient at the 5% level. Trialability ($\beta = -0.08$, p value < 0.10) has a significant negative coefficient at the 10% level, whereas observability ($\beta = 0.18$, p value < 0.01) has a significant coefficient at the 1% level. Moreover, among the rest of the variables, Health concern for Family members ($\beta = 0.11$, p value < 0.05) has a significant coefficient at the 5% level. However, Health concern of self ($\beta = 0.00$, p value > 0.10), Job security concerns ($\beta = -0.07$, p value > 0.10), and loneliness ($\beta = 0.02$, p value > 0.10) have been found not to have any significant coefficient during the analysis. Hence, hypotheses H1a, H1b, H1c, and H1f have been supported, while H1d, H1e, H1g, and H1h haven't been supported.

When the researcher tested the moderator as part of the main effects, perceived seriousness of COVID-19 was found to have a significant positive coefficient significant at the 10% level ($\beta = 0.09$, p value < 0.10). For the moderation effect of the COVID-19 perceived seriousness, the interaction term between compatibility and perceived seriousness of COVID-19 with technology adoption has a negative coefficient significant at the 1% level ($\beta = -0.27$, p value < 0.001). Similarly, the interaction term between observability and perceived seriousness of COVID-19 has a negative coefficient significant at the 1% level ($\beta = -0.17$, p value < 0.001). Whereas the interaction terms between relative advantage ($\beta = 0.33$, p value < 0.001), trialability ($\beta = 0.10$, p value < 0.05), and COVID-19 perceived seriousness has a positive significant coefficient at the 1% level and 5% level respectively.

Finally, the interaction term between job security concern and Perceived seriousness of COVID-19 ($\beta = 0.10$, p value < 0.05) has a positive significant coefficient at the 5% level. On the other side, the interaction terms between health concern of oneself ($\beta = 0.07$, p value > 0.10), health concern of family members ($\beta = 0.04$, p value > 0.10), and loneliness ($\beta = -0.04$, p value > 0.10) and COVID-19 perceived seriousness all have non-significant coefficients at the 10% level. Thus, hypotheses H2a, H2b, H2c, H2d, and H2g have been supported while hypotheses H2e, H2f, and H2h haven't been supported.

Using the same process, with job performance as the dependent variable, we ran three regressions, one with the control variables only, one with main effects and the control variables only, and the third includes the interaction terms along with the main effects and the control variables as Table 4.5 below shows. The adjusted R square for the full model is 0.31, which indicates that our model explained almost third (31%) of the variance in job performance. All the variance inflation factors (VIFs) are well below 5 (e.g. AVIF 1.196), exhibiting no concern for multi-collinearity (Allison, 2012; O'Brien, 2007).

Table 4.5 Regression Results for Job Performance

Variables	Model 1	Model 2	Model 3
<u>Control Variables</u>			
Gender	0.09 (0.047)**	0.12 (0.02)**	0.12 (0.014)**
Race	-0.22 (<0.001)***	-0.12 (0.02)**	-0.11 (0.008)***
Age	-0.01 (0.04)**	-0.11 (0.03)**	-0.11 (0.04)**
Education	0.05 (0.19)	0.05 (0.21)	0.05 (0.14)
Fulltime	0.01 (0.44)	0.01 (0.40)	0.009 (0.46)
Work Type	0.07 (0.12)	0.07 (0.12)	0.08 (0.12)
Work Experience	0.15 (0.005)***	0.18 (<0.001)***	0.17 (0.003)***
Income	0.16 (0.002)***	0.13 (0.01)**	0.13 (0.03)**
Country	0.12 (0.02)**	0.05 (0.20)	0.05 (0.16)
<u>Main Effects</u>			
Technology Adoption		0.37 (<0.001)***	0.38 (<0.001)***
COVID-19 PercSer		0.15 (0.003)***	0.16 (0.002)***

Table 4.5, cont.

Moderating Effects			
Adoption X PercSer			0.04 (0.23)
R square	0.12	0.31	0.31
R square change		0.19	0.00
N (number of observations)	304	304	304

*** Significant at the 0.01 level

** Significant at the 0.05 level

* Significant at the 0.10 level

While the unstandardized coefficients are reported, the numbers in the parentheses are the P-Values

As the model Goodness of fit is seen to be a significant research goal (Henseler, & Sarstedt, 2013; Sarstedt, 2017; Tenenhaus, Amato, & Vinzi, 2004), checking the model fit and quality indices reflect the ability of the model to explain the variables interactive relations to a good extent (Hair et al., 2010). Average path coefficient (APC)=0.118, $P=0.009$; Average R-squared (ARS)=0.309, $P<0.001$; Average adjusted R-squared (AARS)=0.281, $P<0.001$; Average block VIF (AVIF)=1.196; Average full collinearity VIF (AFVIF)=2.254; Tenenhaus GoF (GoF)=0.479, which indicates a relatively smaller fit when the value is ≥ 0.1 , medium ≥ 0.25 , large ≥ 0.36 ; Simpson's paradox ratio (SPR)=0.833, which is acceptable if ≥ 0.7 , ideally it should equal 1; R-squared contribution ratio (RSCR)=0.986, acceptable if ≥ 0.9 , ideally = 1 (Kock, N. 2021). The findings from the regression analysis are presented next, while the results from the main effects model are in the middle column of Table 4.5, we report the full model (right column of Table 4.5) as the final numbers through the results and discussion.

In regard to the control variables, the regression coefficients obtained were as the following: Male or Female ($\beta = 0.12$, p value < 0.05), race ($\beta = -0.11$, p value < 0.01), age ($\beta = -0.11$, p value < 0.05), education level ($\beta = 0.05$, p value > 0.10), fulltime or part time employee ($\beta = 0.009$, p value > 0.10), employment type ($\beta = 0.08$, p value > 0.10), work experience ($\beta = 0.17$, p value < 0.01), total income ($\beta = 0.13$, p value < 0.05), and country employee working at

($\beta = 0.05$, p value > 0.10). These variables are used to control for different demographic characteristics and professional aspects of the participants as they seem to usually affect individuals' ultimate decision-making process (Briley et al., 2014; Falk et al., 2010; Jian Wang et al., 2010; Hofstede, 1980; 1988).

Moreover, as shown in the table above, the analysis of the main effects found that employees' perceived seriousness of COVID-19 has a significant coefficient at the 1% level with job performance ($\beta = 0.16$, $p = 0.002$). Technology adoption, measured as the respondents' intentions to use VCS at their workplaces, ($\beta = 0.38$, p value < 0.001) has a significant coefficient at the 1% level with their job performance as well, Hence, hypothesis H3 has been supported. On the other hand, the interaction term between technology adoption and perceived seriousness of COVID-19 has an insignificant coefficient ($\beta = 0.04$, p value > 0.10), thus, hypothesis H6 hasn't been supported.

Similarly, with turnover intentions as the dependent variable, we ran three regression models, one with the control variables only, one with main effects and the control variables only, and the third includes the interaction terms along with the main effects and control variables as Table 4.6 below shows. The adjusted R square for the basic model is 0.31, which indicates that our research model explained 31 percent of the variance in turnover intentions. All the variance inflation factors (VIFs) are well below 5 (e.g. AVIF 1.196), exhibiting no concern for multicollinearity (Allison, 2012; O'Brien, 2007).

Reviewing model fit and quality indices, the researcher found that the Average path coefficient (APC)=0.144, $P=0.003$; Average R-squared (ARS)=0.31, $P<0.001$; Average adjusted R-squared (AARS)=0.29, $P<0.001$; Average block VIF (AVIF)=1.196; Average full collinearity VIF (AFVIF)=2.254; Sympton's paradox ratio (SPR)=0.92, which is acceptable if ≥ 0.7 , ideally

it equals 1; R-squared contribution ratio (RSCR)=1.000, which is acceptable if ≥ 0.9 , ideally = 1 reflecting a good fit of the model to explain the relation between the variables.

Table 4.6 Regression Results for Turnover Intentions

Variables	Model 1	Model 2	Model 3
<u>Control Variables</u>			
Gender	-0.06 (0.15)	-0.07 (0.10)	-0.06 (0.14)
Race	0.05 (0.18)	0.11 (0.03)**	0.12 (0.02)**
Age	0.16 (0.003)***	0.13 (0.01)**	0.13 (0.01)**
Education	0.28 (<0.001)***	0.25 (<0.001)***	0.26 (<0.001)***
Fulltime	0.08 (0.08)*	0.09 (0.05)*	0.07 (0.10)
Work Type	-0.17 (0.001)***	-0.16 (0.003)***	-0.12 (0.01)**
Work Experience	-0.26 (<0.001)***	-0.22 (<0.001)***	-0.24 (<0.001)***
Income	-0.15 (0.003)***	-0.11 (0.03)**	-0.10 (0.03)**
Country	0.06 (0.15)	0.04 (0.26)	0.05 (0.18)
<u>Main Effects</u>			
Technology Adoption		-0.06 (0.13)	0.03 (0.29)
COVID-19 PercSer		0.34 (<0.001)***	0.36 (<0.001)***
<u>Moderating Effects</u>			
Adoption X PercSer			0.18 (<0.001)***
R square	0.19	0.29	0.31
R square change		0.10	0.02
N (number of observations)	304	304	304

*** Significant at the 0.01 level

** Significant at the 0.05 level

* Significant at the 0.10 level

While the unstandardized coefficients are reported, the numbers in the parentheses are the P-Values

As usual, while the results from the main effects model are in the middle column of Table 4.6, we report the full model (right column of Table 4.6) as the final numbers throughout the rest of the study. Male or Female ($\beta = -0.06$, p value > 0.10), race ($\beta = 0.12$, p value < 0.05), age ($\beta = 0.13$, p value < 0.05), education level ($\beta = 0.26$, p value < 0.001), fulltime or part time employee ($\beta = 0.07$, p value > 0.10), employment type ($\beta = -0.12$, p value < 0.05), work experience ($\beta = -0.24$, p value < 0.001), total income ($\beta = -0.10$, p value < 0.05), and country employee working at ($\beta = 0.05$, p value > 0.10) were tested as control variables. As could be inferred, some of the

control variables have strong significant contribution in explaining the relations proposed within this model.

As shown in the table above, the analysis found that technology adoption ($\beta = 0.03$, p value > 0.10) has no significant coefficient. Hence, hypothesis H4 hasn't been supported. When the moderation variable was tested as a main effect, it is found that it has a significant coefficient at the 1% level with job performance ($\beta = 0.36$, p value < 0.001). Moreover, when the moderation effect of COVID-19 perceived seriousness has been entered in the relation, a significant coefficient at the level of 1% was obtained ($\beta = 0.18$, p value < 0.001). This reflects a significant interactive relation between the variables, proposing a significant moderation effect within the proposed model. Thus, Hypothesis number 7 has been supported too.

By the same token, with job satisfaction as the dependent variable, we ran three models, one with the control variables only, one with main effects and the control variables only, and the third includes the interaction terms along with the main effects and control variables as Table 4.7 below shows. The adjusted R square for the basic model is 0.40, which suggests that our model explained 40 percent of the variance in job satisfaction. All the variance inflation factors (VIFs) are well below 5 (e.g. AVIF 1.196), exhibiting no concern for multi-collinearity (Allison, 2012; O'Brien, 2007).

Table 4.7 Regression Results for Job Satisfaction

Variables	Model 1	Model 2	Model 3
Control Variables			
Gender	-0.07 (0.12)	0.09 (0.06)*	0.08 (0.08)*
Race	-0.18 (<0.001)***	-0.06 (0.15)	-0.07 (0.12)
Age	-0.01 (0.41)	-0.03 (0.33)	-0.02 (0.34)
Education	0.12 (0.02)**	0.11 (0.03)**	0.10 (0.04)**
Fulltime	0.13 (0.01)***	0.14 (0.006)***	0.16 (0.002)***
Work Type	0.02 (0.40)	0.02 (0.39)	-0.01 (0.40)
Work Experience	-0.01 (0.04)**	-0.05 (0.17)	-0.04 (0.26)

Table 4.7, cont.

Income	0.16 (0.003)***	0.13 (0.01)**	0.12 (0.02)**
Country	0.13 (0.01)***	0.04 (0.22)	0.03 (0.30)
<u>Main Effects</u>			
Technology Adoption		0.42 (<0.001)***	0.39 (<0.001)***
COVID-19 PercSer		0.21 (<0.001)***	0.19 (<0.001)***
<u>Moderating Effects</u>			
Adoption X PercSer			-0.17 (0.002)***
R square	0.12	0.38	0.40
R square change		0.26	0.02
N (number of observations)	304	304	304

*** Significant at the 0.01 level

** Significant at the 0.05 level

* Significant at the 0.10 level

While the unstandardized coefficients are reported, the numbers in the parentheses are the P-Values

In regard to model fit, we found that the Average path coefficient (APC)=0.114, $P=0.011$; Average R-squared (ARS)=0.40, $P<0.001$; Average adjusted R-squared (AARS)=0.377, $P<0.001$; Average block VIF (AVIF)=1.196; Average full collinearity VIF (AFVIF)=2.254; and the Statistical suppression ratio (SSR)=0.833 which is acceptable if ≥ 0.7 , indicating a good fit of the model to explain the relation between the variables (Hair et al. 2010).

While the results from the main effects model are in the middle column of Table 4.7, we report the full model (right column of Table 4.7) as the final numbers through the results and discussion. Male or Female ($\beta = 0.08$, p value < 0.10), race ($\beta = -0.07$, p value > 0.10), age ($\beta = -0.02$, p value > 0.10), education level ($\beta = 0.10$, p value < 0.05), fulltime or part time employee ($\beta = 0.16$, p value < 0.01), employment type ($\beta = -0.01$, p value > 0.10), work experience ($\beta = -0.04$, p value > 0.10), total income ($\beta = 0.12$, p value < 0.05), and country employee working at ($\beta = 0.03$, p value > 0.10) are included as control variables.

As shown in the table above, the analysis found that technology adoption ($\beta = 0.39$, p value < 0.001) has a significant coefficient at the 1% level. Hence, hypothesis H5 has been supported. However, when the moderation effect of COVID-19 perceived seriousness has been

entered in the relation, a significant negative coefficient at the level of 1% was obtained ($\beta = -0.17$, p value = 0.002). This reflects a change in direction of the interactive relation between the variables, yet keeping it significant, proposing a significant moderation effect within the proposed model. Thus, Hypothesis 8 has been supported.

Table 4.8 below summarizes the results from statistically testing the relationships between the independent variables and dependent variables as have been detailed earlier. The presented analysis also includes the perceived seriousness of COVID-19 effect as a moderator.

Table 4.8 Results of Hypotheses Testing

Hypotheses	Structural Path	Std. Estimate	Test Results
H1:			
H1a	Relative Advantage \longrightarrow Technology Adoption	0.43***	Supported
H1b	Compatibility \longrightarrow Technology Adoption	0.10**	Supported
H1c	Observability \longrightarrow Technology Adoption	0.18***	Supported
H1d	Triability \longrightarrow Technology Adoption	-0.08*	Not Supported
H1e	Concern for Self \longrightarrow Technology Adoption	0.00	Not Supported
H1f	Concern for Family \longrightarrow Technology Adoption	0.11**	Supported
H1g	Job Security \longrightarrow Technology Adoption	-0.07	Not Supported
H1h	Loneliness \longrightarrow Technology Adoption	0.02	Not Supported
H2:			
H2a	H1a with Moderation effect	0.33***	Supported
H2b	H1b with Moderation effect	-0.27***	Supported
H2c	H1c with Moderation effect	-0.17**	Supported
H2d	H1d with Moderation effect	0.10**	Supported
H2e	H1e with Moderation effect	0.07	Not Supported
H2f	H1f with Moderation effect	0.04	Not Supported
H2g	H1g with Moderation effect	0.10**	Supported
H2h	H1h with Moderation effect	-0.04	Not Supported
H3	Technology Adoption \longrightarrow Job Performance	0.38***	Supported
H4	Technology Adoption \longrightarrow Turnover Intentions	0.03	Not Supported
H5	Technology Adoption \longrightarrow Job Satisfaction	0.39***	Supported
H6	H3 with Moderation effect	0.04	Not Supported
H7	H4 with Moderation effect	0.18***	Supported
H8	H5 with Moderation effect	-0.17***	Supported

***Significant at the 0.01 level

**Significant at the 0.05 level

*Significant at the 0.10 level

In the next chapter, the findings and their implications will be discussed further. Some light will be shed on the current study limitations and the scope and direction of future research will be identified. Finally, general recommendations will be made on how we can reach better understanding of the technology adoption process during crisis or unusual times and the guidelines to executives and individuals of better practices on how to navigate the company way safely through turbulent times and markets.

CHAPTER V

DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

Discussion

This study examined virtual conferencing software (VCS) use in the workplace during the current COVID-19 pandemic. Its goal was first to discern factors affecting technology adoption, measured as the respondents' intentions to use VCS at their workplaces, and second, to discern how technology adoption affects job performance, job satisfaction, and turnover intention. In addition, it attempts to identify the moderating role played by the perceived seriousness of COVID-19. Toward this end, the study employed both descriptive and inferential statistics; regression analysis and moderation testing have been performed using WarpPLS 7 software.

A summary of the main study findings are enlisted in table 4.8. As the numbers reveal, statistically testing the variables relations, the researcher found that the components of the Innovation Diffusion Theory (IDT) included in this study have a significant influence on the ultimate adoption decision of a technology. This is in line with the current literature and corroborates the findings of most of the previous work that tried to verify the theory and its ability in explaining individuals' behavior toward adopting certain technology related products and services. Specifically, studies that investigated Relative advantage (Rogers 1995, Caryannis and Eric 2006), Compatibility (Tornatzky and Klein 2012, Straub, E. 2009), observability

(Brown et al. 2007, Lin, C. 2008), and trialability (Rogers 2003, Lin, S. and Lin, H. 2008, Qirim, N. 2005) are all significant determinants on technology adoption.

When the moderation effect of the perceived seriousness of COVID-19 was added into the equation, reflecting individuals' views of the COVID-19 seriousness and severity from the perspective of the study participants, the significance of these relations became even stronger. However, in some relations the calculated beta value –despite still being significant- became negative, indicating that the pandemic is changing our views and shaping our responses as part of our work and daily routine.

For instance, relative advantage in this model can successfully predict people adoption of Zoom. Meaning that an additional 10% increase in the relative advantage of a technology, will increase users' willingness to adopt that technology by 4.4%. This rate reduced to 33% with the moderation effect but is still significant as determinant in the final decision of adopting the VCS during work or not. Hence, relative advantage is a crucial aspect that technology firms need to pay great attention to before introducing any new services or products to the markets, both at individual and business levels (Mairura, K. 2016).

On the other hand, if we consider observability as a determinant, it was with and without moderation significant at the 1% level; indicating a strong association between the variables in scope. However, when the moderation effect was introduced, this relation became negative. One explanation for this is that the pandemic eliminated the possibility to check and try things before the final adoption decision because with all the difficulties and inconvenience that came with COVID-19, many individuals and firms found them facing two options without a third option. That is a quick immediate adaptation and change of the existing business model(s), or a quick rapid fall to the bottom with many firms being forced out of business. Future research should

investigate this matter further. Some good distinctions to be considered in this subject entails: Individuals vs. Businesses, Stable market vs. crisis or turbulent markets, technological and non technological fields.

As this study was more as the first step in a long process to try and understand the determinants of technology adoption during a crisis, more variables have been included in order to corroborate as many variables as possible and their role in explaining the process of technology adoption decision making. Identifying the precedents and antecedents of this process, at this stage, required entering as many relevant factors as possible. However, the overall interaction of all these variables did affect significance testing for some of these variables where some were significantly related while others were somewhat significant and others were not significant at all.

Future research could identify more precisely structured paths and relations to investigate, with more relevant context to the phenomenon under the scope. This will enrich our understanding to this adoption process and the factors that affect the before and after of it as well as further corroborate the current existing stream of literature to enable individuals and businesses successfully managing their work and business efficiently and effectively even during the most difficult times. Further testing revealed that technology adoption, measured as the respondents' intentions to use VCS at their workplaces, has a significant relation with job performance. This Implies that for every 10% increase in adoption of a technology, there is 4.3% increase in job performance. Many previous studies that tried to address similar relations found also support to this result (Baskaran et al. 2020, Awan, W. and Salam, A. 2014, Dauda, Y. and Akingbade, W. 2011) as all considered this relationship in a normal regular setting at a workplace or company.

Very few, and only recently, tried to examine this relation within turbulent markets. Markets today are highly dynamic and rapidly changing (Benamati, J. and Lederer, A. 2001). Firms that want to sustain its businesses operations or have objectives to grow and enter more markets must have the required tools and background that equip them with the skills and know-how to survive any unexpected changes brought by the fierce competitive nature of the markets today or natural crisis that might wreak havoc the entire global economy as the ongoing COVID-19 pandemic did (Bagozzi, R. 2007; Benamati, J. and Lederer, A. 2001).

A surprising finding was that this same relation between technology adoption and job performance turned to become completely insignificant with the addition of the moderation effect of the perceived seriousness of COVID-19. A strong argument for this finding could relate again to the instability that COVID-19 brought to many workplaces. Many companies had to terminate its physical locations for products and services and were forced to find contactless methods to provide their products and services to the public. Other than that they were not allowed to operate at all. For the employees, this era was the beginning for introducing remote work and work from home concepts at a wider scale. It didn't really matter if the employee is willing or not to use technology, nor if the company had the suitable infrastructure to run its business remotely. The switch has to be done overnight for many. Thus, the effect of technology adoption on job performance has been relatively diluted and technology use became a requirement not a choice.

Technology adoption, in turn, positively affected turn over intentions at a significance level of 10%. The relation between these two variables has been studied extensively in literature with conflicting findings depending on the context of the research (Parvari et al. 2015; AlArkobi, K., Bishop, J. & Scott, D. 2011; Allen, N. and Meyer, J. 1990, 1996; Bolon, D. 1996;

Bondarouk, T. and Ruel, H. 2009). In general, the concluding findings –similar to what this study found- stem around the idea that the more discomfort and ability to choose an employee feels at work, the more chances of him or her looking for other work opportunities at other organizations (Duraisingam, V., Pidd, K., & Roche, A. 2009). It is very important to note that we addressed turnover intentions in this study which is completely different than the actual behavior of leaving work and going to somewhere else where an employee feels more empowered and finds better compatibility as part of the new workplace team (Tett, R. and Meyer, J. 1993).

Implications

This study adds to the existing literature on technology adoption. It integrates the diffusion of innovation theory with a cluster of independent variables that may also be associated with adoption. Technology Adoption in this study was captured as participants' intention to use VCS during their work. The statistically validated model constructs derived from the analysis showed significant influence on the diffusion of innovation by the following independent variables: compatibility, observability, and relative advantage.

This study serves as a preliminary platform for future research exploring technology adoption in depth. It explored the dependency relationship between several variables, along with the moderating influence of the current COVID-19 pandemic. COVID-19 will surely not be the last surprise impacting businesses and technology use; and this study provides a useful initial model both for measuring technology adoption and the impact of unexpected events on business.

This study sheds light on the variables most affecting the successful adoption of technology – in this case, virtual conferencing software. The findings indicate that the main factors of diffusion theory affecting successful technology adoption are relative advantage,

compatibility, and observability. Trialability, on the other hand, was of less significance compared to the other factors. This can be due to the maturity of these automation and microchip revolution as a whole. These technologies are no longer cutting-edge. Accordingly, this study seems to indicate that other factors independent of technology can be significant in technology adoption. This study showed which factors are most significant, and companies are well advised to address these rather than other factors with less statistically significant impact. In addition, there are some psycho-sociological factors that play significant roles in successful technology adoption, such as employees' health concerns for family members. Certainly, this is the case under the present COVID-19 environment.

The most vital part of this research is to empirically study the technology adoption models in the developed world. This study agrees to some extent with Ullah, Al-Rahmi, Alzahrani, Alfarraj, and Alblehai (2021) who also concluded that compatibility and relative advantage have significant impact on technology adoption. The findings also provide some useful insights for both technology developers and marketers. To promote new technology, technology developers are recommended to re-evaluate their technology in relation to external factors and show their potential customers that they successfully address these factors in an efficient and effective way. Technology adoption and implementation does not occur in a vacuum, after all. Developers of a technology have to acknowledge and address end-user feelings and external factors affecting those needs and wants, as these invisible factors may make or break technology and eventually its successful adoption – and sales- within its target market.

This certainly applies to virtual conferencing software (VCS). Indeed, recent technology developments in several VCS products, including ZOOM, Google Meet, Team and other software have been essential foundations for the continuation of current education under

COVID-19. They offer the only effective means for imparting information on a mass scale, especially under conditions where face-to-face interactions carry great risk. The increasing use of VCS has accelerated further studies regarding technology adoption and how some companies have excelled in today's quarantined environment.

The present study shows that the factor of relative advantage, which is a measurement of the extent which an innovation is perceived as better than the idea it replaces, is an important factor in facilitating technology adoption. It is the factor that shows the time and resource cost to be worthwhile – both to the employer and the employee.

Compatibility, or the relative ease of fit between an innovation and current values and practices, goes a long way to explain the success of VCS applications. It is a small step from the almost universal mobile cell phone use prevalent in today's generations to the adoption of VCS applications, especially under the impetus of COVID-19 and its quarantine requirements. What might have been revolutionary thirty years ago, and therefore more difficult to implement, is merely incremental today. The customs and practices are already prevalent, due to both the internet and mobile phone use. From past adopters and past experiences as it is seen that VCS applications are seen to be compatible with the present generation lifestyle, especially during COVID-19. Video call use is already common and widespread. VCS applications are easily adopted because users are already familiar with and use similar programs and software extensively.

There is also an explanation for observability as a significant factor. Observability was readily apparent as people started to use many software programs during COVID-19, and lecturers and teachers started to use ZOOM and other VCS platforms in place of in-person classes. Technology adoption must look attractive, convenient, and user-friendly to be perceived

as successful to its targeted population. Innovations which show themselves advantageously most clearly and easily are most likely to take root and become established. Innovations whose impact can be simply communicated tend to be more successful than those which are more complicated or less-easily observed or understood. This also appears to indicate that successful technology adoption and progress are best when they are incremental processes, and where they build upon and amplify existing, already-familiar applications.

This study found that trialability was a bit less of a significant factor. Trialability is the measurement of the extent a technology or innovation can be implemented on a limited, experimental basis before universal adoption. It appears this is not applicable to VCS applications because of the near-universality of previous, similar technologies, and user familiarity with those. VCS applications cost little to implement, and indeed are often free on the scales used. It appears that trialability can be dispensed with, if some familiarity is already there, convenience is not a major issue, and the price is right.

Such findings agree with many previous studies. Al-Jabri and Sohail (2012) found that compatibility, relative advantage, and observability positively affected technology adoption. Trialability, on the other hand, was insignificant. Furthermore, Min, et al. (2019) found that compatibility, relative advantage, observability and social factors influence technology adoption. To some extent Min, et al. (2019) supports this study's findings.

This study found compatibility, relative advantage, observability, and health concern for family members were the significant factors, with the anomalous COVID-19 environment as a moderating factor. Indeed, under present circumstances, COVID-19 is not merely a health issue but a technology driver and large-scale, worldwide change agent for people, the economy and society as a whole. There is an old political aphorism that one should never let a crisis go to

waste. This study occurs at a time when we can see and examine the effects of technological change and adoption under unique, global stress.

It is stated by Qiao, Zhu, Guo, Sun, and Qin, (2021) that the COVID-19 outbreak, along with its attendant mandatory social isolation, are new factors impacting technology adoption. Qiao, et al. (2021) asserted that social isolation offered more opportunities for the use of technology. The present study does bear their findings out. Loneliness has little impact on technology adoption. This may be because of the nature of the technology under study and how it relates to COVID-19. VCS applications are specifically employed as a workaround for the current quarantine situation.

Nonetheless, this study indicates there are useful points that may apply universally – whether in the current COVID crisis or not. They apply not only for technologies addressing specific set of crisis circumstances, such as VCS software and COVID-19, but to non-crisis technology adoption.

The data shows that compatibility, relative advantage and observability appear to be important factors contributing to successful technology adoption, measured as the respondents' intentions to use VCS at their workplaces, and indeed to any application of the diffusion of innovation theory and model. Trialability, on the other hand, did not appear to have any appreciable impact. This may be because virtual conferencing software represents an incremental rather than a revolutionary change in technology and methodology. Mobile phone systems and the internet are more or less mature technologies. A few decades ago, when the technologies were newer, trialability might have been a far more important factor. It may be a far more important factor for future technologies and practices representing more revolutionary change. In addition, in this study, 73.50% of respondents were between 25-45 years old and they were

aware enough and savvy enough when it comes to technology use; hence, they did not see trialability as effective factor on technology adoption.

Health concern for oneself and/or one's family have a fluctuating significant impact in this study, but this is undoubtedly because of the current COVID-19 epidemic and all the uncertainty that surrounds its origin and developments. COVID-19 raised the stakes and made adapting to the new reality imposed by the pandemic and working around it more urgent. This may be because COVID-19 quarantine restrictions rarely apply to family members or those with whom one is in continuous contact.

Job security concerns did not affect technology adoption in this study. Job security appears to be more linked to people's perceptions of their present employment and its long-term viability. Individuals remain insecure when their current place of employment cannot ensure employment continuity in the future; hence, it may be assumed that whether a job is perceived as secure or not is more influenced by future employment sustainability (Maryatmia, A. 2020). The population of this study consists more of highly educated people and for them the use of technology is common and widespread so the finding of the present study can be justified using this line of thinking. However, some studies have found opposite results and they were able to support the hypothesis that Job security is related to technology adoption. The following studies, for example, Clohessy, Acton, and Rogers (2019), Clohessy and Acton (2019), and Kumar Bhardwaj, Garg, and Gajpal (2021) have found significant relationship between job security and technology adoption

Loneliness as a variable did not significantly affect technology adoption. Indeed, workplace loneliness is frequently confused with social isolation. Social isolation is defined as the complete absence of contact with one's close social context and community, as well as the

avoidance of touch with others. It causes emotional and/or psychological problems in the individual. Although work is important for social as well as material reasons, a person who is lonely at work does not necessarily isolate themselves from the social environment.

The current finding did not agree with some previous study. For instance, Amundsen (2021) indicated that isolation and loneliness among older adults significantly affected technology use explaining that due to the Covid-19 pandemic which has required older adults to socially as well as physically distance from friends, communities, health services, and neighbors. Other studies such as Jimenez-Sotomayor, Gomez-Moreno, and Soto-Perez-de-Celis (2020) And Verity, Okell, and Dorigatti (2020) justified that by saying isolation significantly may also be attributed to stringent containment strategies to protecting family members against COVID-19 infection.

Technology adoption significantly affected job performance and job satisfaction. This is true as the use of VCS platforms, including ZOOM, can enhance job performance and job satisfaction. In many cases, only the use of VCS platforms preserved many job functions, such as teaching and training. As for turnover intention, it also has a significant relationship with technology adoption.

Though technology adoption positively affects job performance and job satisfaction, this study identified a significant relationship between turnover intention and technology adoption within the environment of the crisis “COVID-19”. This may be due to the profound effect COVID-19 has had on the rules, procedures, and regulations of many firms and other institutions. Wages were cut as business activity was curtailed. COVID-19, because of its life-changing impact, has pushed employees to stick to their current place and they try to perform as much as they can in order to keep their jobs.

The study findings indicate that respondents of the current study are technology savvy, since they are relatively young and the majority has higher education in their portfolio. They have family and children as well as they consider the well-being of their families. Indeed, the pandemic is growing and is taking a harsher toll and a stronger effect on communities, cities, and countries around the globe and the current employees concern is to keep their current job not to look for other jobs and to help their communities and countries to stand strong again and improve the wellbeing of people living within.

Recommendations

The current study strengthened and refined the existing theoretical perspective of predicting the relationship between the development of technology and its adoption of users when starting and/or using new technologies and innovations. COVID-19 has highlighted the importance of non-technological factors in successful technology adoption, including medical and socio-psychological factors. Future studies can usefully address these rather than the technology per se when evaluating the impact of technology and innovation; in a maturing industry such as the microchip industry and its attendant innovations and developments over the past fifty years, these are the factors that make-or-break successful technology adoption. It is to be noted that in newer, more groundbreaking technologies or technological fields, the technology per se and associated issues may once again move to the forefront as factors in the successful adoption thereof.

The onset of COVID-19 also points the way to another relevant and useful area of research - that of crisis management. COVID-19 will almost certainly not be the last global issue we have had to contend with. Additionally, problems associated to network security or vulnerability are other fields that prove useful to examine due to their relevance to firms abilities

to sustain their activities during difficult times; crisis tends to exacerbate those risks. This present research provides a solid beginning groundwork in refining Innovation Diffusion Theory, crisis as a technology and innovation driver, technology as a crisis management tool, and the interaction of the human elements with technology, crisis and change. In addition, future studies can investigate whether there is a direct relationship between the COVID-19 pandemic, technology adoption, turnover intention, and job performance.

REFERENCES

- Achieng, D. O. and Jagero, J. A. (2014). Management Support in Adoption of Computer Integrated Model in Financial Forecasting. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, Vol. 4(2), pp. 170-179.
- Ahmad, K. Z., Aliman, N. K., Mahdzan, N. S. A., Kamarudin, M. A., Peng, C. Y., & Nandita, T. (2020). Emotional stability and perception of job security in the services sector in Malaysia. *Malaysian Management Journal*, 8(2), 1-15.
- Akin, A. (2010). Self-compassion and Loneliness. *International Online Journal of Educational Sciences*. 2. 702-718.
- Alam, G. M., Ismail, K. E. H. L., & Mishra, P. K. (2010). Do developing countries need Education laws to manage its system or are ethics and a market-driven approach sufficient? *African Journal of Business Management*, 4(15), 3406-3416.
- Al Arkoubi, K., Bishop, J., and Scott, D. (2011). An Investigation of the Determinants of Turnover Intention among Drivers. *Loyola University, Chicago* 5 (2), 470-480, 2011.
- Al-Dwairi, M. R., Al-Shraideh, L. M., & Abu-Shanab, E. A. (2018). Mobile commerce adoption from consumers perspective: the case of Jordan. *International Journal of Information Systems and Social Change (IJISSC)*, 9(2), 12-27.
- Alfadda, H. A., & Mahdi, H. S. (2021). Measuring Students' Use of Zoom Application in Language Course Based on the Technology Acceptance Model (TAM). *Journal of Psycholinguistic Research*, 0123456789. <https://doi.org/10.1007/s10936-020-09752-1>
- Al-Gahtani, S.S., (2011). Modeling the electronic transactions acceptance using an extended technology acceptance model. *Applied computing and informatics*, 9(1), pp.47-77.
- Ali, W., Raheem, A., Nawaz, A., & Imamuddin, K. (2014). Impact of stress on job performance: An empirical study of the employees of Private Sector Universities of Karachi, Pakistan. *International Science Congress Association*, Vol. 3(7), pp. 14-17.
- Alias, N., Rohmanan, N., Ismail, S., Koe, W., & Othman, R. (2018). Factors Influencing Turnover Intention in a Malaysian Manufacturing Company. *KnE Social Sciences*, 3, 771-787.
- Al-Jabri, I. M., & Sohail, M. S. (2012). Mobile banking adoption: Application of diffusion of innovation theory. *Journal of Electronic Commerce Research*, 13(4), 379-391.
- Al-Jazeera Television Network (2020). *Corona was a blessing, but what will happen when the vaccine spreads?* Accessed (5/1/2021) from

- <https://www.aljazeera.net/news/scienceandtechnology/2020/12/11/%D9%83%D8%A7%D9%86-%D8%A7%D9%84%D9%88%D8%A8%D8%A7%D8%A1-%D8%A8%D9%85%D8%AB%D8%A7%D8%A8%D8%A9%D9%86%D8%B9%D9%85%D8%A9-%D9%84%D8%B2%D9%88%D9%88%D9%85%D8%8C-%D9%84%D9%83%D9%86-%D9%85%D8%A7%D8%B0%D8%A7>
- Allen, N. J., & Meyer, J. P. (1990a). The measurement and antecedents of affective, continuance and normative commitment to the organization. *Journal of occupational psychology*, 63(1), 1-18. <http://dx.doi.org/10.1111/j.2044-8325.1990.tb00506.x>
- Allen, N. J., & Meyer, J. P. (1990b). Organizational socialization tactics: A longitudinal analysis of links to newcomers' commitment and role orientation. *Academy of Management Journal*, 33(4), 847-858. <http://dx.doi.org/10.2307/256294>
- Allen, N. J., & Meyer, J. P. (1996). Affective, continuance, and normative commitment to the organization: An examination of construct validity. *Journal of vocational behavior*, 49(3), 252-276. <http://dx.doi.org/10.1006/jvbe.1996.0043>
- Allison, P. (2012). *When can you safely ignore multicollinearity?* September 10, 2018 retrieved at <http://www.statisticalhorizons.com/multicollinearity>
- Al-Rubaish, A., Rahim, S., Abumadini, M., & Wosornu, L. (2011). Academic Job Satisfaction Questionnaire: Construction and Validation in Saudi Arabia. *Journal of family & community medicine*, 18(1), 1-7.
- Amundsen, D. (2021). Digital Technologies as a Panacea for Social Isolation and Loneliness among Older Adults: An Intervention Model for Flourishing and Wellbeing: Visual Technologies as a Panacea for Social Isolation. *Video Journal of Education and Pedagogy*, 5(1), 1-14.
- Archibald, M., Ambagtsheer, R., Casey, M., & Lawless, M. (2019). Using Zoom video-conferencing for qualitative data collection: perceptions and experiences of researchers and participants. *International Journal of Qualitative Methods*, 18, 1609406919874596.
- Atkinson, N. L. (2007). Developing a questionnaire to measure perceived attributes of eHealth innovations. *American Journal of Health Behavior*, 31(6), 612-621.
- Awan, W. A. and Salam, A. (2014). Identifying the relationship between job insecurity and employee performance—An evidence from private colleges in Larkana, Pakistan. *Beykent University Journal of Social Sciences*, Vol. 7(1), pp. 23-30.
- Awang, Z. H. (2010). *Research methodology for business & social sciences*. University Publication Centre (UPENA). Malaysia.
- Bagozzi, R. P. (2007). The legacy of the technology acceptance model and a proposal for a paradigm shift. *Journal of the Association for Information Systems*, Vol. 8(4), pp. 244-254.
- Bamber, E.M., Watson, R.T. and Hill, M.C., (1996). The effects of group support system technology on audit group decision making. *Auditing*, 15, pp.122-134.
- Bondarouk, T., & Ruël, H. (2009). Electronic Human Resource Management: Challenges in the

- digital era. *The International Journal of Human Resource Management*, 20(3), 505-514.
<http://dx.doi.org/10.1080/09585190802707235>
- Baskaran, S., Lay, H., Ming, B., and Mahadi, N. (2020). Technology Adoption and Employee's Job Performance: An Empirical Investigation. *International Journal of Academic Research in Economics and Management Sciences*. 9. 10.6007/IJAREMS/v9-i1/7443.
- Benamati, J. & Lederer, A. L. (2001). Coping with rapid changes in IT. *Communications of the ACM*, Vol. 44(8), pp. 83-88.
- Bennett, J. A. (2000). Focus on research methods mediator and moderator variables in nursing research : conceptual and statistical differences. *Research in Nursing & Health*, 23(5), 415-420.
- Blackhurst J., Dunn K.S., and Craighead C.W. (2011). An empirically derived framework of global supply resiliency. *Journal of Business Logistics*. 32(4),374-391.
- Bolon, D. S. (1996). Organizational citizenship behavior among hospital employees: A multidimensional analysis involving job satisfaction and organizational commitment. *Hospital & Health Services Administration*, 42(2), 221-241.
- Bracha HS. (2004). Freeze, flight, fight, fright, faint: adaptationist perspectives on the acute stress response spectrum. *CNS Spectrums*, 9 (9), 679-85.
- Brandyberry, A. (2003). Determinants of adoption for organizational innovations approaching saturation, *European Journal of Innovation Management*, vol. 6, no. 3, pp. 150-158.
- Brown, T. Collins, B. Maleka, D. Morrison, N. Muganda, and H. Speight (2007) "Global diffusion of the internet xi: internet diffusion and its determinants in South Africa: the first decade of democracy (1994-2004) and beyond," *Communications of the Association for Information Systems*, vol. 19, no. 1, pp. 142-182, 2007.
- Brown, S. A., Massey, A. P., Montoya-Weiss, M. M., & Burkman, J. R. (2002). Do I really have to? User acceptance of mandated technology. *European journal of information systems*, 11(4), 283-295. <http://dx.doi.org/10.1057/palgrave.ejis.3000438>
- Butler, D.L. & Sellbom, M. (2002). Barriers to Adopting Technology for Teaching and Learning. *Educause Quarterly*, 22-28.
- Caryannis, E. & Eric T. (2006). Innovation diffusion and technology acceptance: The case of PKI technology. *Technovation*, (26), 847-855.
- Chuttur, M.Y., (2009). Overview of the technology acceptance model: Origins, developments and future directions. *Working Papers on Information Systems*, 9(37), pp.9-37.
- Clohessy, T., & Acton, T. (2019). Investigating the influence of organizational factors on blockchain adoption: An innovation theory perspective. *Industrial Management & Data Systems*.
- Clohessy, T., Acton, T., & Rogers, N. (2019). Blockchain adoption: technological, organisational and environmental considerations. In *Business transformation through blockchain* (pp. 47-76). Palgrave Macmillan, Cham.

- Cloud Adoption Statistics (2020) *Survey: Cloud Adoption Statistics*, global result retrieved from: <https://mariadb.com/survey/cloud-global/>
- Cohen, J., & Cohen, P. (1983). *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences*. Hillsdale, NJ: Erlbaum.
- Cosic, K., Popovic, S., Sarlija, M., & Kesedzic, I. (2020). Impact of human disasters and covid-19 pandemic on mental health: potential of digital psychiatry. *Psychiatria Danubina*, 32(1), 25-31.
- Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative* (4th ed.). New Jersey: Upper Saddle River.
- Creswell, J. W. (2014). *Research design qualitative, quantitative, and mixed methods approaches* (4th ed.). New Jersey: Upper Saddle River.
- Dauda, Y. A. and Akingbade, W. A. (2011). Technology innovation and Nigeria banks performance: The assessment of employee's and customer's responses. *American Journal of Social and Management Sciences*, Vol. 2(3), pp. 329-340.
- Davis F., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Journal of Management Science*, 35(8), pp 982-1003.
- De Bustillo, R., & De Pedraza, P. (2010). Determinants of Job Insecurity in 5 European Countries. *European Journal of Industrial Relations*, 16, 5-20.
- DeVellis, R. F. (2016). *Scale development: Theory and applications*. Sage Publications.
- Deng, W., Feng, Z., Yao, X., Yang, T., Jiang, J., Wang, B., Lin, L., Zhong, W., & Xia, O. (2021). Occupational identity, job satisfaction and their effects on turnover intention among Chinese Pediatricians: a cross-sectional study. *BMC Health Services Research*, 21(1), 1–12. <https://doi.org/10.1186/s12913-020-05991-z>
- DeSanctis, G. (1983). Expectancy theory as an explanation of voluntary use of a decision support system. *Psychological Reports*, 52, 247-261.
- Dornyei, Z. (2007). *Research methods in applied linguistics: Quantitative, qualitative, and mixed methodologies*. Oxford University Press. England
- Dowling, C. (2009), "Appropriate audit support system use: the influence of auditor, audit team, and firm factors", *The Accounting Review*, 84 (3), pp. 771-810.
- Duraisingam, V., Pidd, K., & Roche, A. M. (2009). The impact of work stress and job satisfaction on turnover intentions: A study of Australian specialist alcohol and other drug workers. *Drugs: Education, Prevention, and Policy*, 16(3), 217-231.
- Ebrahim S.H., Ahmed Q.A., Gozzer E., Schlagenhauf P., Memish Z.A. (2020). Covid-19 and community mitigation strategies in a pandemic. *BMJ*, 368, doi: 10.1136/bmj.m1066.
- Fakoya, O. A., McCorry, N. K., & Donnelly, M. (2020). Loneliness and social isolation interventions for older adults: a scoping review of reviews. *BMC Public Health*, 20(1), 129. <https://doi.org/10.1186/s12889-020-8251-6>

- Field, A. (2009). *Discovering Statistics Using SPSS: Introducing Statistical Method* (3rd edition). Sage Publications.
- Fishbein, M. & Ajzen, I. (1975). Belief, attitude, intention, and behavior: An introduction to theory and research. Addison-Wesley, Reading, MA.
- Fittkau, F., Krause, A., & Hasselbring, W. (2015). Exploring software cities in virtual reality. In *2015 IEEE 3rd working conference on software visualization (vissoft)* (pp. 130-134). IEEE.
- Gibb F., Buchanan S. (2006) A framework for business continuity management. *International Journal of Information Management*, 26 (2),128–141.
- Grandon, E.E., Nasco, S.A. and Mykytyn Jr., P.P. (2011). Comparing theories to explain e-commerce adoption. *Journal of Business Research*, 64(3), pp.292-298.
- Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P., & Kyriakidou, O. (2004). Diffusion of innovations in service organizations: systematic review and recommendations. *The Milbank Quarterly*, 82(4), 581-629.
- Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Sage Publications.UK
- Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. (2010). *Multivariate Data Analysis: International Version*. Pearson, New Jersey, U.S.A.
- Hakim, A.A, Kellish, A.S., & Atabek, U. (2020). Implications for the use of telehealth in surgical patients during the COVID-19 pandemic. *American Journal of Surgeon*, 220 (1): 48-49. <https://doi.org/10.1016/j.amjsurg.2020.04.026>
- Han, S., John I.S., Kim N.E. (2009). New nurse turnover intention and influencing factors. *Journal of the Korean Academy of Nursing*. 2009; 39(6).
- Harasis, A. A., Qureshi, M. I., & Rasli, A. (2018). Development of research continuous usage intention of e-commerce. A systematic review of literature from 2009 to 2015. *International Journal of Engineering & Technology*, 7(2.29), 73-78.
- Henseler, J., & Sarstedt, M. (2013). Goodness-of-Fit Indices for Partial Least Squares Path Modeling, *Computational Statistics*, 28(2): 565-580.
- Hill, T., Smith, N. D., & Mann, M. F. (1987). Role of efficacy expectations in predicting the decision to use advanced technologies: A case of computers. *Journal of Applied Psychology*, 72(2), 307-318.
- Hughes L., Dwivendi Y.K., Mishra S.K., Rana N.P., Raghavan V., Akella V. (2019) Blockchain research, practice and policy: Applications, benefits, limitations, emerging research themes and research agenda. *International Journal of Information Management*. 49,114–129.
- Jarynowski, A., Wójta-Kempa, M., Płatek, D., & Czopek, K. (2020). Attempt to Understand Public-Health Relevant Social Dimensions of Covid-19 Outbreak in Poland. *Society Register*, 4(3), 7-44. <https://doi.org/10.14746/sr.2020.4.3.01>

- Joo, Y., & Kim, Y. (2004). Determinants of corporate adoption of e-marketplace: an innovation theory perspective. *Journal of Purchasing and Supply Management*, 10(2), 89-101.
- Kang, J. and Park, S., 2014. Factors influencing electronic commerce adoption in developing countries: The case of Tanzania. *South African Journal of Business Management*, 45(2), pp.83-96.
- Kaymaz, K., Eroglu, U., & Sayilar, Y. (2014). Effect of Loneliness at Work on the Employees' Intention to Leave. *ISGUC, The Journal of Industrial Relations and Human Resources*, 16(1), 38–53. <https://doi.org/10.4026/1303-2860.2014.0241>
- Khan, F (2018) Understanding the impact of technology in audit and finance, *ICAEW Middle East* 1-14.
- Kim, T.G., Lee, J.H. & Law, R., (2008). An empirical examination of the acceptance behavior of hotel front office systems: An extended technology acceptance model. *Tourism management*, 29(3), pp.500-513.
- Kock, N. (2021). *WarpPLS User Manual: Version 7.0*. Laredo, TX: ScriptWarp Systems.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational psychology measurement*. 12(1).
- Kumar Bhardwaj, A., Garg, A., & Gajpal, Y. (2021). Determinants of Blockchain Technology Adoption in Supply Chains by Small and Medium Enterprises (SMEs) in India. *Mathematical Problems in Engineering*.
- Kurnia, S., Choudrie, J., Mahbubur, R.M. and Alzougool, B (2015). E-commerce technology adoption: A Malaysian grocery SME retail sector study. *Journal of Business Research*, 68(9), pp.1906-1918.
- Lane, J.P., Flagg, J.L. (2010). Translating three states of knowledge—discovery, invention, and innovation. *Implementation Sciences* 5, 9.
- Lawlor, K. & Buckley, A. (2007). *Proceedings of the 16th European Conference on Research Methodology for Business and Management Studies*. Dublin, Ireland: Dublin Institute of Technology.
- Li, J., Zhan, D., Zhou, Y., & Gao, X. (2021). Loneliness and problematic mobile phone use among adolescents during the COVID-19 pandemic: The Roles of Escape Motivation and Self-Control, *Addictive Behaviors*, 118.
- Liao, C., Palvia, P. & Chen, J.L., (2009). Information technology adoption behavior life cycle: Toward a Technology Continuance Theory (TCT). *International Journal of Information Management*, 29(4), pp.309-320.
- Lin, C. (2008). Determinants of the adoption of technological innovations by logistics service providers in China, *International Journal of Technology Management and Sustainable Development*, vol. 7, no. 1, pp. 19-38.
- Lin, H. and Lin, S. (2008). Determinants of e-business diffusion, *Technovation*, vol. 28, no. 3, pp. 135-145.

- Long, N., & Khoi, B. (2020). The Intention to Study Using Zoom During the SARSCoV-2 Pandemic. *International Journal of Emerging Technologies in Learning*, 15(21), 195–216. <https://doi.org/10.3991/ijet.v15i21.16777>
- Lopez-Nicolas, C., Molina-Castillo, F. J., & Bouwman, H. (2008). An assessment of advanced mobile services acceptance: Contributions from TAM and diffusion theory models. *Information & Management*, 45(6), 359-364.
- Lutfi, A. A. (2017). *Antecedents and impact of AIS usage amongst Jordanian SMEs: moderating effects of environmental uncertainty and firm size* (Doctoral dissertation, Universiti Utara Malaysia).
- Mairura, K.O. (2016). Relative Advantage as a Determinant of Technology Adoption among Automobile Mechanics in Micro and Small Enterprises in Kenya. *IOSR Journal Of Humanities And Social Science (IOSR-JHSS)*, Volume 21, Issue 1, PP 86-92.
- Manzoor, F., Wei, L., Nurunnabi, M., Subhan, Q. A., Shah, S. I. A., & Fallatah, S. (2019). The impact of transformational leadership on job performance and CSR as mediator in SMEs. *Sustainability*, 11(2), 436.
- March JG, Simon HA. (1958). Organizations. Rochester: Social Science Electronic Publishing; 1958. p. 105–32. <https://doi.org/10.2307/2390654>.
- Maryatmi, A. S. (2020). Job Satisfaction as a Mediator of Career Development and Job Security for Well-Being. *International Journal of Innovation, Creativity and Change.*, 12(3), 271-282.
- Mason, M. (2010). Sample size and saturation in PhD studies using qualitative interviews. In *Forum qualitative Sozialforschung/Forum: qualitative social research*, 11 (3),1-19.
- Mata, F.J. and Quesada, A. (2014). Web 2.0, social networks and e-commerce as marketing tools. *Journal of theoretical and applied electronic commerce research*, 9(1), pp.56-69.
- McEwen, B.S. (2007). Physiology and neurobiology of stress and adaptation: central role of the brain. *Physiology Rev* 87:873–904
- Metcalf, A.Y., Stoller, J., Habermann, M., & Fry, T. (2015). Respiratory Therapist Job Perceptions: The Impact of Protocol Use. *Respiratory care Journal*, 60, 11.
- Min, S., So, K. K. F., & Jeong, M. (2019). Consumer adoption of the Uber mobile application: Insights from diffusion of innovation theory and technology acceptance model. *Journal of Travel & Tourism Marketing*, 36(7), 770-783.
- Moazzami B, Razavi-Khorasani N, Moghadam AD, Farokhi E, & Rezaei, N. (2020). COVID-19 and telemedicine: immediate action required for maintaining healthcare providers well-being. *Journal of Clinical Research*, Vol. 126:1–2. <https://doi.org/10.1016/j.jcv.2020.104345>
- Mobley W.H. (1977). Intermediate linkages in the relationship between job satisfaction and employee turnover. *Journal of Applied Psychology*. 1977; 62(2): 237– 240. <https://doi.org/10.1037/0021-9 9010.62.2.237>.

- Moqbel, M.A., & Nah, F. (2017). Enterprise Social Media Use and Impact on Performance: The Role of Workplace Integration and Positive Emotions. *AIS Trans Human Computer Interaction*, 9, 1.
- Nguyen, H. V., Tran, H. X., Van Huy, L., Nguyen, X. N., Do, M. T., & Nguyen, N. (2020). Online Book Shopping in Vietnam: The Impact of the COVID-19 Pandemic Situation. *Publishing Research Quarterly*, 36, 437-445.
- Nguyen, L., Drew, D., Graham, M., Joshi, A., Guo, C., Ma, W., Mehta, R., Warner, E., Sikavi, D., Han Lo, C., Kwon, S., Song, M., Mucci, L., Stampfer, M., Willett, W., Eliassen, A., Hart, J., Chavarro, J., Rich-Edwards, J., Davies, R., Capdevila, J., Lee, K., Lochlainn, M., Varsavsky, T., Sudre, C., Cardoso, M., Wolf, J., Spector, T., Ourselin, S., Steves, C., Chan, A., Albert, C., Andreotti, G., Bala, B., Balasubramanian, B., Beane-Freeman, L., Brownstein, J., Bruinsma, F., Coresh, J., Costa, R., Cowan, A., Deka, A., Deming-Halverson, S., Martinez, M., Ernst, M., Figueiredo, J., Fortuna, P., Franks, P., Freeman, L., Christopher Gardner, C., Ghobrial, I., Haiman, C., Hall, J., Kang, J., Kirpach, B., Koenen, K., Kubzansky, L., Lacey, J., Marchand, L., Lin, X., Lutsey, P., Marinac, C., Martinez, M., Milne, R., Murray, A., Nash, D., Palmer, J., Patel, A., Pierce, E., Robertson, M., Rosenberg, L., Sandler, D., Schurman, S., Sewalk, K., Sharma, S., Sidey-Gibbons, C., Slevin, L., Smoller, J., Steves, C., Tiirikainen, M., Weiss, S., Wilkens, L., & Zhang, F. (2020). Risk of COVID-19 Among Front-Line Health-Care Workers And the General Community: A *Prospective Cohort Study*, 5, 9,475-483.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York, NY: McGraw-Hill.
- O'Brien, R. M. (2007). A caution regarding rules of thumb for variation inflation factors. *Quality and Quantity*, 41(5), 673-690.
- Okerefor K, Adebola O, & Djehaiche R. (2020). Exploring the potentials of telemedicine and other non-contact electronic health technologies in controlling the spread of the novel coronavirus disease (COVID-19). *IJITE*, 8(4):1–13.
- Otoo, A.A.A., Li, Z., Acheampong, P. & Otoo, C.O.A. (2017). Electronic Commerce in International Trade in Emerging Economies: A Qualitative Review of Challenges and Opportunities. *Australian Journal Of Economics And Management Sciences*, 7(5).
- Pal, S.K. (2008). *21st Century Information Technology Revolution*. Retrieved from <https://ubiquity.acm.org/article.cfm?id=1399619>
- Park, N., Roman, R., Lee, S. & Chung, J.E., (2009). User acceptance of a digital library system in developing countries: An application of the Technology Acceptance Model. *International journal of information management*, 29(3), pp.196-209.
- Parvari, A. & Anvari, R. & Abu Mansor, N. & Jafarpour, M. & Parvari, M. (2015). Technology Acceptance Model, Organizational Commitment and Turnover Intention: A Conceptual Framework. *Review of European Studies*. 7. 146. 10.5539/res.v7n12p146.
- Perez, M., (2008), Turnover intent. *Diploma thesis*, University of Zurich.
- Phillips, J. D. (1990). The price tag on turnover. *Personnel Journal*, 69(12), 58-61.

- Qirim, N. (2005). An empirical investigation of an e-commerce adoption-capability model in small businesses in New Zealand. *Electronic Markets*, vol. 15, no. 4, pp. 418-437.
- Rahayu, R. & Day, J. (2015). Determinant factors of e-commerce adoption by SMEs in developing country: evidence from Indonesia. *Procedia-Social and Behavioral Sciences*, 195, pp.142-150.
- Ramos-Villagrasa, P.J., Barrada, J., Fernández-Del-Río, E., & Koopmans, L. (2019). Assessing Job Performance Using Brief Self-Report Scales: The Case of The Individual Work Performance questionnaire. *Revista de Psicología del Trabajo y de las Organizaciones*, 35, 195-205.
- Ratten, V. (2015). International consumer attitudes toward cloud computing: A social cognitive theory and technology acceptance model perspective. *Thunderbird International Business Review*, 57(3), 217–228.
- Rogers, E. M. (1995). *Diffusion of Innovations* (4th ed.). New York: The Free Press.
- Rogers, E. M. (2002). Diffusion of preventive innovations. *Addictive behaviors*, 27(6), 989-993.
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York, NY: The Free Press.
- Roodt, G. (2004). *Turnover Intentions*. Sage Publication.
- Roy, D., Tripathy, S., Kar, S. K., Sharma, N., Verma, S. K., & Kaushal, V. (2020). Study of knowledge, attitude, anxiety & perceived mental healthcare need in Indian population during COVID-19 pandemic. *Asian journal of psychiatry*, 51, 102083.
<https://doi.org/10.1016/j.ajp.2020.102083>
- Sakaran, U. (2003). *Methods for Business: Skill Building Approach*. Pearson Publication Inc.
- Sarstedt, M. (2017). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM) (<http://www.pls-sem.com>), 2nd Ed., Sage: Thousand Oaks.
- Scanlan, J., & Still, M. (2019). Relationships Between Burnout, Turnover Intention, Job Satisfaction, Job Demands and Job Resources For Mental Health Personnel in an Australian Mental Health Service. *BMC Health Services Research*, 19.
- Scanlan, Newton J, Meredith P, & Poulsen AA. (2013). Enhancing retention of occupational therapists working in mental health: Relationships between wellbeing at work and turnover intention. *Australian Occupational Therapists Journal*, 2013; 60(6): 395–403.
- Schulz, R., Eden, J.(2016). *Family Caregiving Roles and Impacts*. Open House Publication.
- Seeger, M. W., Sellnow, T. L., & Ulmer, R. R. (2003). *Communication and organizational crisis*. Greenwood Publishing Group.
- Sekaran, U. and Bougie, R. (2010). *Research Methods for Business: A skill Building Approach*. West Sussex, United Kingdom: WILEY.
- Senyo P.K., Liu K., & Effah J. (2019). Digital business ecosystem: Literature review and a framework for future research. *International Journal of Information Management*.47,52–64.

- Shader K., Broome M.E., Broome C.D., West M.E., & Nash M. (2001). Factors influencing satisfaction and anticipated turnover for nurses in an academic medical center. *Journal of Nursing Administration*, 2001; 31: 210-216.
- Shah, S. G. S., Nogueras, D., van Woerden, H. C., & Kiparoglou, V. (2019). The effectiveness of digital technology interventions to reduce loneliness in adult people: A protocol for a systematic review and meta-analysis. *MedRxiv*. <https://doi.org/10.1101/19000414>
- Shultz, J., Cooper, J., Baingana, F., Oquendo, M., Espinel, Z., Althouse, B., ...& Rechkemmer, A. (2016). The role of fear-related behaviors in the 2013–2016 West Africa Ebola virus disease outbreak. *Current psychiatry reports*, 18(11), 1-14.
- Smith, P. C., Kendall, L. M., & Hulin, C. L. (1969). *The Measurement of Satisfaction in Work and Retirement: A Strategy for the Study of Attitudes*. Rand McNally.
- Spector, P. E. (1985). Measurement of Human Service Staff Satisfaction: Development of the Job Satisfaction Survey. *American Journal of Community Psychology*, 13(6), 693–713.
- Statista (2017). *Number of internet users worldwide from 2005 to 2017 (in millions)*. <https://www.statista.com/statistics/273018/number-of-internet-users-worldwide/>
- Steimer T. (2002). The biology of fear and anxiety-related behaviors. *Dialogues in Clinical Neuroscience*, 4(3), 231–49.
- Storey, D. J. (2016). *Understanding the small business sector*. Routledge.
- Straub, E. (2009). Understanding technology adoption: Theory and future directions for informal learning. *Review of Educational Research*. Vol. 79 no. 2, 625-649.
- Strusani, D. & Hounghonon, G. (2020). The Impact of COVID-19 on Disruptive Technology Adoption in Emerging Markets, *International Finance Corporation World Bank Group*, 1-17.
- Sullivan, J. R. (2012). Skype: An appropriate method of data collection for qualitative interviews? *The Hilltop Review*, 6, 54–60.
- Talukder, M. (2012). Factors affecting the adoption of technological innovation by individual employees: An Australian study. *Social and Behavioral Sciences* 40, 52 – 57. DOI: 10.1016/j.sbspro.2012.03.160
- Taylor S. (1998). *Employee Resourcing*. Cromwell Press, Wiltshire.
- Tenenhaus, M., Amato, S., & Esposito Vinzi, V. (2004). A Global Goodness-of-Fit Index for PLS Structural Equation Modeling, *Proceedings of the XLII SIS Scientific Meeting. Padova: CLEUP*, 739-742.
- Tiamiyu, S., Akintola, J., & Rahji, M. (2009). Technology adoption and productivity difference among growers of new rice for Africa in savanna zone of Nigeria. *Tropicultura*, 27(4), 193-197.
- Tornatzky, L.G. and Klein, K.J. (2012). Innovation characteristics and innovation adoption implementation: A meta-analysis of findings. *IEEE Transactions on Engineering Management*. 29(1), 28–45.

- Van De Bogart, W. & Wichadee, S. (2015). Exploring Students' Intention to Use LINE for Academic Purposes Based on Technology Acceptance Model. *International Review of Research in Open and Distributed Learning*, 16. 65–85.
- Venkatesh, V., Morris, M., Davis, G., and Davis, F. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, Vol. 27, No. 3, pp. 425-478.
- Verity, R. , Okell, L. , & Dorigatti, I. (2020). Estimates of the severity of coronavirus disease 2019: A model-based analysis. *Lancet Journal of Infectious Diseases*, 20, 669–677. [https://www.doi.org/10.1016/S1473-3099\(20\)30243-7](https://www.doi.org/10.1016/S1473-3099(20)30243-7).
- Wellington, J., & Szczerbinski, M. (2007). *Research methods for the social sciences*. A&C Black Publications.
- WHO, (2020a). *Rolling Updates on Coronavirus Disease (COVID-19)*. Retrieved from the web January 2021 at the URL: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen>
- WHO, (2020b). *Coronavirus Disease 2019 (COVID-19) Situation Report – 70*.
- Wilkinson, D., & Birmingham, P. (2003). *Using research instruments as a guide for researchers* (1st edition). London: Routledge Falmer.
- Wright, S. L. (2005). Loneliness in the Workplace. *Doctoral Thesis, January 2005*, 1-2.
- Yaseen, S. G., & El Qirem, I. A. (2018). Intention to use e-banking services in the Jordanian commercial banks. *International Journal of Bank Marketing*, 36(3), 557-571.
- Yousef, D. A. (1998). Satisfaction with job security as a predictor of organizational commitment and job performance in a multicultural environment. *International Journal of Manpower*, 19(3), 184-194.
- Yusuf, B., Meera, A. K., Ghani, M., Manap, A., & Larbani, M. (2015). Acceptance of gold as an alternative currency: An empirical validation of adoption of innovation theory. *Asian Journal of Business and Accounting*, 8(2), 123.
- Zhang W.J., Meng H.D., Yang S.J., et al. (2018). The influence of professional identity, job satisfaction, and work engagement on turnover intention among township health inspectors in China. *International Journal of Environmental Research in Public Health*. 2018;15:988. <https://doi.org/10.3390/ijerph15050988>.
- Zhang, J., Wu, W., Zhao, X., & Zhang, W. (2020). Recommended psychological crisis intervention response to the 2019 novel coronavirus pneumonia outbreak in China: a model of West China Hospital. *Precision Clinical Medicine*, 3(1), 3-8.
- Zikmund, W., Babin, B., Carr, J., & Griffin, M. (2013). *Business research methods*. (Ninth edition). Cengage Learning, Canada.
- Zoom Video Communications Inc. (2016). *Security guide: Zoom Video Communications Inc*. Retrieved from <https://d24cgw3uvb9a9h.cloudfront.net/static/81625/doc/Zoom-Security-White-Paper.pdf>

APPENDIX

APPENDIX

STUDY QUESTIONNAIRE

The Use of Virtual Conference Software in the Workplace during the COVID-19 Pandemic

The purpose of this study is to empirically explore the relationship between the characteristics of innovation and technology adoption in the workplace and its ultimate effect on employees' job performance and job satisfaction.

This survey should take about not less than [15] minutes to complete.

Participation in this research is completely voluntary. If there are any questions which you are uncomfortable with answering, feel free to skip that question and leave the answer blank. Also, please be aware that you are entitled to withdraw from the study and terminate your participation at any time without question or comment.

You must be an employee (or had been employed) during the ongoing COVID-19 pandemic who is working (or has worked) remotely in order to participate in this survey. If you have ever worked remotely using ZOOM, MS Teams, or any other virtual conference software (VCS) even for a temporary time, please complete the survey and answer the questions to the best of your ability. If you have not worked remotely at all and never used (VCS) like ZOOM, please do not complete the survey.

All survey responses received will be treated confidentially and stored on a secure server. However, given that the surveys can be completed from any computer (e.g., personal, work, school), there is no guarantee of the security of the computer on which you choose to enter your responses.

Any individually identifiable responses will be securely stored and will only be available to those directly involved in this study.

1. Gender:
 - Male
 - Female
 - Prefer not to say
2. Race:
 - White
 - African Descent
 - Hispanic
 - Asian
 - American Indian/Indigenous Canadian
 - Native Hawaiiin/Alaska Native
 - Other
3. Age:
 - 16-24 years
 - 25-45 years
 - 46-60 years
 - 61 years or more
4. Your highest level of education:
 - Less than high school
 - High school
 - Associate degree
 - Bachelor degree
 - Master degree
 - Doctoral degree
5. Employment type:
 - Full time
 - Part time
 - Unemployed
6. Working class:
 - Blue collar (manual/general labor)
 - White collar (office/professional)
7. Work experience in years:
 - Less than 5 years
 - 6-10 years
 - 11-15 years
 - 16 years or more
8. Annual Salary:
 - Less than \$24,000
 - \$24,000-\$48,000
 - \$49,000-\$72,000
 - \$73,000-\$96,000
 - \$97,000 or more
9. Are you a parent?
 - Yes
 - No
 - Prefer not to say

10. Do you have school-aged children living with you?

Yes

No

Prefer not to say

11. Country you work in:

USA

Canada

Mexico

Other

Prefer not to say

12. Mturk worker ID #

13. How many times per day do you use ZOOM, MS Teams, or similar virtual conference software (VCS) for work?

14. How many hours per day do you spend on ZOOM, MS Teams, or similar virtual conference software (VCS)?

15. Which Virtual Conference Software (VCS) do you mainly use daily?

ZOOM

Google Meet

Microsoft Teams

All of the above

Other

16. The following statements aim to measure the "Relative advantage" the user perceives from using ZOOM or similar VCS. Whenever needed, please substitute ZOOM with any VCS you are using while indicating your agreements/disagreement with the statements below.

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
ZOOM is better than using other virtual conferencing software					
ZOOM is more interesting than other virtual conferencing software I have used					
Using ZOOM makes communication in your institute a better experience than it would be without ZOOM					
My institute is managed quickly and easily because of using ZOOM					
I am more mind-relieved because of using ZOOM					
ZOOM offers us real advantages over the way we usually operate on a daily basis					

17. The following statements aim to measure the "Compatibility" the user perceives while using ZOOM or similar VCS. Whenever needed, please substitute ZOOM with any VCS you are using while indicating your agreements/disagreement with the statements below.

ZOOM fits right into the way I like to do things					
I think other institutes should have programs like ZOOM					
The name ZOOM makes me want to use the program					
Using this program makes what I know seem more relevant to me					
ZOOM helps me learn more about myself					
ZOOM helps me learn more about technology					

18. The following statements aim to measure the "Trialability" the user perceives from using ZOOM or similar VCS. Whenever needed, please substitute ZOOM with any VCS you are using while indicating your agreements/disagreement with the statements below.

Being able to try out ZOOM was important in my decision to use it					
I really won't lose much by trying ZOOM, even if I don't like it					
I like being able to try out ZOOM before deciding whether I like it or not					
Being able to try out ZOOM was important in my decision whether or not to use it					

19. The following statements aim to measure the "Observability" the user perceives from using ZOOM or similar VCS. Whenever needed, please substitute ZOOM with any VCS you are using while indicating your agreements/disagreement with the statements below.

Other employees seem interested in ZOOM when they saw me using it					
People can tell that I know more about technology since I've used ZOOM					
Other employees or institutes using ZOOM like using it					
I would have no difficulty in telling friends what ZOOM is like					
I would have no difficulty in telling others how using ZOOM have improved our institute performance					
Many employees and institutes I know seem to like using ZOOM					

20. The following statements aim to measure the "Health Concern for Oneself" the participant perceives during the ongoing COVID-19 pandemic.

I often think about Novel Coronavirus Pandemic					
I often feel paranoid about contracting the novel Corona Virus infection					
I often have difficulty sleeping by being worried about the Coronavirus pandemic					
I often feel worried about myself during the pandemic					

21. The following statements aim to measure the "Health Concern for Family Members" the participant perceives during the ongoing COVID-19 pandemic.

I worry about my family members' health during the pandemic					
I would be concerned if anyone in my family is sick during the pandemic					
I always think of ways to keep my family members healthy during the pandemic					
I often get afraid when anyone in my family reports being sick					
I often feel worried about close ones regarding the spread of Novel COVID19					

22. The following statements aim to measure the "Job Security Concern" the participant perceives at his/her current workplace (regarding losing or maintaining the current job).

I worry about my job security					
My income is likely to be unstable and uncertain if I was laid off due to COVID-19					
My position is likely to be made redundant while working virtually					

23. The following statements aim to measure the "Perceived Seriousness of COVID-19" for the participant during the ongoing COVID-19 pandemic.

I could die if I contract COVID-19					
COVID-19 is a serious virus					
If I contract COVID 19, it would be difficult for me to fully recover					
If I contract COVID 19, it may take a long time for me to recover if I recover at all					
I feel that technology use reduces my fear and my colleagues' fear					
Many physical face-to-face activities are closed during the COVID-19 pandemic					
There are significant health risks associated with physical attendance to institutes during the COVID-19 pandemic					
Online services is a trend during the COVID-19 pandemic					

24. The following statements aim to measure the participant "Technology Adoption" at his/her current workplace.

I use ZOOM solely because it is required					
I will use ZOOM in the future					
ZOOM usage is mandatory during COVID-19					
I will continue to use ZOOM during my work/study					
I plan to adopt ZOOM in my work soon					
I intend to continue to use ZOOM in my work as often as possible					
I plan to continue to use ZOOM in the future					

25. The following statements aim to measure the participant "Turnover Intention" at his/her current workplace.

I often seriously consider quitting my present job					
I frequently scan the newspapers in search of alternative job opportunities					
I often dream about getting another job that will better suit my personal needs					
I am likely to accept another job at the same compensation level should it be offered to me					
I often compromise my personal values at work					

26. The following statements aim to measure the perceived "Loneliness" for the participant during the ongoing COVID-19 pandemic.

I lack companionship During this pandemic					
I am no longer close to anyone					
My interests and ideas are not shared by those around me					
I feel left out					
No one really knows me well					

27. The following statements aim to measure the "Job Performance" the participant perceives at his/her current workplace.

I consistently complete the duties specified in my job description					
I consistently meet the performance requirements of the job					
I fulfill all responsibilities required by my job					
I consistently fulfill my obligations to perform for my job					
I often fail to perform essential duties					
I create new ideas for improvements					
I transform innovative ideas into useful applications					
I acquire management approval for innovative ideas					
I generate original solutions to problems					
I search out new working methods, techniques, or instruments					

28. The following statements aim to measure the "Job Satisfaction" the participant perceives at his/her current workplace.

All in all, I am satisfied with my job					
I am pleased with my current job					
I am happy with my current job					
My present job provides good opportunities for promotion					
I have been rewarded for my good performance					
My opportunity for promotion is unlimited					
My current job helps me to pursue my professional growth					
Job promotion is based on job performance and achievement					

BIOGRAPHICAL SKETCH

After completing his schoolwork at Yarmouk University Model School in 2000, Khaled I Khasawneh entered to the Business School at Yarmouk University in Jordan. He received a bachelor of Marketing degree in 2004. Directly after that, he traveled to the UK to start his study in the MBA program at Coventry University in Coventry, The United Kingdom. Khaled earned his MBA in 2005 with concentration on the Marketing field. During the following two years, He worked as a principal lecturer at multiple universities in Jordan before he departed to start his study at Emporia State University in Emporia, Kansas in 2007 where He earned his Master of Arts in Instructional Design and Technology from the reputable Teachers College in 2010.

Khaled Attended the University of Texas-Rio Grande Valley in 2011 as a PhD student. Khaled worked continuously throughout his graduate education in the USA in several graduate research and teaching assistant positions until 2014 when he immigrated to Canada as a skilled worker. With consumer behavior and psychology, consumer decision making, and emarketing as his main fields of expertise, Khaled has been working on different research projects and community programs ever after. Khaled has successfully defended his dissertation and earned his PhD on December, 2021. He is currently serving in two charitable organizations in Canada as the President and Vice President, actively serving people and showcasing what Khaled's believes in about caring for the wellbeing of people and improving the society by gradually developing members one individual at a time. For any future communications, please feel free to reach to the author at khaled.khasawneh@bramaleaicc.ca.