

2019

# The Relationship Between Workspace and Office Placement and Workforce Productivity and Wellbeing

Mladen Cvijanovic  
*Walden University*

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# Walden University

College of Social and Behavioral Sciences

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Mladen Cvijanovic

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## Review Committee

Dr. Sandra Rasmussen, Committee Chairperson, Psychology Faculty

Dr. Sandra Street, Committee Member, Psychology Faculty

Dr. Virginia Salzer, University Reviewer, Psychology Faculty

Chief Academic Officer  
Eric Riedel, Ph.D.

Walden University  
2019

Abstract

The Relationship Between Workspace and Office Placement and Workforce Productivity  
and Wellbeing

by

Mladen Cvijanovic

MS, Walden University, 2017

BS, Hampden-Sydney College, 2008

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

College of Social and Behavioral Sciences

Walden University

February 2019

## Abstract

The quality of the physical workspace environment has been widely debated in research and corporate communities. Inadequate workspace conditions have been associated with elevated levels of work-related stress, productivity, and job satisfaction. However, scholarly literature offers very little on the relationship between workspace and office placement, and workforce productivity and wellbeing. The purpose of this non-experimental quantitative study was to examine the impact of customized workspace and strategic office placement on work related stress, productivity, and job satisfaction. Optimal distinctiveness theory and cognitive-motivational-relational theory provided the theoretical framework for this study. Nine research questions in this study were designed to identify any statistically significant difference in any of the three dependent variables(work-related stress, productivity, job satisfaction) in relation to workspace design and office placement. The Work Stress Scale, Individual Work Performance Questionnaire, and the Brief Index of Affective Job Satisfaction served as data collection instruments. Data were collected from a convenience sample of 131 male and female full-time employees from 5 different organizations nationwide. With a 2x2 causal-comparative research design, a multivariate analysis of variance was conducted, which showed statistically significant difference on work-related stress and job satisfaction in relation to workspace design with no statistically significant difference for the remaining seven research questions. This study offers significant insight into best practices for ensuring the highest quality of workspace environment to enable optimal employee performance along with improved overall wellbeing.

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## Dedication

I dedicate my dissertation research study to my parents who worked so hard to ensure that I've always had everything I needed and motivated and inspired me to constantly seek higher academic achievement by constant pursuit of academic excellence and integrity. It is because of my parents' love and support that I am in a position to complete this dissertation.

To my dear and beloved grandmother, Janja Dukic, and my promise that I made to her, shortly before her passing, that I will never stop pursuing academic excellence and will never give up in my quest to earn a doctorate degree. Grandma, I know you are looking at me from above, and I hope that I've made you proud thus far! Thank you for all your wisdom, love and support throughout my childhood. Also, to my guardian angel, my late grandfather Savo, who retired early to take care of his first grandson – thank you for the most wonderful first memories of my childhood and for watching over me for all these years.

To my wife, Ann Elizabeth Cvijanovic, I could not have gone on this journey without your ongoing love and support. Thank you for all your support and encouragement, and most of all, your understanding and patience. Without you, none of this would have been possible.

Last, but certainly not the least, to my two beautiful, four-legged children – my two German Doberman Pinchers – Francis Claire and Princess Fiona. Your companionship, loyalty, and love have no match. Thank you for all your, sometimes loud and vocal, support and many kisses and hugs that made this journey much easier.

## Acknowledgments

Keeping in mind that I've already thanked all the family and friends I wanted in the dedication section above, I would like to take this opportunity to express my most sincere gratitude and appreciation to the faculty members of Walden University who have been with me throughout this journey. In addition to all my professors from the Master's Degree program and my academic advisor, I would like to highlight my appreciation and gratitude to my chairperson Dr. Sandra Rasmussen, second committee member Dr. Sandra Street, and my URR Dr. Virginia Salzer. I would also like to thank my statistics tutor, Dr. Zin Htway, for all your help, support and guidance during my data analysis process.

Last, but not the least, I would like to thank all companies and organizations who agreed to participate in my research study and made this research possible. Thank you for investing the time of your employees and for being advocates for improvements to workspace quality.

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## Chapter 1: Introduction to the Study

In Chapter 1, I introduce the fundamental components of my research study including the study's purpose and rationale, along with the study's significance, theoretical framework, and key background information. Furthermore, I provide an introduction and preliminary overview of the study's components including research questions, definitions, nature, guiding assumptions, limitations, and delimitations. I conclude Chapter 1 by discussing the overall significance of the study and the potential for affecting positive social change that may result from implementation of the study's findings.

### **Introduction**

Workspace dynamics have significantly evolved over the course of the 20<sup>th</sup> century. The modern-day workforce has been facing many complex challenges including heavy workload, long hours, constant need to adapt to technological innovations, and less than ideal workspace conditions (Marcatto et al., 2016; Vischer, 2007; Vischer, 2008). Workspace environment has seen drastic changes over the course of the 20<sup>th</sup> century, and different workspace design concepts have continued to emerge as potential solutions to reducing work-related stress, increasing productivity, and improving overall levels of job satisfaction. Vischer (2007, 2008), as one of the most influential researchers on this topic, argued that there was a significant correlation between physical workspace environment and the overall levels of employees' productivity, work-related stress, and job satisfaction. Despite substantial research on this topic, numerous companies and organizations around the nation have not invest enough effort, resources, and strategic

initiatives to ensure optimal work conditions for their employees. As a result, work-related stress levels increased, along with decreased productivity and degraded levels of job satisfaction. Vischer (2007, 2008) also noted that vast majority of research studies that focused on modern-day work environment and work-related stress and employee wellbeing did not pay enough attention on the actual features, characteristics, and intrapersonal dynamics within a physical workspace environment.

Researchers have agreed that there is a significant relationship between the quality of workspace environment and employees' productivity, job satisfaction, and wellbeing (Ricciotti et al., 2014). However, there has been insufficient research regarding the features of workspace environment including office design, amenities, and the process by which employees are assigned to their workspace units or offices. In this research study, I hoped to fill the existing gap in the literature and to provide additional insight regarding the influence of customized physical work environment and strategic office placement on employees' levels of work-related stress, productivity, and job satisfaction. The original goal for the study was to provide additional insight on the importance of investing adequate resources, time, and strategies to develop customized workspace design concepts along with developing and utilizing a strategic approach to office placement process. Currently, this process is often done randomly and/or based on the availability of workspace units within the organization's physical workspace. Going into the study, I believed that there were several factors requiring further scrutiny and consideration that are responsible for ensuring optimal conditions within any workspace environment. Several different factors, including psychosocial issues, work-related stress,

and fatigue are considered when office designers are determining how to best approach the design of physical workspace along with the office placement process (Choi, Lee, & Park, 2015). There was an existing need to come up with additional solutions and approaches to providing employees with an optimal workspace environment. In this research study, I thus aimed to affect positive social change by providing new insight for companies nationwide regarding how best to approach the design of the workspace and the office placement process. By providing all employees with optimal work conditions, companies are likely to see an increase in overall productivity and job satisfaction, as well as a significant decrease of work-related stress. As a result, higher number of companies and organizations would be more profitable, achieve higher workspace morale, and would see a decrease in employee turnover and overall attrition levels. It was my hope that the study's findings would stimulate additional research initiatives, which would provide a tremendous potential for affecting significant and meaningful short-term and long-term positive social change.

In Chapter 1, I also provide additional background information for my research study. This includes a brief overview of the existing literature pertinent to the scope of the study topic, along with a description of the current gap in the literature, which I addressed as a result of this research study. I provide justification for and discuss the purpose of the research study. Furthermore, I describe the problem and relevant positions in the research community, and further address the significant gap in the existing literature. which allowed me to frame my own argument and research questions. After providing information regarding background and problem statement, I also familiarize

the reader with the purpose of the study along with the research questions and hypotheses. In the final part of Chapter 1, I discuss the theoretical framework and associated concepts pertinent to this study along with the details outlining the nature of the study. Furthermore, I provide definitions and outline the study's assumptions, scope, and delimitations, leading to a brief discussion of the study's limitations and significance, and a general overview and summary.

### **Background**

Work-related stress is one of the most critical issues facing the corporate world in the United States and worldwide. Marcatto et al. (2016) argued that “work-related stress is one of the major concerns for occupational safety and health” (p. 274). Workspace stress can also have a significant impact on the overall well-being and productivity of employees (Marcatto et al., 2016). The quality of the workspace has been shown to contribute to more general work-related stress by impacting workers' overall well-being, productivity, and job satisfaction (Ricciotti et al., 2014). However, the quality of the workspace is not the only factor affecting employees' well-being and productivity.

One important factor, which has been attributed to elevated levels of work-related stress, is a poorly designed physical work environment that can lead to deteriorating workspace conditions. Vischer (2007) pointed out to accumulating evidence “that the physical environment of work affects both job performance and job satisfaction” (p. 175). If these issues are not properly addressed, the levels of work-related stress are likely to increase, and employees' work productivity and job satisfaction are likely to decrease. Despite significant existing research regarding the effects of physical work environment

factors and workspace design on work-related stress (Vischer, 2007; Vischer 2008; Douglas, 2017; Ricciotti et al., 2014), many U.S. workspaces do not provide adequate environments that would allow employees to conduct their work in optimal conditions (Vischer, 2007). Douglas (2017) noted that “physical office space can have a large impact on employee productivity, but many employers fail to create inspiring and uplifting work environments” (p. 1). According to Vischer (2008), “Inquiry into how people experience experimental conditions at work is a growing area of study” (p. 97).

While the research community has recognized the importance of the relationship between workspace quality and employees’ performance, the effects of customized workspace design along with strategic approach to office placements have not been adequately evaluated. It was not until the early 1990s that researchers recognized the insufficient amount of research regarding different workspace conditions and physical work environments and their impact on workers’ productivity and overall wellbeing (Vischer, 2008). Vischer (2007) found that “studies of stress in the work environment pay little attention to features of the physical environment in which work is performed” (p. 175).

Researchers know that significant relationship exists between physical work environment and employees’ productivity and wellbeing (Ricciotti et al., 2014). In addition to Vischer’s (2007) argument that the physical environment has a significant impact on workers’ productivity and wellbeing, other researchers have also noted that the more modern workspace concepts “may affect office worker health as well as office worker performance” (De Croon, Sluiter, Kuijer, & Frings-Dresen, 2005, p. 120). The

last few decades of the 20<sup>th</sup> century brought significant changes to the corporate world's approach to office space design. Innovative workspace designs were praised as creative solutions that "may allow organizations to save office space, reduce general and technical service costs, and increase flexibility of office use" (De Croon et al., 2005, p. 120). Even though this approach was deemed very cost-effective and creative, it soon became apparent that, while the new office concepts may have seemed advantageous, they had a potential to "affect office worker health as well as office worker performance" (De Croon et al., 2005, p. 120).

However, there was insufficient research on the overall effect of physical work environment features, including office design, office amenities, and office placement process on employees' levels of work-related stress, productivity, and job satisfaction. Shier and Graham (2011) argued that "a number of workplace factors have a positive impact on subjective wellbeing" (p. 403). Thatcher and Millner (2014) also noted that indoor environmental quality plays a very important role in promoting workers' wellbeing and an increase in overall productivity. However, a need exists to better understand how a personalized work environment, customized workspace, and strategic approach to office placement affect employees' productivity, job satisfaction, and work-related stress levels. Specifically, there was lack of relevant literature on the effects customized workspace and strategic/personalized process of office placements have on the levels of productivity, work-related stress, and job satisfaction.

It is important to note that there was not a consensus in the research community about what constitutes and defines a customized workspace. In spite of the existing lack

of consensus, most researchers agree that modern-day employees are not working in optimal work conditions (Douglas, 2017). According to Douglas (2017), “nearly half of workers in traditional office environments feel they have little to no natural light at their workplace and their workplace design and décor has no personality” (p. 2). Workers pointed to subpar lighting, poorly functioning workspaces, and ergonomically inadequate furniture, which, the workers felt, was significantly hurting their work productivity and effectiveness in performing their work-related duties and responsibilities (Douglas, 2017). My study was necessary to provide additional insight into all factors related to optimal workspace design and workspace management and placement strategies. I aimed to provide additional answers and guidance to the corporations and decision-makers who are responsible for designing, managing, and maintaining the optimal workspace conditions within their companies and organizations.

### **Problem Statement**

As I noted in the previous section, work-related stress and ailments related to a less-than-ideal physical workspace environment is an important issue faced by the modern-day workforce and the corporate world (Marcatto et al., 2016; Ricciotti et al., 2014; Vischer, 2007, 2008; Douglas, 2017). Poorly designed and inadequately managed workspace environment has been linked to significant increase in levels of work-related stress, decrease in work productivity, and decline in job satisfaction (Vischer, 2007, 2008). Recent research has provided a strong indication that workspace conditions are directly related to employees’ productivity, and that employers should take much stronger and more affirmative actions to provide an optimal workspace design and office

placement process (Douglas, 2017). The research community has yet to arrive to a consensus regarding the best approach to designing and managing physical workspace, along with the most effective way to manage the office placement process. With several schools of thought having a strong influence on corporate decision-makers, there has been a slight confusion and sense of uncertainty when it comes to designing the workspace and managing the office placement process. Going into this study, I held a belief that companies that provided both customized workspace environment and strategic office placement process were most likely to ensure the highest levels of employees' productivity and job satisfaction along with a decrease in work-related stress levels. Corporate managers should be able to effectively manage the strategic office placement process while ensuring that the company is providing customized workspace with optimal environmental conditions.

It became evident to corporate and scientific communities that new workspace design concepts were being explored and implemented nationwide. The new workspace design initiatives that I focused on in this study, were implemented in hopes of moving away from the one-size-fits-all approach. Instead, workspace design concepts were moving towards a more customizable concept tailored to each employee's needs, expectations, and work responsibilities. Having a better understanding of the importance of providing both customized workspace environment along with strategic office placement is essential in creating an optimal workspace environment in which the workforce is most likely to have the highest productivity and job satisfaction levels, along with a decrease in overall work-related stress.

### **Purpose of the Study**

There were several purposes of this quantitative study. First, I sought to explore the relationship between customized, physical work environment and employees' levels of work-related stress, productivity, and job satisfaction. Second I sought to examine the relationship between the strategic process of assigning office space to employees and work-related stress, productivity, and job satisfaction. Third, and most important, I sought to examine the relationship between customized work environment and strategic office placement, when implemented together, on the overall levels of work-related stress, productivity, and job satisfaction.

To better understand the potential benefits of a customized work environment and strategic office placement on employees' work-related stress levels, overall productivity, and job satisfaction, I conducted a quantitative study to determine the best approach on how to ensure optimal work conditions for the modern-day workforce in the United States.

My primary objective was to evaluate the effects that strategic office placement, combined with customized workspace, have on levels of work-related stress, productivity, and job satisfaction. In this study, I aimed to fill the existing gap in the research literature and strived to provide better insight into the effects of customized workspace and strategic office placement on employees' work performance and overall well-being. There is presently a need to develop new and innovative solutions for the modern-day workspace environment and optimal strategies for the management and office placement processes across different industries nationwide. By offering additional

insights on this topic, this study may affect positive social change by providing results that organizational leaders can use to improve the overall quality of workspace environments nationwide.

### **Research Questions and Hypotheses**

RQ1: Is there a difference in workers' productivity, in relation to workspace design (customized versus generic) as measured by the IWPQ?

H<sub>0</sub>1: There will be no difference in workers' productivity in relation to workspace design (customized versus generic) as measured by the IWPQ.

H<sub>A</sub>1: There will be a difference in workers' productivity in relation to workspace design (customized versus generic) IWPQ.

RQ2: Is there a difference in workers' productivity in relation to office placement (strategic versus random) as measured by IWPQ?

H<sub>0</sub>2: There will be no difference in workers' productivity in relation to office placement (strategic versus random) as measured by the IWPQ.

H<sub>A</sub>2: There will be a difference in workers' productivity in relation to office placement (strategic versus random) as measured by the IWPQ?

RQ3: Is there a difference in workers' productivity in relation to an interaction of workspace design and office placement as measured by the IWPQ?

H<sub>0</sub>3: There will be no difference in workers' productivity in relation to an interaction of workspace design and office placement as measured by IWPQ.

H<sub>A</sub>3: There will be a difference in workers' productivity in relation to an interaction of workspace design and office placement as measured by IWPQ.

RQ4: Is there a difference in workers' overall levels of work-related stress in relation to workspace design (customized versus generic) as measured by the Work Stress Scale?

H<sub>0</sub>4: There will be no difference in workers' overall levels of work-related stress in relation to workspace design (customized versus generic) as measured by the Work Stress Scale.

H<sub>A</sub>4: There will be a difference in workers' overall levels of work-related stress in relation to workspace design (customized versus generic) as measured by the Work Stress Scale.

RQ5: Is there a difference in workers' overall levels of work-related stress in relation to office placement (strategic versus random) as measured by the Work Stress Scale?

H<sub>0</sub>5: There will be no difference in workers' overall levels of work-related stress in relation to office placement (strategic versus random) as measured by the Work Stress Scale.

H<sub>A</sub>5: There will be a difference in workers' overall levels of stress of work-related stress in relation to office placement (strategic versus random) as measured by the Work Stress Scale.

RQ6: Is there are difference in workers' overall levels of work-related stress in relation to an interaction of workspace design and office placement as measured by the Work Stress Scale?

H<sub>06</sub>: There will be no difference in workers' overall levels of work-related stress in relation to an interaction of workspace design and office placement as measured by the Work Stress Scale.

H<sub>A6</sub>: There will be a difference in workers' overall levels of work-related stress in relation to an interaction of workspace design and office placement as measured by the Work Stress Scale.

RQ7: Is there a difference in workers' job satisfaction in relation to workspace design (customized versus generic) as measured by the Brief Index of Affective Job Satisfaction?

H<sub>07</sub>: There will be no difference in workers' job satisfaction in relation to workspace design (customized versus generic) as measured by the Brief Index of Affective Job Satisfaction.

H<sub>A7</sub>: There will be a difference in workers' job satisfaction in relation to workspace design (customized versus generic) as measured by the Brief Index of Affective Job Satisfaction.

RQ8: Is there a difference in workers' job satisfaction in relation to office placement (strategic versus random) as measured by the Brief Index of Affective Job Satisfaction?

H<sub>08</sub>: There will be no difference in workers' job satisfaction in relation to office placement (strategic versus random) as measured by the Brief Index of Affective Job Satisfaction.

H<sub>A8</sub>: There will be a difference in workers' job satisfaction in relation to office placement (strategic versus random) as measured by the Brief Index of Affective Job Satisfaction.

RQ9: Is there a difference in workers' job satisfaction in relation to an interaction of workspace design and office placement as measured by the Brief Index of Affective Job Satisfaction?

H<sub>09</sub>: There will be no difference in workers' job satisfaction in relation to an interaction of workspace design and office placement as measured by the Brief Index of Affective Job Satisfaction.

H<sub>A9</sub>: There will be a difference in workers' job satisfaction in relation to an interaction of workspace design and office placement as measured by the Brief Index of Affective Job Satisfaction.

### **Theoretical Foundation**

I used the optimal distinctiveness theory as the primary theoretical approach for my research study because of its focus on the factors necessary to achieve optimal, small-group performance and their influence on stress and productivity (Leonardelli & Lloyd, 2016). Leonardelli and Lloyd (2016) argued that "according to optimal distinctiveness theory, sufficiently small minority groups are associated with greater membership trust, even among members otherwise unknown, because the groups are seen as optimally distinctive" (p. 843). According to Shore et al. (2011), optimal distinctiveness theory provides rationale for "tensions associated with human needs for validation and similarity to others (on the one hand) and a countervailing need for

uniqueness and individuation (on the other)" (p. 1264). One of the many advantages of being a productive and accepted member of a group is that "loyalty, cooperation, and trustworthiness, among group members function to enhance the security of individual members" (Shore et al., 2011, p. 1264).

I used the optimal distinctiveness theory as a guide to evaluate the necessary environmental conditions and proactive approaches employers used to ensure that each office, which could be viewed as a small group or a unit, achieved high levels of cohesion, unity, and work-related performance. There was a significant gap in the literature regarding the influence and role of workspace conditions and strategic office placements on the overall levels of group cohesion and trust among the employees, which are essential components for optimal work performance and individual well-being. I hoped to prove that customized workspace and strategic office placements help individual workers achieve balance between feeling unique and being affiliated with a group. If this balance is achieved, it is likely to result in lower levels of work-related stress, increased productivity, and increase in job satisfaction. Researcher have contended that at the core of every social theory is the fact that "human beings are innately social creatures" (Leonardelli & Lloyd, 2016, p. 843).

Controlling the number of individuals in a group is essential to overall quality and prosperity of that group and this approach translated into workspace design and productivity in the workplace. Leonardelli and Lloyd (2016) argued that "sufficiently small groups are more likely to be trustworthy, and when seeking to trust others, individuals will prefer membership in such groups (p. 843). These theoretical principles

could be applied to workspace design and customization, along with the strategic office placement process. Key question I strove to answer in my dissertation research was how physical work conditions and characteristic of teams affected the overall team effectiveness and work-related productivity (see De Cooman, Vantilborgh, Bal, & Lub, 2016). A portion of the optimal distinctiveness theory holds that “high degrees of perceived person-team fit predict positive work outcomes such as performance and satisfaction, there are several existing gaps related to the actual impact that the workspace characteristics and considerations for compatibility among the team members have on the overall team effectiveness, work productivity, and individual job satisfaction” (De Cooman et al., 2016, p. 312).

The role of emotions in the overall wellbeing of employees and their productivity cannot be neglected. Lazarus (1991) proposed that the cognitive-motivational-relational theory of emotion has significant implications in our every-day interactions, including our behavior in the workspace. One of the main purposes of the cognitive-motivational-relational theory is to help with understanding, explaining, and predicting individual and group emotions (Lazarus, 1991).

### **Nature of Study**

To provide adequate response to the research questions, I used a quantitative method. The nature of my study is outlined in the following:

1. I studied the relationship between customized workspace and strategic office placement and productivity, work-related stress, and job satisfaction at two

different sites. Data collection locations were located throughout the United States.

2. Participants in this study were full-time employees who were spending most of their time in their physical workspace.
3. There were two independent variables in this study: customized workspace and strategic office placement. Both independent variables were binary in nature and were measured by determining if the employee worked in a customized or traditional workspace and whether the office placement was strategic or randomized.
4. Three dependent variables I studied and analyzed were work-related stress, productivity, and job satisfaction.
5. Data were collected from 131 participants across 5 different sites via computerized survey. I analyzed the collected data by using Multivariate Analysis of Variance (MANOVA).

### **Definitions**

For the purposes of this research study, I used the following operational definitions if key terminology:

*Customized office space:* Physical work environment that is a combination of open and closed office spaces with a variety of different design options for each office space. To be more specific, customized workspace also allows employees to move around between different work stations and encourages employees to customize their work environment with their personal items. Customized workspace design also pays

close attention to the environmental factors that are commonly associated with deteriorating workforce performance (lighting, noise, welcoming workspace environment, and ergonomic furniture, among other things).

*Random office placement:* A process in which a new employee is assigned an open workspace unit without any consideration for complex office dynamics, the employee's personality traits, and the employee's role, duties, and responsibilities at the company. Random office placement is additionally defined as the simplest and least time-consuming process by which an employee is randomly assigned to one of the available workspaces without taking any other factors into consideration during the placement process.

*Strategic office placement:* This concept is the less known variable out of the two independent variables in this study. Wohlers and Hertel (2017) noted that while "there is a trend in today's organizations to implement activity-based flexible offices, only a few studies examine the consequence of this new office type" (p. 467). Strategic office placement is defined as purposeful and tactical approach to assigning each employee to a workspace that is most suitable for that particular individual based on his or her personality traits, their duties and responsibilities at the company, and the personalities of other employees in the immediate vicinity of the new employee's workspace. I believe that teams of employees within the company are much better positioned to be successful when they are placed in the environment with colleagues with similar personality traits, communication styles, and work habits and preferences (Bell & Brown, 2015). However, regardless of the recognized importance of selecting and placing employees in a strategic

way, Bell and Brown (2015) argued that “integrating team composition considerations into staffing decisions to facilitate team cohesion can seem nebulous” (p. 468). In this study, I aimed to provide additional insight into the importance of not only providing optimal workspace conditions, but also integrating it with a carefully orchestrated employee placement process that will ensure that every employee and every team within any given company is best positioned for optimal productivity and wellbeing (see Bell & Brown, 2015).

*The interaction between workspace design and office placement process:* Degree of customization and environmental quality of the workspace design combined with the office managers’ efforts to not only provide optimal working conditions but to also invest time and resources to ensure that each employee is strategically placed in a workspace that is a best fit based on their personalities and duties and responsibilities they are expected to perform on a daily basis.

*Work Stress Scale:* An instrument developed in 1990 to assess eleven different work stress dimensions in very diverse samples of population (Dytell, 1990). The internal consistency of the 23-item scale was assessed using Cronbach’s alpha of .85 (Dytell, 1990). The Work Stress Scale has proven to be a reliable instrument to evaluate work-related stress by assessing 11 work stress dimensions including role ambiguity, work role overload, conflicting demands at work, work disruptions, repetitive work, lack of autonomy, non-challenging work, work dependency, work role insignificance, lack of resources on the job, and work environment discomfort (Schwartzberg & Dytell, 1996).

*Individual Work Performance Questionnaire (IWPQ)*: IWPQ is based on the conceptual framework that consists of three different dimensions, which include “task performance, contextual performance, and counterproductive work behavior” (Koopmans et al., 2014, p. 2). The IWPQ was developed to aid the researchers in assessing individual work performance in a “generic working population” (Koopmans et al., 2014, p. 8).

*Brief Index of Affective Job Satisfaction*: This instrument is a product of a vigorous scientific debate regarding the best way to assess individual and collective levels of job satisfaction within a particular workspace. The Brief Index of Affective Job Satisfaction is not only the newest job satisfaction measure, but it is also “unique among existing job satisfaction measures in that it is both overtly affective and systematically tested for comprehensive range of psychometric properties crucial to ensuring measurement, and therefore, research integrity” (Thompson & Phua, 2012, p. 298). At present, there is no other measure for assessing job satisfaction, that has “been developed to demonstrate simultaneously content validity, internal consistency reliability, temporal stability, convergent and criterion-related validity, plus cross-population equivalence by nationality, job level, and job organization type” (Thompson & Phua, 2012, p. 298).

### **Assumptions**

I assumed that the study participants, who were selected via a convenience sampling strategy, came from a variety of professional backgrounds and different workspace designs, which allowed for a representative sample. I also assumed that some employees perceived their office space as traditional, some as open, and some as a combination of several different approaches. The same assumption was made regarding

the question of strategic versus generic office placement for all study participants. I also assumed participants' cooperation, honesty, and ability to respond in a complete and detailed manner. I did not anticipate any significant threats to internal and external validity due to the non-experimental nature of this study and the fact that all questionnaires used for data collection purposes had already been validated and used by other researchers.

### **Scope and Delimitations**

Participants from different companies, backgrounds, and work environments were selected to participate in the research study via convenience sampling strategy. My intention was to use the convenience sample for data collection, as the data were collected nationwide via computerized survey supported by SurveyMonkey. Participants, who decided to voluntarily participate in the study came from several different locations and companies, with the prior approval from their companies' officials. The data collected in this study were drawn from several different industries across different parts of the United States. With that in mind, further research will be required to account for different geographical dynamics across the country. My approach to the data collection process was not likely to cause any significant issues in providing the research community with new and relevant empirical data that others may use to improve the overall quality of the workspace environment.

### **Limitations**

The study's most significant limitation was the research design, which was non-experimental. I was not able to control the environment in which the data were collected

and in which the study's participants were working every day. This research study was limited to investigating the impact of two independent variables, which were labeled as workspace design and office placement, on the three dependent variables, which were labeled as work-related stress, productivity, and job satisfaction. My research study was limited to full-time employees across different industries nationwide. With that in mind, I was not able to examine the results from a specific demographic group or a geographical region.

Another limitation of the study was my inability to interview participants in person to ensure consistency and the highest quality of data. I had to rely on participants self-reporting for the two independent and three dependent variables. While relying on the honesty of participants to obtain accurate information is a common practice in the research community, some researcher believe that inability to conduct in-person interview or over-the-phone interview is a significant limitation for studies like mine. With this in mind, a potentially significant limitation regarding the data collection process could have included less-than truthful responses, which could have affected the overall accuracy of the collected data. In addition to the above-described limitations, the data that I collected could have also been affected by the participants' response bias. Response bias could have caused some participants to deny a certain behavior or work-related deficiency due to the fact that some of the questions were direct in terms of participants' ability to be productive and contributing member of their company's workforce.

My inability to visit the physical workspace environment and evaluate the quality of the workspace was another limitation of this research study. However, given that this was an anonymous and confidential study, I had to rely on self-reporting of all participants and their subjective opinions regarding Questions 2 and 3, which were answered by Yes or No and for the rest of the questions, all of which were presented to the participants in a Likert scale format. The study was limited to examining only two factors of the complex, modern-day workforce dynamics. Additional variables and factors should be considered in future studies. These factors and variables could include demographic differences, difference between different industries, and working remotely versus working in traditional office setting, among many other factors that affect the modern-day workforce. In conclusion, many additional factors must be closely studied and examined to gain a more complete understanding of the factors that contribute to a superior quality of work environment and office management, which strongly influence the overall performance levels of the modern-day workforce along with individual and collective wellbeing of its members.

### **Significance**

This study filled the existing gap in literature on the potentially beneficial effects of customized workspace and strategic office placements. While researchers already knew that physical work environment was an important factor in achieving optimal levels of productivity and well-being, not enough was known about how the customized workspace combined with strategic office placements, as I described in the problem statement above, affected the overall well-being, productivity, and job satisfaction of the

workforce nationwide. The primary significance of this relationship is that it potentially allows the companies and businesses around the country to have a better understanding of how customized workspace design and customized and well-planned process of assigning office space affects employees' stress levels, productivity, and overall wellbeing and job satisfaction. In this study, I developed a better understanding of this complex issue by filling the existing gap in the literature regarding the relationship between customized workspace combined with strategic office placements and employees' work-related stress, productivity, and job satisfaction.

The original contribution of my study is the emphasis and new insight on the importance of investing time and resources in developing customized workspace for all employees and utilizing a strategic approach during the office placement process. Most importantly, my research study potentially affects positive social change by providing new insight for companies and corporations nationwide as to how best to approach the design of the workspace and the office placement process for all employees. Providing all employees with optimal work conditions is likely to reduce stress levels and increase productivity, which has the potential to significantly enhance the life quality of the workforce.

### **Summary**

As I have repeatedly noted throughout this introductory chapter, the modern-day workforce is faced with continuously increasing levels of work-related stress. While today's workforce is struggling with many different issues (inadequate pay, longer hours, longer commutes, subpar work environment, job security, rapid technology innovations),

work-related stress, productivity, and job satisfaction remain the most important evaluating factors for every corporation and organization nationwide (Choi et al., 2015; Douglas, 2017; Vischer, 2007, 2008). To reduce overall levels of work-related stress while increasing productivity and job satisfaction, every employer must improve the quality of the workspace environment by enhancing the approach and strategies related to workspace design and management, which include strategic office placements for every employee. Changing inadequate workspace dynamics can have an immediate, positive impact on the overall morale of the entire workforce, along with increased productivity and overall profit margins. While all the proposed changes do require a significant and substantial investment of time, resources, and personnel, the potential side effects of the chronically inadequate workspace environment and office dynamics far outweighed the initial investment necessary to make the desired improvements in workspace design and office assign process.

Chapter 2 will provide additional and detailed insight into the existing literature pertinent to this research topic. In Chapter 2, I will review and highlight the most pertinent literature related to work-related stress, productivity, and job satisfaction, along with benefits of customized workspace and strategic office placement process. In Chapter 2, I also provide a justification, with the support of existing theoretical framework, for the study by identifying the existing gap in the literature and discussing the best approach for adequately addressing that gap.

## Chapter 2 Literature Review

### **Introduction**

As I noted in the introduction, there are many factors affecting the modern-day workforce. Compelling this study was my opinion that work-related stress in modern day workforce was one of the most important and critical issues facing the corporate world at present time in this country and worldwide. Marcatto et al. (2016) argued that work-related stress poses serious health and occupational safety hazards for many workers around the country and worldwide. Workspace-induced stress has also been commonly associated with adversely affected well-being and work-related productivity for millions of workers across the country and different industries. There have been many studies aimed to evaluate the relationship between quality of the workspace and workers' overall levels of work-related stress, which has the tendency to negatively affect one's overall well-being, productivity, and job satisfaction. However, despite the fact workspace quality has a profound impact on workers' well-being, there are many other factors, including workspace dynamics and office placement process, that are affecting the well-being, productivity, and job satisfaction of the modern-day workforce.

Poorly designed workspace has previously been attributed to elevated levels of work-related stress, as researchers have shown that it can lead to deteriorating workspace conditions that bring along many detrimental components into already complex dynamics of the modern-day workspace. Vischer (2007) pointed to the accumulating evidence supporting the notion that physical work environment affects the productivity and performance of the modern-day workforce. If any existing issues within the physical

work environment are not promptly and adequately addressed, the levels of work-related stress are likely to increase, while the work-related productivity and job satisfaction are likely to decrease. However, despite a significant amount of existing research regarding the effects of physical work environment factors and workspace on work-related stress, many workspaces around the country do not provide adequate workspace conditions, which would allow employees to conduct their work in optimal conditions. Although researchers have recognized the importance of quality workspace on employees' performance and wellbeing, the effects of customized workspace design along with strategic approach to assigning office space have not been sufficiently researched and evaluated. Vischer (2007) pointed out that a majority of research studies focusing on modern-day work environment and work-related stress, did not pay sufficient attention to the actual features and characteristics of the physical work environment.

What was known is that a significant relationship existed between physical work environment and workers' productivity and wellbeing (Ricciotti et al., 2014). There was, however, insufficient research regarding the overall effect of the quality of physical work environment features, including office design, office amenities, and office placement process, on employees' levels of work-related stress, productivity, and job satisfaction. Shier and Graham (2011) argued that positive factors in the physical work environment can and do have a positive impact on individual and collective wellbeing of employees. The largest and most successful companies in the world such as Google, Apple, Pfizer, and Merck, have recognized the importance of innovation in the workspace and have invested a lot of time and resources to provide their employees with optimal working

conditions (Ricciotti et al., 2014). Open and innovative workspaces are likely to enhance the collaboration and stimulate and enrich the intrapersonal relationships within those workspaces (Ricciotti et al., 2014).

Although previous researchers have established an apparent connection between physical work environment and workers' wellbeing, there was still insufficient research on the positive effects of the customized physical work environment on workers' productivity, work-related stress, and job satisfaction. While there has been a limited number of studies considering the relationship between workspace design and workers' collaboration and productivity, even fewer have addressed strategic office placement process in addition to providing innovative and customized workspace for the workers (Ricciotti et al., 2014). Thatcher and Millner (2014) noted that the overall quality of the indoor work environment is very important when it comes to promoting workers' wellbeing and increasing overall productivity. However, one must be careful when attempting to bring innovation and customization to the modern-day workspace (Ricciotti et al., 2014). While reviewing the literature, I determined there was an existing need to further evaluate and better understand the effects of a personalized work environment, customized workspace, and strategic office placement on workers' productivity, work-related stress and job satisfaction. A current gap in the literature, which I addressed in this study, was related to customized work environment and strategic office placement and the effects it had on the workplace dynamics.

This quantitative research study had several purposes. The first purpose was to explore the complex relationship between customized, physical work environment and

workers' productivity, work-related stress, and job satisfaction. The second purpose was to examine the relationship between strategic process of assigning workers to their designated workspace and workers' productivity, work-related stress, and job satisfaction. I intended to gain a better understanding of potential benefits associated with customized workspace combined with strategic office placement process in the modern-day workforce. The primary focus of my study was evaluating and gaining a better understanding of the effects that the combination of customized workspace and strategic office placement had on the overall well-being and work-related productivity of the modern-day workforce. In my dissertation research, I aimed to fill the existing gap in the research literature and also aimed to provide better insight into the research topic.

Current literature has indicated a strong relationship between and highlighted the importance of physical workspace and employees' performance and overall wellbeing. Researchers have labeled the physical work environment as a key component of developing and maintaining individual and collective physical and emotional wellbeing of the workforce (Danielsson, Chungkam, Wulff, & Westerlund, 2013). A variety of environmental factors have been examined along with their impact on the workspace dynamic, including productivity, work-related stress, and job satisfaction. The need for innovative office concepts has never been more important than now (Meijer, Frings-Dresen, & Sluiter, 2009). The dynamics of the workspace have experienced tremendous change over the course of the last 20-30 years, and the expectations and demands from the workforce have become increasingly complex (Meijer et al., 2009). As a result, many companies have shifted from the traditional workspace design to a more cost effective

and innovative office space concept (Meijer et al., 2009). There have been many opposing views on the underlying benefits of innovative workspaces versus the detrimental effects that new office concepts might have on employees' productivity and overall wellbeing (Meijer et al., 2009). Vischer (2007) also pointed out potentially negative effects of open workspace concepts and raised doubts about the efficacy and benefits of emerging workspace designs. While the current literature seems to indicate that physical work environment plays an important role in employees' productivity, work-related stress, and job satisfaction, very little is known about the effects of customized workspace combined with a strategic office placement approach.

Lee and Brand (2005) recognized the need for modern-day workplaces to keep up with the complex and challenging demands in the physical work environment. While open-plan offices have been widely regarded as the ideal solution for modern-day workspaces, there have been numerous deficiencies and issues attributed to unhealthy noise levels, inadequate privacy, and increased likelihood for the employees to be distracted in their workspace (Lee & Brand, 2005). Finding the formula for the optimal workplace conditions has never been more important. However, despite the steady increase in the number of employees who spend their working day in a physical workspace environment, the research community has not been able to adapt to the increasing demand for new and creative solutions for optimal workplace environments (Ashkanasy, Ayoko, & Jehn, 2014). As a result, decision-makers in the corporate world, along with the research community, have lacked complete understanding when it comes to the relationship between physical workspace environment and employees'

productivity, work-related stress, and job satisfaction (Ashkanasy et al., 2014). While some initial research showed that flexible and customized workspace had beneficial effects on employees' opinion regarding their job satisfaction, productivity, and overall wellbeing, additional research was required to better understand the complex workspace dynamics and the impact strategic office placement can have on work-related stress and performance (Lee & Brand, 2005). In addition to being one of the biggest financial investments for many organizations, the design of the physical work environment and the process of assigning employees to individual workspaces also had a tremendous influence on the overall success or failure of every organization (Ashkanasy et al., 2014). Despite significant financial and business implications, the matter of optimal workspace environment and office allocation was largely understudied and often misunderstood (Davis, Leach, & Clegg, 2011). Further research into best practices and strategies that ultimately decide the faith of an organization was required, and I aimed to provide a significant contribution to the existing body of research.

In Chapter 2, I provide detailed information about the literature search strategy, and the theoretical foundation for the study, along with extensive literature review pertaining to key variables and concepts of the study. At the end of Chapter 2, I provide a summary of the chapter and my conclusionary remarks.

### **Literature Search Strategy**

My primary literature review strategy was to conduct a search of various academic databases, including multidisciplinary databases such as Science Direct and Academic Search Complete. The databases that I used to search for relevant literature

included PsycINFO, PsycARTICLES, and Sage Journals (formerly known as Sage Premier), in addition to other available resources. The additional resources included the Walden University Library database, Google Scholar, and Walden University Library Delivery Services, which I used to locate and retrieve articles that were difficult to find and unable to be retrieved digitally through any other available asset or resource. Because this research study had two independent variables (customized workspace and strategic office placement) and three dependent variables (work-related stress, productivity, and job satisfaction), the list of search terms that I used to conduct the literature review was extensive and diverse. The list of search terminology included *workspace*, *physical work environment*, *quality of workspace*, *job productivity*, *wellbeing*, *job satisfaction*, *innovative workspace*, *office placement*, *office placement*, *workspace design*, and *open vs. traditional workspace*. A majority of the articles I obtained during the literature search were in a digital format, and I also read and reviewed the articles cited in some of the most relevant peer-reviewed articles. I also obtained multiple book chapters in digital formats, which provided significant contributions in identifying the existing body of literature along with its potential gaps.

## **Theoretical Foundation**

### **Optimal Distinctiveness Theory**

The primary theoretical approach for this dissertation research study was the optimal distinctiveness theory. The focus of the study was on further examining the potential impact optimal distinctiveness theory can have on individual and group performance. Optimal distinctiveness theory was also utilized as a primary theoretical

approach because it focused on the factors necessary to achieve optimal, small-group performance and their effects on the workspace related stress, productivity, and job satisfaction (Leonardelli & Lloyd, 2016). Leonardelli and Lloyd (2016) argued that “according to optimal distinctiveness theory, sufficiently small minority groups are associated with greater membership trust, even among members otherwise unknown, because the groups are optimally distinctive” (p. 843). According to Shore et al. (2011), optimal distinctiveness theory provided the rationale for an instance when human beings want to be valued and confirmed as similar other members of the group as well as being recognized as unique and independent individuals. There are many advantages associated with being a productive, accepted, and contributing member of a group (Shore et al., 2011). One of the most important advantages, which is associated with being a productive and accepted member of a group, was the ability between group members to form strong bonds based on mutual loyalty and trust, which, as a result, tends to enhance the feelings of being secure and protected by each individual member of the group (Shore et al., 2011). The theoretical foundation of the optimal distinctiveness theory was used as a guide to further evaluate the necessary environmental conditions and employers’ proactive approach when it comes to ensuring that every workspace was suitable for a small group or a unit, which was likely to achieve higher levels of cohesion, unity, and work-related performance.

Employers should recognize and appreciate the fact that human beings are “social creatures” (Leonardelli & Lloyd, 2016, p. 843). With that in mind, every effort needed to be made to create a healthy workspace and an environment that promoted and

encouraged positive social interaction between members of a small group or a unit, which, for the purposes of this research study, referred to individuals who were sharing a customized office space. I believed that there is currently a significant gap in the literature regarding the effects of workspace conditions and strategic office placements on the overall levels of group cohesion and trust among the employees. Group cohesion and mutual trust were essential components for optimal work performance and wellbeing. One preliminary conclusion was drawn from the optimal distinctiveness theoretical approach, which was that features of physical environment created a unique equilibrium between a feeling of being a unique individual, who was also very engaged in the affairs and operations of his or her small group or unit. Brewer (1991), who is a pioneer of the optimal distinctiveness theory, recognized the relationship between social identity theory and individual's self-esteem. Despite of this relationship, however, Brewer (1991) argued that social identity theory should not be confused with individual's group membership and participation in various types of group activities or categories. The scientific community agreed that social identification process was primarily influenced by the level of distinctiveness of a particular social category (Brewer, 1991). Brewer, Manzi, and Shaw (1993) observed the significant increase in individual's loyalty and commitment to groups that appeared to be more exclusive and prestigious. The groups, that were viewed as more distinctive and elitist, satisfied the two important social needs; "distinctive group identities meet a need for inclusion of the self in larger social collectives while still providing for a sense of differentiation between self and others" (Brewer, Manzi, & Shaw, 1993, p. 88). I believed that for the workers, who were sharing the workspace, to

feel like they belong to an exclusive and prestigious group, they must have access to optimal workspace and their office placement process should not be randomized. Instead, workers should be placed in their respective office spaces in a strategic and premeditated manner, which would increase the likelihood of group cohesion and inclusion.

### **Group Performance**

The behavior individuals exhibited within and outside the group was an essential and unavoidable component of complex social life dynamics (Tasdemir, 2011). Tasdemir (2011) also noted that this topic was still preoccupying the minds of many social psychologists. Understanding the group behavior was essential component of nurturing and promoting an inclusive and productive modern-day workspace. There were many components and influencing factors when it comes to determining the distinctiveness of a group (Brewer et al., 1993). One determining factor of group's distinctiveness and cohesiveness was the actual size of the group (Brewer et al., 1993). According to Brewer et al. (1993), group loyalty and mutual trust was easier to achieve in smaller groups. With that in mind, each customized workspace needed to keep this in mind when designing the workspace and conducting office placements for their workers. Controlling the number of individuals in a group was essential to the overall quality and prosperity of the group. This philosophy translated into the strategy and approach to designing the optimal workspace environment, which enhanced the likelihood of increased productivity, lower work-related stress, and increase in job satisfaction. Leonardelli and Lloyd (2016) argued that "sufficiently small groups are more likely to be trustworthy, and when seeking to trust others, individuals will prefer membership in such groups (p. 843).

Even in the early years of social psychology, Allport (1954) noted that being a part of the group was very important to all individuals. This importance was caused by every individual's need for belonging and appreciation, which groups have been able to offer. Researcher hoped to be able to prove that customized workspace and strategic office placements can help individual workers achieve balance between feeling unique and being affiliated with a group. If this balance is achieved, it was likely to cause lower levels of work-related stress, increase in work productivity, and improved job satisfaction. It was my belief that at the core of every social theory is the fact that "human beings are innately social creatures" (Leonardelli & Lloyd, 2016, p. 843). Groups rely and need social interaction to thrive in any environment. This notion guided the researcher's efforts to evaluate the environmental factors necessary for creating and promoting optimal workspace environment, in which workers were more likely to be productive, satisfied, and with lower levels of work-related stress.

### **Optimal Distinctiveness Theory Rationale**

The theoretical principles, described above, can also be assigned to evaluate the importance of workspace design and customization, along with the strategic and strategic office placement process. The pivotal questions my dissertation research study strived to answer is how physical work environment conditions and characteristic of teams affected the overall team effectiveness and work-related productivity (De Cooman, Vantilborgh, Bal, & Lub, 2016). A portion of the optimal distinctiveness theory did indeed suggest that workers' performance and job satisfaction was in close correlation with each worker's

ability to find the right fit within their respective groups (De Cooman et al., 2016, p. 312).

Most, if not all, workers experienced one or more interactions with another human being during their work hours. Daily, human interaction was the foundation of every successful company, productive workplace, and high levels of individual and collective job satisfaction (La Macchia, Louis, Hornsey, & Leonardelli, 2016). For the employer to be able to offer optimal work environment, characterized by high productivity, low work-related stress, and overall job satisfaction of majority of workers, they must understand how individuals' decision-making process was affecting and influencing them when it comes to joining one or more groups (La Macchia et al., 2016). Size of the group played a significant role and had a profound impact on the individuals' decision to identify a particular group as trustworthy and to join that same group (La Macchia et al., 2016).

### **Cognitive-Motivational-Relational Theory**

Modern-day workforce has experienced rapidly changing corporate world with many different trends and sets of expectations being presented to employees. Although workspace expectations and dynamics have changed over the years, the concept of work-related stress has been present for many centuries and was documented and discussed by academics from many different generations (Lazarus, 1993). One of primary expectations of every employer was to maximize the workers' productivity while ensuring their well-being and manageable stress levels. However, most employees failed to recognize the importance that emotions have on the overall quality of employees' performance and their wellbeing (Lazarus, 1991). Without accounting for individual differences and the

need to recognize the individuality of every employee along with their workspace needs it was very difficult to determine the origin and the kind of work-related stress (Lazarus 1993). Emotions play a very important role in our everyday lives, which included the time we spent at work, which was often time filled with psychological and physiological stress (Lazarus, 1993). Role of emotions in the complex, modern-day, workforce dynamics cannot and should not be neglected; on the contrary, it should be further studied and the existing theoretical approaches, such as cognitive-motivational-relational theory should be thoroughly analyzed and utilized (Lazarus, 1991).

### **Main Purposes**

As previously mentioned, the role of emotions in the overall wellbeing of employees and their productivity cannot be neglected. Lazarus (1991) proposed an idea that cognitive-motivational-relational theory of emotion has significant implications in our every-day interactions, including our behavior in the workspace. One of the main purposes of the cognitive-motivational-relational theory was to help with understanding, explaining, and prediction individual and group emotions (Lazarus, 1991). The exact role and influence of motivation and emotion, when it comes to workspace design and the human interaction with their physical workspace, has not been fully understood nor adequately addressed by the researchers (Szalma, 2014). The interaction between emotions and motivation was very important when trying to understand the workspace dynamics including the interaction between humans and their respective physical work environment. Lazarus (1991) was the key opinion leader when it comes to role of emotions and motivation in achieving individual and collective goals. To better

understand the implications of the Cognitive-Motivational-Relational Theory and how it was related to the workers' productivity and work-related stress levels, one must also keep in mind the type of interaction that workers had with their every-day physical work environment (Lazarus, 1991).

### **Individual and Group Emotion**

Emotions have long been recognized as one of the essential components and influencing factors in the complex and constantly changing human interactions (Lazarus, 2006). However, it was not until the last couple of decades that emotions were given the attention they deserve by the psychologists and the research community (Lazarus, 2006). Emotions had a very significant, and yet very discrete and subtle role, in the intrapersonal relationships, adaptation abilities, and individual and group behavior and actions, which were often reflected in the workspace environment (Lazarus, 2006). The degree to which emotions affected individuals and groups can vary was dependent on a variety of factors, including personality traits, environmental influences, which included the physical work environment relevant to author's dissertation topic.

After experiencing decades of neglect and irrelevance, the concept of studying emotions in different areas of scientific research has enjoyed a sudden, drastic, and unexplained turn of events which placed a spotlight of the research community on this concept and the interest has peaked in the second half of the 20<sup>th</sup> century, focusing particularly on the issue of psychological stress (Lazarus, 2006). The role of emotions was, in author's opinion, essential for maintaining a stable psychological profile inside and outside the workspace. Lazarus (1991, 1993, 2006) argued this point throughout

majority of the late 20<sup>th</sup> century and it appeared that the research community was very receptive and interested in learning more about the effects of Cognitive-Motivational-Relational Theory of Emotion on individual and group behavior and complex dynamics that were consistently present.

### **Behavior in the Workspace**

Workers' behavior within their workspace was heavily dependent on the quality and the type of the workspace environment they were inhabiting for extended periods of time every day (Ricciotti et al, 2014). It was not until the late 20<sup>th</sup> century when the research community began focusing on the workers' experiences with their physical work environment and the potentially beneficial and detrimental effects of different types of workspace designs (Vischer, 2008). Ricciotti et al. (2014) discovered that healthcare employees seemed to have an improved communication and increased productivity in an innovative and open workspace design. These effects were likely to be observed in other industries and workspace environments due to workers' behavior, which was likely to be influenced by the same factors regardless of their occupation and industry. Further enhancement of the workspace quality was possible and achievable if the approach to workspace design was carefully planned and executed while maintaining an open-mind and flexible mentality (Ricciotti et al., 2014).

The design of the workspace and the way in which it was occupied by workers, affected the workforce in many ways (Vischer, 2008). In addition to affecting individual and group emotions and feelings, the quality of workspace also had a significant impact on the work-related performance, job satisfaction, and levels of work-related stress

(Vischer 2008). Human behavior was a very complex and dynamic concept and was heavily influenced by the environmental factors (Vischer, 2008). Vischer (2008) noted that there were several behavioral components pertinent to the modern-day workforce and their comfort and satisfaction, work-related productivity, comfort, and workers' sense of collective belonging. As one of the most influential researchers on this topic, Vischer (2007, 2008) has paved the path forward for other scholar practitioners who hoped to apply Vischer's findings and enhance the processes by which the workspaces were designed, built, and managed by companies nationwide. In the section below, each of the key variables and concepts were defined and discussed in more detail.

### **Literature Review Related to Key Variables and/or Concepts**

#### **Work Environment and Productivity**

Physical work environment has been often linked with workers' overall wellbeing and their level of work-related performance (Seddigh et al., 2014). There was a sense of urgency to better understand and analyze the effects of innovative and customized workspaces on workers' overall wellbeing and productivity (Meijer, Frings-Dresen, & Sluiter, 2009). The modern-day workspace concepts have changed significantly and rapidly (Meijer et al., 2009). The size and type of office space has been shown to have a direct correlation and effects on workers' performance and overall ability to conduct complex and challenging tasks (Seddigh et al., 2014). The tasks employees were expected to perform have become significantly more difficult and complex, and workers' have learned to rely a lot more on the technological resources as well as the collaborative

efforts with their colleagues (Vischer, 2007). However, for optimal collaboration to be able to occur, optimal workspace conditions must be provided to all workers.

The results from the study conducted by Seddigh et al. (2014) provided a clear indication that the smaller and more customized workspace environments enabled the workers to be more productive and to perform challenging and demanding tasks on a much higher level when compared to their colleagues who worked in bigger and more generic office spaces. Implementing innovative workspace concepts was not cheap, simply, or easy to implement. There were a lot of moving pieces and an upfront investment by the employer without a guaranteed return on the investment (ROI). While it is less probable to see short-term difference on workers' wellbeing and productivity, companies can expect to enjoy significant long-term benefits via increased work-related performance and overall wellbeing of their workers (Meijer et al., 2009). The biggest mistake that companies made when implementing workspace-related changes and innovations, is that they failed to properly monitor their employees for short-term and long-term improvements in their overall productivity, work-related stress, and job satisfaction (Meijer et al., 2009).

There were several workspace design concepts that were available to employers when deciding where and how to house their employees. There were several different factors in, both, traditional and innovative workspace designs, and they included the location of the office/workspace, the physical layout of the workspace, and the way in which the physical workspace was used (De Croon, Sluiter, Kuijer, & Frings-Dresen, 2005). There were many complex dynamics when it came to providing ideal workspace

environment, and employers first needed to consider the type of demands that were being placed on their employees and all the pros and cons of a particular workspace environment. For example, companies needed to decide if they were willing to accept the risks associated with open-plan workspaces, which included decreased sense of privacy and increase in environmental noise but came with an increase in interpersonal interactions as well and increased levels of communication and collaboration among employees (De Croon et al., 2005). However, the demands placed on the modern-day workforce along with the cognitive workload, have increased exponentially (De Croon et al., 2005). With that in mind, employers must go back to the drawing board and see how they can combine the benefits of traditional and innovative workspace designs and create a customized approach that suits their specific needs and meets the expectations of their employees. Haynes, Suckley, and Nunnington (2017) also found the contradicting findings in the more recent studies, which highlighted negative aspects of open-plan workspace including decreased level of workers' privacy, and significant impediments to achieving optimal productivity. The above-mentioned factors presented a very significant dilemma for the researchers and employers – whether the perceived benefits of open-plan workspace outweighed the negative factors associated with this type of workspace design (Haynes, Suckley, & Nunnington, 2017). Additional research was necessary to further evaluate the necessary components for an ideal workspace environment, that enabled maximized productivity and decreased work-related stress.

The importance and relevance of providing optimal work environment has recently emerged as one of the key issues in the modern-day corporate America and

worldwide. Greenaway, Thai, Haslam, and Murphy (2016) highlighted the important role physical workspace design plays on human psychological and physiological day-to-day functioning. At the beginning of 20<sup>th</sup> century, one of the most popular approaches to designing and managing workspace focused on closely managed and controlled of the workspace environment (Greenaway, Thai, Haslam, & Murphy, 2016). Second half of the 20<sup>th</sup> century brought with it a shift in workspace management approach, which focused on very “clean and lean philosophy of space management” (Greenaway et al., 2016, p. 36). This approach was based on a belief that optimal workspace conditions require significant limitations, and perhaps even an elimination of personalization in the workspace environment (Greenaway et al., 2016, p. 36) While it was true that corporate organizations were investing a significant amount of time and resources aimed at improving workers’ productivity, physical work environment has not been the primary focus of the evolution process (Brewer, Carnes, & Garner, 2007). With many different work-related resources that were changing and evolving rapidly (i.e. human assets, technology innovation), workspace environment design has not been a primary focus for the corporate world (Brewer et al., 2007). It was evident that additional work was needed to explore the different factors and components of the physical workspace environment that are needed to achieve optimal productivity. The two approaches most commonly used in today’s corporate world were open-plan workspace and implementation of lean and depersonalized workspace, which deprived employees of any items and/or behavior that was unique to their identity and personality traits (Greenaway et al., 2016). Recent experimental research provided a very troubling indication that lean approach to

workspace design and management can have very harmful and long-lasting negative effects on workers' productivity, wellbeing, and job satisfaction (Nieuwenhuis, Knight, Postmes, & Haslam, 2014). Individual and group identity was very important for the overall levels of work-related productivity and wellbeing and needed to be taken into consideration during the workspace design and management processes (Greenaway et al., 2016).

As it was demonstrated in the paragraphs above, physical workspace can and did have a large impact on the overall levels of productivity. Without a clear consensus among the researchers and corporate leaders on the optimal approach to workspace design, an argument was made that there was a need for providing workers a customized work environment, that provided space for workers' creativity, identity, personality traits to be expressed. With both, open and traditional, workspace design concepts having significant flaws and potentially detrimental factors to workers' productivity levels and overall wellbeing, corporate leaders and business owners needed to take an open-minded and holistic approach to providing optimal workspace environment for their employees, and the "one-size-fits-all" approach was simply not sufficient in this case.

There has been substantial amount of evidence over the years regarding the workers' comfort and satisfaction levels regarding their physical work environment, can and often did have a direct impact on their productivity levels (Haynes, 2008). To achieve optimal comfort levels and provide workers with a stimulating and well-designed physical work environment, the companies must not only design but manage the workspace in a satisfactory manner (Knight & Haslam, 2010). The core of the problem was the fact that

“management of modern office space is typically influenced far less but psychologists than by architects, interior designers, facility managers, corporate real estate agents, and popular management theorists” (Knight & Haslam, 2010, p. 158). Without the proper input from the psychologists, it was very difficult to understand the needs and complex dynamics of the modern-day workforce and to adapt the workspace design process to meet those needs (Knight & Haslam, 2010). Workspace environment factors had a significant impact on the overall levels of productivity and performance for employees around the globe (Naharuddin & Sadegi, 2013). The overall success of the company was ultimately depending on the quality of the workspace accommodations (Naharuddin & Sadegi, 2013). One of the most challenging factors in the last decade was the fact that the physical work environment has been constantly changing due to several reasons including changes in our society and the technological evolution (Naharuddin & Sadegi, 2013).

Regardless of the constantly changing workspace dynamics and very fluid and unpredictable influencing factors, there was a very strong and evident connection already established between workers performance and wellbeing and the quality of their physical work environment (Donald et al., 2005). With the overwhelming evidence supporting the notion that quality of workspace environment had a direct effect on workers’ productivity and wellbeing, the employers were not only professionally, but also morally, obligated to do what was best for the employees and to invest adequate resources and time in developing and managing optimal workspace environments (Donald et al., 2005). Recognizing the importance of this issue and understanding the potential consequences of

a poorly designed and managed workspace, including an increase in physiological and psychological stress levels, was critical across different industries and should be the highest priority for every organization striving for long-term success and growth (Donald et al., 2005).

The need to improve the workspace quality has been well documented over the last few decades and the sense of urgency to provide employees with optimal work environment, in which they can achieve highest levels of productivity while maintaining a healthy balance between personal and professional life and wellbeing. Adverse workspace conditions have long been attributed to many negative outcomes regarding employees' wellbeing, productivity, and job satisfaction (Elovainio et al., 2015). Less than ideal workspace environment undoubtedly had an adverse effect on employees' wellbeing, which, as a result, caused a significant decrease in employees' productivity (Elovainio et al., 2015). The strong relationship between workspace environment, wellbeing, and job productivity needed to be highlighted and all employers and workspace designers needed take this in consideration when approaching a creation of a new environment or even renovation of an existing space. Design of the workspace environment cannot be taken for granted any longer and a need for a strategically designed workspace must be a top priority for every employer regardless of their size and industry (Toker & Gray, 2007). This need has existed for a long time and the research studies, conducted over the last couple of decades have further reinforced the sense of urgency regarding the need for a healthy workspace environment, and the potentially devastating effects of a subpar workspace design. In addition to having detrimental

effects on the individual and collective productivity, workspace environment was also a very significant factor when it comes to employees work-related stress, and this topic was further discussed in the next section below.

### **Work Environment and Work-Related Stress**

As previously stated, majority of the studies prior to Vischer (2007) did not pay much attention on the impact of poorly designed workspace environment and how it affected the employees' work-related stress levels. Vischer (2007) also pointed out to accumulating amount of empirical data that supported the notion that physical workspace environment was directly affecting job-related performance, satisfaction, and work-related stress. There were many different aspects of the workspace environment design which determined the overall quality of an office space. The layout of the office, the way in which the office was utilized, and the location of the office space were the three primary factors that were identified by De Croon, Sluiter, Kuijer, and Frings-Dresen (2005). To achieve an optimal balance and synergy between these three factors, the workspace design needed to be a true team effort with an input from many different stakeholders and professional, including the employees, architects, psychologists, ergonomists, and company leadership. Only with an optimal collaboration from the above-mentioned stakeholders and keeping the wellbeing of employees as a priority goal, did result in a well-designed physical workspace that promoted wellbeing, productivity, and satisfaction of the employees. (DeCroon, Sluiter, Kuijer, & Frings-Dresen, 2005). Work-related stress was taking a serious toll on the health and productivity on the employees across different industries and demographics (Meijer, Frings-Dresen, &

Sluiter, 2017). Additional research was necessary to determine the necessary factors that were needed to create an optimal work environment, which directly affected the levels of work-related stress employees were experiencing daily.

Considering the fact workspace environment factors were affecting the amount of work-related stress, companies were looking for ways to enhance the workspace conditions and to enhance the existing work environment in which their employees were spending more than 40 hours a week (Vischer, 2007). The dynamic between environmental stressors and work environment was complex and important for purpose of this dissertation research, and was closely evaluated and analyzed (Laurence, Fried, & Slowik, 2013).

Work-related stress, if not properly addressed, can have devastating effects on employees and can lead to burnout. In a recent study, Laurence, Fried, and Slowik (2013) found that one of the key components of employees' burnout was caused by what they referred to as "emotional exhaustion" (p. 144). Emotional exhaustion was further defined as a "syndrome under which individuals feel that their emotional resources are depleted, a feeling that manifests itself through physical fatigue and the experience of feeling psychologically and emotionally drained" (Laurence et al., 2013, p. 144). Once emotional exhaustion was experienced by an employee, the likelihood of adverse events and decline in production and job satisfaction was likely to occur (Laurence et al., 2013). What was most relevant for the purposes of this dissertation topic was the substantial amount of empirical evidence linking unsatisfactory workspace conditions and emotional exhaustion (Laurence et al., 2013). Without an optimal workspace environment, the

employee's ability to deal with the every-day tasks and challenges was significantly hindered, which ultimately had a profound effect on the overall success of the company. Work-related stress has already been recognized as a "major public health threat" and individuals responsible for designing and implementing physical workspace environment solutions needed to take this responsibility very seriously considering all the financial, health, and societal implications (Thayer et al., 2009, p. 431). Despite of robust, existing literature on the devastating consequences of work-related stress, and the connection between the quality of the physical workspace environment and work-related stress, there have been very few studies conducted with the primary goal of investigating the direct effects of physical workspace environment on employees' psychological and physiological health (Thayer et al., 2009). The most important conclusion from the research study that Thayer and colleagues (2009) conducted was that the research community was deficient when it comes to understanding effects of physical workspace environment on work-related stress and employees' wellbeing. This dissertation research study aimed to address this deficiency and provided additional insight regarding the effects of physical workspace environment and work-related stress.

To provide optimal workspace environment, one must first understand the potential benefits and drawbacks of different workspace designs. Open-plan workspace design has been heavily favored by the employers because of its' cost efficiency and belief that it promoted interaction and communication between employees (Shafaghat, Keyvanfar, Lamit, Mousavi, & Majid, 2014). Contrary to the majority opinion, there were other workspace design options that helped promote workplace productivity along

with work-related stress. Open-plan workspace certainly had its benefits and needed to be incorporated in the author's proposed approach, which included combination of customized workspace design and strategic office placement, on productivity, work-related stress, and job-satisfaction. A variety of different factors including demographics, culture, race, ethnicity, type of industry, age, education background, and personality traits needed to be considered when it came to creating optimal workspace environment, which should have been customized based on the factors listed above in addition to many other environmental, social, and ergonomic factors (Shafaghat, Keyvanfar, Lamit, Mousavi, & Majid, 2014). The quality of workspace environment had significant implications in relation to the professional and personal outcome for millions of employees around the nation and worldwide. I hoped to provide additional insight and a new solution to providing optimal physical workspace environment, which resulted in lower levels of work-related stress and better quality of life for the employees.

### **Work Environment and Job Satisfaction**

There was a robust amount of literature about the influence of workspace environment on employees' behavior and their perceived job satisfaction (Kim & de Dear, 2013). While open-plan workspace design has been praised by many as the ideal solution for reducing costs associated with workspace design and management and promoting communication and interaction among employees, there was an opposing faction within the research community that was more focused on the adverse effects open-plan workspace design can have on employees' performance and job satisfaction (Kim & de Dear, 2013). However, the solution to finding optimal workspace

environment, which would result in strong work-related performance and satisfaction, was not as simple as just providing employees with an open-plan workspace design (Choi, Lee, & Park, 2015). Kim and Lee's (2013) research offered several alternatives to open-plan workspace design, which provided the indication that customization of the workspace design approach could yield significantly better results than one of the standard workspace design types.

As previously mentioned, researcher believed that there were several factors, requiring consideration, when it comes to providing optimal working conditions for employees. One must keep in mind factors like psychosocial issues, work-related stress, and fatigue when deciding on the best approach for workspace design (Choi et al., 2015). If the workspace design and management did not properly address the work-related stressors, the likelihood for deteriorating performance and morale was likely to increase (Choi et al., 2015). This provided a clear indication for the current need to come up with a more customizable approach to workspace design and management, which was likely to result in increased employee morale, job satisfaction, and work-related performance. For several decades now, the researchers have been linking the workspace design and office type with the employees' overall wellbeing and job satisfaction. Danielson and Bodin (2008) argued that employees' overall health and job satisfaction would vary across different approaches to workspace design and management. In their recent study, Danielson and Bodin (2008) examined the effect that seven, different office types had on employees' overall health and job satisfaction. The study that Danielson and Bodin (2008) conducted was revolutionary and creative, as it evaluated seven different office

types and introduced a hypothesis that the overall health of employees along with their job satisfaction will be significantly different across each of the office types. This study was one of the pivotal influences on the proposed dissertation thesis, as it argued for consideration of different office types and workspace customization with hopes to achieve optimal working conditions, which would inevitably lead to healthier and more satisfied employees across different industries. Danielsson and Bodin (2008) found that employees' overall health was the worst in the "medium-sized and small open plan offices" and the best outcome regarding employees' health was found in "cell offices and flex offices" (p. 636). Understanding the strengths and weaknesses of all seven office types was a crucial step in understanding the necessary components required for creating an optimal workspace for employees across different industries. Approaching this complex socio-economic and health issue with creative solutions and an open mind was the essential step in finding the ideal solution for reducing work-related stress, productivity, and job satisfaction.

Job satisfaction was one of the crucial metrics that every company can use to project how successful is their organization. Decreased job satisfaction can cause a lot of different problems for an organization including a spike in sick-days requests by the employees (Bockerman & Illmakunnas, 2008). Absence due to sickness was strongly influenced by the overall morale of the workforce and their individual and collective levels of job satisfaction (Bockerman & Illmakunas, 2008). When considering a financial burden of investing in redesigning a subpar workspace environment or creating an optimal new workspace, organizational leadership must also consider the long-term cost

of an exponential increase in sick leave requests and sickness absenteeism (Bockerman & Illmakunas, 2008). One of the primary reasons why job satisfaction was important can be found in the connection between employees' job satisfaction and overall levels of productivity (Brewer, Carnes, & Garner, 2007). As previous research by Brewer, Carnes, and Garner (2007) indicated, designing a new office space was not the only approach to boost the job satisfaction numbers, and by default increase employees' individual and collective productivity. Instead, companies could have chosen a more cost-efficient option of renovating and updating the existing workspace, which would still yielded positive results in terms of employees' individual and collective job satisfaction and productivity (Brewer et al., 2007). In a more recent study, Leder, Newsham, Veitch, Mancini, and Charles (2016) conducted two large studies aimed at better understanding the relationship between the physical work environment factors and job satisfaction. One of the studies Leder and colleagues (2016) conducted focused primarily on open-plan workspaces in traditional buildings, and the second study focused on open-plan workspace design as well as private offices in traditional and modern buildings. The most important conclusion from this study was that job satisfaction was most heavily influenced by the workspace design and office type (Leder, Newsham, Veitch, Mancini, & Charles, 2016). Author planned to build on the research conducted by Leder et al. (2016) and to further explore the necessary factors required to achieve optimal physical work environment and highest levels of job satisfaction.

One of my top priorities is to better understand the relationship between employees' satisfaction levels in relation to their workspace conditions and employees'

overall levels of job satisfaction (Newsham et al., 2009). Newsham and colleagues (2009) argued that the quality of the workspace can be interpreted by employees as an “expression of management’s attitudes towards the employee” (p. 137). This supported the above-mentioned notion that employees’ satisfaction with physical work environment was likely to be closely connected with their perceived job satisfaction. The findings from Newsham’s et al. (2009) study further solidified the belief that increased levels of workspace satisfaction lead to increased levels of job satisfaction. To better understand the necessary factors required for workspace satisfaction, one must keep in mind the potential impact of occupancy quality and how was it perceived by every employee (Smith, 2014). However, the results of Smith’s (2014) study also provided an indication that occupancy quality is not solely responsible for employees’ job satisfaction. Proposed study aimed to further evaluate the dynamics between customized workspace design and strategic office placement on overall job satisfaction.

### **Strategic Office Placement in Modern-Day Workspace**

Despite of an intense focus of the research community in the recent decades, there was very little known about the effects of strategic office placement in modern-day workspace on employees’ overall wellbeing, productivity, and job satisfaction. Author intended on expanding on the limited amount of existing literature, as it was likely that customized workspace combined with strategic office placement had a significant influence on the overall levels of productivity, wellbeing, and job satisfaction. Bell and Brown (2015) argued that business teams are most likely to succeed when, in addition to an optimal work environment, the management can put together a “right mix of

individuals” (p. 2). When the company’s management considered a variety of factors including employees’ knowledge and skill levels, personality traits, and job duties and responsibilities, the likelihood of having well-functioning teams exponentially increased (Bell & Brown, 2015). Bell and Brown (2015) also proposed valuable guidance on strategic office placement and factors necessary to achieve team cohesion, which was expanded upon in the proposed research study. Due to a lot of uncharted territory in relation to strategic office placement and the effects it has on employees’ productivity, work-related stress, and job satisfaction, I relied on my personal experience with strategic office placement process and aimed to further elaborate on this innovative approach which was closely connected with the benefits of customized workspace in relation to work-related productivity and wellbeing.

### **Benefits of Strategic Office Placement and Customized Workspace Combined**

I believed that there were many undiscovered benefits in relation to the effects of customized workspace combined with strategic office placement on work performance, employees’ wellbeing and satisfaction. To my knowledge, very little literature currently existed that addressed both approaches at the same time. There were many potential benefits of these two initiatives, when they were combined into one strategic approach. However, for the purposes of this research study, I only measured the impact of customized workspace and strategic office placement on productivity, work-related stress, and job satisfaction. The desired outcome from this research study was to stimulate and encourage additional research on the effects of combined office design and

placement initiatives on the overall work-related performance of the employees, along with their wellbeing and job satisfaction.

### **Summary and Conclusions**

Chapter 2 provided the reader with all relevant and applicable literature and positions within the research community when it came to the complex dynamics and influencing factors contributing to positive or deficient conditions within the workspace. Literature reviewed in Chapter 2 covered and defined different types of workspace design concepts, and preferred approaches to redesigning or creating a new and better workspace. Furthermore, comprehensive literature review also defined and discussed the two independent variables (workspace design and office placement) and three independent variables (productivity, work-related stress, and job satisfaction). Literature supported the author's introductory statement regarding the alarming need to address the work-related stress (Marcato et al., 2016). The review of literature also established a strong connection between workspace design and the overall employee productivity, work-related stress, and job satisfaction, and reinforced the sense of urgency for additional research on this important socio-economic topic (Vischer, 2007, 2008; Lee & Brand, 2005; Shier & Graham, 2011, Meijer, Frings-Dresen, & Sluiter, 2009). The review of literature also provided a thorough insight into different workspace design concepts and discussed their benefits and inconsistencies (Seddigh et al., 2014; De Croon, Sluiter, Kuijer, & Frings-Dresen, 2005; Greenaway, Thai, Haslam, & Murphy, 2016; Nieuwenhuis, Knight, Postmes, & Haslam, 2014).

Chapter 3 will focus on explaining the study's research design, the rationale, population and sampling, data collection, instruments used to collect data, and the process by which the collected data will be securely archived and stored for a predetermined period. Chapter 3 will also focus on other logistical and operational aspects of the research study, including the potential challenges, limitations, validity, and potential ethical concerns researcher might encounter during the data collection process.

## Chapter 3: Research Design

### **Introduction**

I conducted a quantitative study with a 2x2 causal comparative design to determine the relationship between two independent variables (customized workspace and strategic office placement) and three dependent variables (work-related stress, productivity, and job satisfaction). Causal-comparative design was the most appropriate research design to use for this research study because its primary purpose was to identify potential relationships between independent and dependent variables. MANOVA was conducted to test all study-related hypothesis along with the main effect for each independent variable and any interaction effect of the two independent variables for each of the three dependent variables. The independent variables were defined as workspace design (customized, and random/other type of workspace) and office placement (random versus strategic office placement process).

As stated in Chapter 1, this quantitative study had several purposes. The first and primary purpose was to explore the relationship between different workspace design concepts and employees' levels of work-related stress, productivity, and job satisfaction. The second purpose of the study was to examine the relationship between the approach to office placement and employees' level of work-related stress, productivity, and job satisfaction. The third purpose of the study was to examine the interaction between the two independent variable in order to determine if the outcome was different in any way when customized workspace design was combined with strategic office placement process and the relationship this interaction would have with the three dependent

variables. As indicated in Chapter 1, my primary objective was to evaluate the correlation between strategic office placement, combined with customized workspace, and work-related stress, productivity, and job satisfaction. I hoped that the study could fill the existing gap in the research literature and provide better insight into the potential benefits of customized workspace and strategic office placement on employees' work performance and overall well-being.

Chapter 3 includes a detailed explanation of the study's research design and the rationale behind my selection of the research design. I also discussed the sampling strategies, the population used in the study, and the data collection approach and strategy. This chapter also includes description of the data archiving procedure, along with the different instruments that I used to measure the independent and dependent variables. In the concluding section of Chapter 3, I discuss any potential threats to validity and the measures and strategies that were put in place to minimize the risk of this happening during the study.

### **Research Design and Rationale**

To provide adequate response to the research questions, outlined below, I used a quantitative approach. A 2x2 causal comparative design was utilized to better understand the relationship between the customized workspace and strategic office placement (independent variables) and work-related stress, productivity, and job satisfaction (dependent variables). Use of the causal comparative design helped with getting detailed answers to the nine research questions listed below, as it provided me with the opportunity to collect the data from the study participants without interfering or

attempting to control the environment in which they worked. I relied on the reporting of study participants to determine their impressions of the type of work environment they spend most of their time in, as well as the office placement process that was utilized by their employer. Nine research questions, listed below, were used to provide thorough insight regarding the relationship between the two independent and three dependent variables.

RQ1: Is there a difference in workers' productivity, in relation to workspace design (customized versus generic) as measured by the IWPQ?

H<sub>0</sub>1: There will be no difference in workers' productivity in relation to workspace design (customized versus generic) as measured by the IWPQ.

H<sub>A</sub>1: There will be a difference in workers' productivity in relation to workspace design (customized versus generic) IWPQ.

RQ2: Is there a difference in workers' productivity in relation to office placement (strategic versus random) as measured by IWPQ?

H<sub>0</sub>2: There will be no difference in workers' productivity in relation to office placement (strategic versus random) as measured by the IWPQ.

H<sub>A</sub>2: There will be a difference in workers' productivity in relation to office placement (strategic versus random) as measured by the IWPQ?

RQ3: Is there a difference in workers' productivity in relation to an interaction of workspace design and office placement as measured by the IWPQ?

H<sub>0</sub>3: There will be no difference in workers' productivity in relation to an interaction of workspace design and office placement as measured by IWPQ.

H<sub>A3</sub>: There will be a difference in workers' productivity in relation to an interaction of workspace design and office placement as measured by IWPQ.

RQ4: Is there a difference in workers' overall levels of work-related stress in relation to workspace design (customized versus generic) as measured by the Work Stress Scale?

H<sub>04</sub>: There will be no difference in workers' overall levels of work-related stress in relation to workspace design (customized versus generic) as measured by the Work Stress Scale.

H<sub>A4</sub>: There will be a difference in workers' overall levels of work-related stress in relation to workspace design (customized versus generic) as measured by the Work Stress Scale.

RQ5: Is there a difference in workers' overall levels of work-related stress in relation to office placement (strategic versus random) as measured by the Work Stress Scale?

H<sub>05</sub>: There will be no difference in workers' overall levels of work-related stress in relation to office placement (strategic versus random) as measured by the Work Stress Scale.

H<sub>A5</sub>: There will be a difference in workers' overall levels of stress of work-related stress in relation to office placement (strategic versus random) as measured by the Work Stress Scale.

RQ6: Is there are difference in workers' overall levels of work-related stress in relation to an interaction of workspace design and office placement as measured by the Work Stress Scale?

H<sub>06</sub>: There will be no difference in workers' overall levels of work-related stress in relation to an interaction of workspace design and office placement as measured by the Work Stress Scale.

H<sub>A6</sub>: There will be a difference in workers' overall levels of work-related stress in relation to an interaction of workspace design and office placement as measured by the Work Stress Scale.

RQ7: Is there a difference in workers' job satisfaction in relation to workspace design (customized versus generic) as measured by the Brief Index of Affective Job Satisfaction?

H<sub>07</sub>: There will be no difference in workers' job satisfaction in relation to workspace design (customized versus generic) as measured by the Brief Index of Affective Job Satisfaction.

H<sub>A7</sub>: There will be a difference in workers' job satisfaction in relation to workspace design (customized versus generic) as measured by the Brief Index of Affective Job Satisfaction.

RQ8: Is there a difference in workers' job satisfaction in relation to office placement (strategic versus random) as measured by the Brief Index of Affective Job Satisfaction?

H<sub>0</sub>8: There will be no difference in workers' job satisfaction in relation to office placement (strategic versus random) as measured by the Brief Index of Affective Job Satisfaction.

H<sub>A</sub>8: There will be a difference in workers' job satisfaction in relation to office placement (strategic versus random) as measured by the Brief Index of Affective Job Satisfaction.

RQ9: Is there a difference in workers' job satisfaction in relation to an interaction of workspace design and office placement as measured by the Brief Index of Affective Job Satisfaction?

H<sub>0</sub>9: There will be no difference in workers' job satisfaction in relation to an interaction of workspace design and office placement as measured by the Brief Index of Affective Job Satisfaction.

H<sub>A</sub>9: There will be a difference in workers' job satisfaction in relation to an interaction of workspace design and office placement as measured by the Brief Index of Affective Job Satisfaction.

I used locations across the United States for data collection purposes. I presented employers and employees with the potential benefits this research study aimed to fulfill along with the positive social change it hoped to enact. The initial communication in regard to the study was conducted via email and phone. This was intended to motivate and incentivize the potential participants as an alternative to providing financial incentives.

Consistent with the existing literature, which I discussed in Chapter 2, I chose a quantitative, causal-comparative design. Danielsson et al. (2014) evaluated the impact of the office space quality on employees' wellbeing by using pen-and-paper surveys and a non-experimental research design. Danielsson et al. (2014) acknowledged the limitation of the non-experimental design relying on the self-reporting by participants, but also added new insight regarding the impact that office type and quality have on the overall health and wellbeing of the modern-day workforce. In a similar study, Meijer et al. (2009) used a quantitative, causal-comparative, longitudinal research design to evaluate the relationship between office innovation and employees' health and work-related performance.

## **Methodology**

### **Population**

The population for this study consisted of male and female full-time employees working in one of the 5 companies and organizations that agreed to participate. These organizations were located in various locations nationwide. There were more than 400 full-time employees combined from all of these companies and locations, which allowed me to obtain a representative and sufficiently large sample of 131 participants.

### **Sampling and Sampling Procedures**

For this study, I used nonprobability sampling designs. More specifically, I used a convenience sampling design, which is the most frequently used nonprobability sampling approach. I planned on examining the relationship between the independent and dependent variables via causal-comparative design, and the most efficient approach to

obtain an adequate sample was the use of the convenience sampling approach. I intended on approaching the companies and organizations from different industries and geographical locations that had a sufficient number of full-time employees. Companies that were asked and agreed to participate in my research study were located across the United States, including North Carolina, where I currently live. Participating companies and organizations varied in size and industry, which provided me with a diverse and representative pool of participants. Sample size included all full-time employees, without any demographical restrictions.

To calculate an accurate sample size, I used the G\*Power Statistical Calculator Version 3.1.9.3 for Mac OS X 10.7. G\*Power to determine the most appropriate sample size that took into consideration my research design, number of independent and dependent variables, and the statistical analysis planned for the study. Based on my study's parameters and research questions, I decided that MANOVA was the most appropriate statistical analysis to run to determine if there was a significant relationship between customized workspace and strategic office placement and work-related stress, productivity, and job satisfaction. Because MANOVA was selected to test the relationship between independent and dependent variables, with confidence interval assumed at 95%, along with  $\alpha$  (error of probability) = 0.05, medium effect size of 0.25, and the power ( $1-\beta$  error probability) = 0.80, the recommended minimum sample size, calculated by G\*Power, was 128 participants. With that in mind, I decided to recruit 400 participants with the hopes of collecting data from 180 participants.

### **Procedures for Recruitment, Participation, and Data Collection**

As mentioned, I approached several companies and organizations and solicited their cooperation and permission to collect data at their office locations nationwide. The recruitment of the participants was conducted in collaboration and coordination with the companies' human resources and management personnel. I disseminated information about my study and the invitation to participate via SurveyMonkey (the human resources department or company-authorized agent shared the SurveyMonkey link with their employees). This project was contingent upon approval from the Walden University IRB and the leadership personnel from all companies and organizations. I obtained IRB approval on May 28, 2018. Walden University's approval number for this study is 05-29-18-0589637.

The data collection process did not violate any existing company policies or include any deceptive or unethical actions. All study participants were contacted with the same template content, which was preapproved by their company. All the recruiting correspondence, which was an email with the link to the SurveyMonkey questionnaire and the consent form, contained my name, contact information, and clearly stated the purpose of this study while emphasizing voluntary participation.

In addition to participation in the study being voluntary, there were no specific demographic factors that were grounds for exclusion from participating in the study. I did not believe that demographic differences, which are found in most workplaces, had any potential to affect the quality and the validity of the data being collected. Informed consent was sought from every potential participant in the study. Before any of the

potential participants made the decision whether they wanted to participate in my study, they were expected to read, understand, and agree to the provisions outlined in the informed consent form. The informed consent form provided participants with the purpose of the research study and also provided all prospective participants with an opportunity to ask any questions, express concerns, and understand their right to withdraw from the study at any point in the data collection process.

My plan was to collect data via a computerized survey method by providing each participant with the questionnaires aimed at evaluating their current workspace conditions and office placement process along with overall levels of productivity, work-related stress, and job satisfaction. I used SurveyMonkey as an online data-collection tool, which allowed me to disseminate and collect the data in the most time efficient way possible. The informed consent form, along with the three instruments that I used to collect data on the three dependent variables, was uploaded to SurveyMonkey and made available to all study participants.

### **Instrumentation and Operationalization of Constructs**

Two independent variables, which were defined as customized workspace and strategic office placement, were presented to each study participant, and I relied on the self-reporting by each participant regarding their impression of the quality and customization level of their workspace along with their evaluation of the office placement process. Each participant was provided with a clear definition of *customized workspace* and *strategic office placement process*. Participants' perceptions of the quality and customization level regarding their workspace was the primary way to determine the

overall workspace quality along with the strategic office placement process. I provided each participant with an opportunity to determine the status of their physical work environment and office placement process by providing clear and concise definitions of the two independent variables. Each participant answered two Yes or No questions that determined whether their workspace was customized and if they were being placed in their workspace via strategic and random office placement.

Customized workspace variable was broadly defined as a physical work environment, in which employees had all the necessary components to reach their optimal productivity and maintain healthy levels of wellbeing and job satisfaction. GlaxoSmithKline (GSK) has recently set a precedent when they implemented a SMART Working Initiative program which consolidated their overall workspace from 800,000 square feet into 208,000 square feet (Work Design, 2013). Assigning employees to the specific location, within the physical work environment layout, was one of the most crucial, and most overlooked, steps in ensuring that there was sufficient amount of collective levels of positive energy and motivation, which inevitably resulted in improved productivity, well-being, job satisfaction (Work Design, 2013). Providing customized (strategic) office placement to all employees was a vital step in ensuring modernization and transformation of the workspace was implemented successfully and resulted in increased productivity, decreased levels of work-related stress, and improved job satisfaction (Work Design, 2013). Strategic office placement was defined as the degree of customization involved in assigning each employee to their designated workspace within the overall physical work environment. Another factor that was considered, when

determining whether the office placement process is strategic or random, is the degree of freedom each employee had to move around his or her workspace and work from different locations depending on their current placement, mood, and other personality and environmental factors.

Since I planned on collecting data and measuring three dependent variables, I used three, separate, and already validated, instruments that were well established in the literature, which added the necessary psychometric support during the data collection and data analysis process. The three instruments I used for this research study are Work Stress Scale, Individual Work Performance Questionnaire (IWPQ), and the Brief Index of Affective Job Satisfaction.

**Work Stress Scale.** Work Stress Scale was developed in 1990 to assess eleven different work stress dimensions in very diverse samples of population (Dytell, 1990). The internal consistency of the 23-item scale was assessed using Cronbach's alpha of .85 (Dytell, 1990). Work Stress Scale has proven to be a reliable instrument to evaluate work-related stress by assessing eleven work stress dimensions including role ambiguity, work role overload, conflicting demands at work, work disruptions, repetitive work, lack of autonomy, non-challenging work, work dependency, work role insignificance, lack of resources on the job, and work environment discomfort (Schwartzberg & Dytell, 1996).

**Individual Work Performance Questionnaire.** Koopmans et al. (2014) argued that companies worldwide are affected by inconsistent and unpredictable individual work performance. Campbell (1990) defined the individual work performance as "behaviors or actions that are relevant to the goals of the organization" (p.2). IWPQ is based on the

conceptual framework that consists of three different dimensions, which include, “task performance, contextual performance, and counterproductive work behavior” (Koopmans et al., 2014, p. 2). The primary reason for selecting IWPQ as a data collection instrument is that its’ internal consistency is sound, and the construct validity has been deemed acceptable (Koopmans et al., 2014). Convergent validity of the IWPQ with work engagement has also proven to be sound. Work engagement “showed a positive correlation with the IWPQ task and contextual performance scales, and a moderate to weak negative correlation with the counterproductive work behavior” (Koopmans et al., 2014, p. 8). Furthermore, the IWPQ has a sound discriminative validity as it can “discriminate between relevant groups – low/high in job satisfaction, and low/high in overall health” (Koopmans et al., 2014, p. 9). Cross-cultural validity is also a factor for IWPQ as the original version was in Dutch language (Koopmans et al., 2014). IWPQ was translated to American-English language following the scientific translation guidelines which included a five-step process of forward and backward translations, expert committee review, cognitive interviews with American workers, and pilot testing (Beaton et al., 2000).

The IWPQ was developed to aid the researchers in assessing individual work performance in a “generic working population” (Koopmans et al., 2014, p. 8). Therefore, the IWPQ is suitable for use in a wide range of research studies, which includes workers with different job titles and across different industries (Koopmans et al., 2014). The official manual, that comes with this instrument, will be utilized during the data collection process to ensure the highest quality and the integrity of the data.

**Brief Index of Affective Job Satisfaction.** Employees' job satisfaction will be measured and analyzed via Brief Index of Affective Job Satisfaction. This instrument is a product of a vigorous scientific debate regarding the best way to assess individual and collective levels of job satisfaction within a particular workspace. Ten years prior to the release date of the Brief Index of Affective Job Satisfaction, Brief and Weiss (2002) argued that "it should no longer be acceptable to define job satisfaction one way (affectively) and blindly measure it another (cognitively)" (p. 284). The primary concern regarding the accuracy of "several job satisfaction measures is their overtly obvious intention to measure job satisfaction" (Thompson & Phua, 2012, p. 292). The authors of the Brief Index of Affective Job Satisfaction utilized a creative alternative to address the concerns and issues with the existing measures used to measure job satisfaction. According to Thompson and Phua (2012), "a way to reduce both effects that is often used in psychometric scales is to introduce distracter items that can, to some extent, help obscure and mask the measured construct by acting as red herrings" (p. 292). The Brief Index of Affective Job Satisfaction is not only the newest job satisfaction measure, but it is also "unique among existing job satisfaction measures in that it is both overtly affective and systematically tested for comprehensive range of psychometric properties crucial to ensuring measurement, and therefore, research integrity" (Thompson & Phua, 2012, p. 298).

At present time, there were no other measure for assessing job satisfaction, that has "been developed to demonstrate simultaneously content validity, internal consistency reliability, temporal stability, convergent and criterion-related validity, plus cross-

population equivalence by nationality, job level, and job organization type” (Thompson & Phua, 2012, p. 298). For all the reasons listed above, I decided that the Brief Index of Affective Job Satisfaction was the most suitable instrument for my research study.

### **Data Analysis Plan**

My research study was a quantitative causal-comparative research design with two independent variables and three dependent variables. The primary statistical analysis that was conducted is a Multivariate Analysis of Variance (MANOVA). MANOVA was determined to be the most appropriate choice for statistical analysis because it was primarily used to analyze data that included information regarding more than one dependent variable. In my research study, MANOVA allowed me to test my hypothesis regarding the effect of my two independent variables on the three dependent variables. I used IBM SPSS Statistics 25 software program to complete all data analysis following the successful data collection process.

### **Threats to Validity**

As was the case with any research study, potential threats to internal validity did exist and needed to be properly identified and adequately addressed. The work-related history and the prior experiences employees had within their workspace posed a threat to internal validity of the study. The previously formed relationships within the employees in a company also posed a potential threat to internal validity. Additional threats to external validity could have potentially be found in previous type of questionnaires or informal discussions that employees may have had about the quality of their workspace

and the effect it had on their overall levels of productivity, work-related stress, and job satisfaction.

### **Ethical Procedures**

To ensure the highest level of compliance with the current ethical standards, I planned on addressing all pertinent ethical considerations for the proposed research study and ensured the full compliance with all regulatory requirements and expectations set forth by Walden University and the IRB. The initial step in addressing all ethical considerations was to provide each participant with the copy of the informed consent prior to their involvement in my study. Informed consent provided all participants a detailed insight regarding the purpose of the study along with additional pertinent information, such as nature of the study, the steps taken to ensure privacy and confidentiality for all participants, any potential risks associated with participation in this study, the duration of the data collection process, and the participants' right to decline to participate or to withdraw from my study at any point in time during the data collection process. I informed the participants on the minimum amount of risk associated with this non-experimental research study, that required the participants to provide information regarding their office space and placement, along with their perceived levels of work-related stress, productivity, and job satisfaction. All collected data will be securely stored for at least five years at a secure location with a restricted access.

As mentioned, all participants had their identity protected as none of them was asked to provide any personal information such as their name, last name, date of birth, or any other identifiers. SurveyMonkey had all pertinent study-related documentation

including the informed consent and the three questionnaires. Individual agreement to participate in the study and the conformity to the informed consent was assumed if the participant completed and submitted the survey. Emphasis was placed on ensuring that all participants were fully aware of the fact that their participation in this study was optional and that they had the right to withdraw from the study anytime without incurring any consequences or adverse action. I ensured that every aspect of this study was in full compliance with the IRB's guidelines and expectations set forth to protect the participants and ensured the absolute compliance with the Ethics Code.

### **Summary**

In Chapter 3, a detailed outline was provided including a detailed oversight of the study's methodology, the research design (including all the research questions), the recruiting of the participants, sampling and data collection strategies. I used a 2x2 non-experimental design with two independent variables (customized workspace and strategic office placement) and three dependent variables (work-related stress, productivity, and job satisfaction). For the purposes of data collection, which was done via SurveyMonkey, 131 participants completed three separate instruments (one for each of the three dependent variables). The already validated instruments were used to collect data from the participants were Work Stress Scale, IWPQ, and the Brief Index of Affective Job Satisfaction. I solicited several companies nationwide to recruit sufficient number of participants, and ensured anonymity, privacy, and confidentiality for all study participants. MANOVA was used to analyze the relationship between independent and dependent variables. Chapter 3 also provided insight into potential threats to internal and

external validity. I described the findings from my research study in Chapter 4 and discussed the data that was collected via processes described in Chapter 3.

## Chapter 4: Results

### Introduction

There were several purposes of this study. The first purpose of the study was to explore the relationship between different workspace design concepts and employees' levels of work-related stress, productivity, and job satisfaction. Secondary purpose of this study was to examine the relationship between the approach to office placement and employees' level of work-related stress, productivity, and job satisfaction. Tertiary purpose of this study was to examine the interaction between the two independent variables and try to determine if the outcome is different in any way when customized workspace design is combined with strategic office placement process and the relationship this interaction would have with the three dependent variables. All research questions and hypotheses are listed below.

RQ1: Is there a difference in workers' productivity, in relation to workspace design (customized versus generic) as measured by the IWPQ?

H<sub>01</sub>: There will be no difference in workers' productivity in relation to workspace design (customized versus generic) as measured by the IWPQ.

H<sub>A1</sub>: There will be a difference in workers' productivity in relation to workspace design (customized versus generic) IWPQ.

RQ2: Is there a difference in workers' productivity in relation to office placement (strategic versus random) as measured by IWPQ?

H<sub>02</sub>: There will be no difference in workers' productivity in relation to office placement (strategic versus random) as measured by the IWPQ.

H<sub>A2</sub>: There will be a difference in workers' productivity in relation to office placement (strategic versus random) as measured by the IWPQ?

RQ3: Is there a difference in workers' productivity in relation to an interaction of workspace design and office placement as measured by the IWPQ?

H<sub>03</sub>: There will be no difference in workers' productivity in relation to an interaction of workspace design and office placement as measured by IWPQ.

H<sub>A3</sub>: There will be a difference in workers' productivity in relation to an interaction of workspace design and office placement as measured by IWPQ.

RQ4: Is there a difference in workers' overall levels of work-related stress in relation to workspace design (customized versus generic) as measured by the Work Stress Scale?

H<sub>04</sub>: There will be no difference in workers' overall levels of work-related stress in relation to workspace design (customized versus generic) as measured by the Work Stress Scale.

H<sub>A4</sub>: There will be a difference in workers' overall levels of work-related stress in relation to workspace design (customized versus generic) as measured by the Work Stress Scale.

RQ5: Is there a difference in workers' overall levels of work-related stress in relation to office placement (strategic versus random) as measured by the Work Stress Scale?

H<sub>0</sub>5: There will be no difference in workers' overall levels of work-related stress in relation to office placement (strategic versus random) as measured by the Work Stress Scale.

H<sub>A</sub>5: There will be a difference in workers' overall levels of stress of work-related stress in relation to office placement (strategic versus random) as measured by the Work Stress Scale.

RQ6: Is there are difference in workers' overall levels of work-related stress in relation to an interaction of workspace design and office placement as measured by the Work Stress Scale?

H<sub>0</sub>6: There will be no difference in workers' overall levels of work-related stress in relation to an interaction of workspace design and office placement as measured by the Work Stress Scale.

H<sub>A</sub>6: There will be a difference in workers' overall levels of work-related stress in relation to an interaction of workspace design and office placement as measured by the Work Stress Scale.

RQ7: Is there a difference in workers' job satisfaction in relation to workspace design (customized versus generic) as measured by the Brief Index of Affective Job Satisfaction?

H<sub>0</sub>7: There will be no difference in workers' job satisfaction in relation to workspace design (customized versus generic) as measured by the Brief Index of Affective Job Satisfaction.

H<sub>A</sub>7: There will be a difference in workers' job satisfaction in relation to workspace design (customized versus generic) as measured by the Brief Index of Affective Job Satisfaction.

RQ8: Is there a difference in workers' job satisfaction in relation to office placement (strategic versus random) as measured by the Brief Index of Affective Job Satisfaction?

H<sub>0</sub>8: There will be no difference in workers' job satisfaction in relation to office placement (strategic versus random) as measured by the Brief Index of Affective Job Satisfaction.

H<sub>A</sub>8: There will be a difference in workers' job satisfaction in relation to office placement (strategic versus random) as measured by the Brief Index of Affective Job Satisfaction.

RQ9: Is there a difference in workers' job satisfaction in relation to an interaction of workspace design and office placement as measured by the Brief Index of Affective Job Satisfaction?

H<sub>0</sub>9: There will be no difference in workers' job satisfaction in relation to an interaction of workspace design and office placement as measured by the Brief Index of Affective Job Satisfaction.

H<sub>A</sub>9: There will be a difference in workers' job satisfaction in relation to an interaction of workspace design and office placement as measured by the Brief Index of Affective Job Satisfaction.

In Chapter 4, I provide important information regarding the data collection and analysis process, and I also interpret the results of my data analysis. This chapter is organized into four different sections that include the introduction, data collection and analysis, results, and summary.

### **Data Collection**

A total of 400 potential participants was asked to participate in this study. After the data collection process was complete, there were 131 collected responses that were 100% completed, which I used to conduct the data analysis. Response rate for this research study was 33%. The companies and organizations who participated in the study came from several different industries and geographical locations nationwide. The industries represented were hospitality, local government, marketing, and construction. There were slight discrepancies from the original data collection plan and methodology outlined in Chapter 3. Instead of focusing recruiting efforts only in North Carolina and on large companies, I decided to expand the recruiting efforts nationwide and to include companies and organizations of different sizes. All changes were approved by the IRB and my dissertation chair.

I recruited participants with assistance from the company's management and/or human resources department, and the invitation to participate was disseminated via email, along with a link to the SurveyMonkey questionnaire. All potential participants were informed that their involvement in the study was completely voluntary, confidential, and anonymous. All of this information was also summarized in the informed consent form, which was included at the beginning of the SurveyMonkey questionnaire. Data collection

began July 5<sup>th</sup>, 2018 and was completed on September 9<sup>th</sup>, 2018. Of the 131 questionnaires that were submitted, all were completed in their entirety and were included in the data analysis. It is important to note that the data collection was completed once I exceeded the minimum sample size of 128, which was calculated based on a G\*Power analysis. There were no demographic requirements or exclusionary criteria, which is consistent with the research plan and methodology outlined in Chapter 3.

I used a convenience sampling design to collect data that would allow me to examine the relationship between independent and dependent variables. In keeping with my initial plan outlined in Chapter 3, sample size included all full-time employees, and there were no demographical restrictions or exclusionary criteria. I secured approval for participation in the study from five companies and organizations from different industries and geographical locations, which ensured a diverse and representative sample of full-time employees nationwide.

## **Results**

### **Descriptive Statistics**

As already mentioned in the introductory section of Chapter 4, I collected no demographic information from participants. The only piece of information that was provided by all study participants was the name of employer, which was the first question each participant answered on the SurveyMonkey questionnaire. Participants provided their opinions on whether they believed that their physical workspace was customized and whether they thought that their office placement process was done in a strategic way.

On both of these questions, which represented the two independent variables, a majority of participants responded affirmatively (see Table 1 and Table 2). Out of 131 participants, 126 of them indicated that their workspace was customized and 103 believe that the office placement process that was used to assigned them their office space was strategic and not random (see Appendix A). As indicated in Tables 1 and 2, an overwhelming majority of participants responded YES when asked if their workspace was customized and if they were placed in an office space in a strategic way. In Table 1, YES indicates a confirmation by the respondents that they believed their office space was customized, and in Table 2, YES indicates a confirmation by the respondents that they believed they were placed in their office space in a strategic manner.

Table 1

*Customized Workspace*

	Frequency	Percent	Cumulative percent
YES	126	96.2	96.2
NO	5	3.8	100
Total	133	100.0	

While it is somewhat surprising to have an overwhelming number of respondents (126) indicate that they believe their workspace is customized, I acknowledge that a small cell of respondents (5) who did not think their workspace is customized is less than ideal but not uncommon when conducting an omnibus MANOVA. MANOVA is generally very useful when looking to measure several dependent variables (French, Macedo, Poulsen, Waterson, & Yu, 2008). It is, however, recommended that researchers keep in mind

several cautionary items when conducting MANOVA; it is a significantly more complex design than ANOVA and there is also a possibility for some level of ambiguity to occur when looking at how independent variables affect each of the dependent variables (French et al., 2008). Keselman et al. (1998) noted that “applied researchers should remember that MANOVA tests linear combinations of the outcome variables and, therefore does not yield results that are in any way comparable with a collection of separate univariate test” (p. 15). In this research study, I used omnibus MANOVA as the primary statistical analysis, followed by ANOVA as a supplementary statistical analysis for three of the nine research questions.

Researchers must address unequal sample size every time they conduct omnibus MANOVA (French et al., 2008). SPSS offers certain adjustments and additional tests that can appropriately address the unequal sample sizes in MANOVA (French et al., 2008). Results of Box’s test of equality of covariance and Levene’s test of equality of error Vvariances can be found in Tables 4 and 5. The research community recognizes the importance of addressing the unequal sample sizes and “a recommendation that has been proposed is the smallest group size should range from  $6P$  to  $10P$ ” (Keselman et al., 1998, p.15). Another relevant recommendation is that every group should have more participants than the number of dependent variables, which was the case in this research study with the smallest group having five participants and the study having three dependent variables (see Keselman et al., 1998).

Table 2

*Strategic Office Placement*

	Frequency	Percent	Cumulative percent
YES	103	78.6	78.6
NO	28	21.4	100.0
Total	131	100.0	

Furthermore, a majority of participants who responded affirmatively to the question about customized workspace, also responded affirmatively to questions about their office placement process (see Table 3). Unequal sample sizes for both of the independent variables did not have any significant impact on the data analyses that I conducted. The unequal sample size would have been more problematic if one of the independent variables was demographic or an exclusionary criterion (e.g., gender or race).

Given that there were profound differences in sample sizes for both independent variables with an overwhelming majority of participants responding affirmatively to both questions pertaining to the independent variables in this study, I decided to conduct additional review and tests to address the above-outlined issue. Unequal sample sizes in both of the independent variables had the potential to affect the assumption of homogeneity of variance and power. In order to fully dismiss the possibility that unequal sample sizes for both independent variables could have an impact on the overall results in this study, two additional tests were conducted. After completing Box's test of equality of covariance and Levene's test of equality of error variances, I found that the results for

both of the tests confirmed that the unequal sample sizes for the independent variables did not have a statistically significant impact on the overall results and findings from this study (see Tables 4 and 5). In both instances, the tests were deemed not statistically significant. Results of Box's test showed lack of statistical significance with a value greater than 0.05, which suggested that the assumptions were met. Results of the Levene's test showed no statistically significant difference for all three dependent variables with values greater than 0.05, which provided a clear indication that the equal variances assumption was not violated and that the results from this study are not impacted or flawed by the unequal sample size.

Table 3

*Responses for Office Placement Question for Participants who Responded Yes on Customized Workspace Question*

	Frequency	Percent	Cumulative Percent
YES	102	81.0	81.0
NO	24	19.0	100.0
Total	126	100.0	

Table 4

*Box's Test of Equality of Covariance*

Box's M	14.166
F	.886
df1	12
df2	268.770
Sig.	.562

Table 5  
*Levene's Test of Equality of Error Variances*

	F	df1	df2	Sig.
Work stress	.907	3	127	.440
Productivity	1.214	3	127	.307
Satisfaction	.985	3	127	.402

Additional information regarding the descriptive statistic of the two independent and three dependent variables can be found in Table 6 below.

Table 6

*Descriptive Statistics for Independent and Dependent Variables*

	Customized Workspace	Office Placement	Mean	Std. Deviation	N
Work Stress	YES	YES	51.21	12.466	102
		NO	61.71	14.333	24
		Total	53.21	13.435	126
	NO	YES	76.00	.	1
		NO	89.25	7.890	4
		Total	86.60	9.044	5
	Total	YES	51.45	12.643	103
		NO	65.64	16.680	28
		Total	54.48	14.742	131
Productivity	YES	YES	57.50	6.321	102
		NO	54.33	7.534	24
		Total	56.90	6.655	126
	NO	YES	58.00	.	1
		NO	50.00	5.099	4
		Total	51.60	5.683	5
	Total	YES	57.50	6.290	103
		NO	53.71	7.323	28
		Total	56.69	6.679	131
Satisfaction	YES	YES	17.43	2.258	102
		NO	16.58	2.244	24
		Total	17.27	2.271	126
	NO	YES	15.00	.	1
		NO	12.00	.816	4
		Total	12.60	1.517	5
	Total	YES	17.41	2.260	103
		NO	15.93	2.652	28
		Total	17.09	2.416	131

### **Examination of Assumptions for Statistical Analyses**

Due to the fact that this was a quantitative study with a 2x2 causal comparative design, a decision was made to use a Multivariate Analysis of Variance (MANOVA). Omnibus MANOVA was used to identify potential relationships between the two independent variables (customized workspace and office placement) and three dependent variables (work-related stress, productivity, and job satisfaction). Analysis of Variance (ANOVA) was also used, as a supplementary statistical analysis, to further examine the interaction between each of the two independent variables and three dependent variables. Total of three ANOVAs was conducted due to the fact that only customized workspace was identified to have statistically significant finding. Causal-comparative design was the most appropriate research design to use, because its primary purpose was to identify potential relationships between independent and dependent variables. MANOVA and ANOVA were used to test all study-related research questions along with the main effect for each independent variable and any interaction effect of the two independent variables for each of the three dependent variables. MANOVA, supplemented by ANOVA, was determined to be the most appropriate choice for statistical analysis because it is primary used to analyze data that includes information regarding more than one dependent variable. For purposes of this research study, MANOVA allowed the researcher to test hypotheses regarding the effect of the two independent variables on the three dependent variables. The ANOVA allowed the researcher to examine the interaction of the statistically significant independent variable with each of the three dependent variables. IBM SPSS Statistics 25 software program was used to conduct all data analysis.

An Omnibus MANOVA was used to determine if there was a statistically significant finding for this research study. After conducting the Omnibus MANOVA, it was determined that the study produced statistically significant finding for two of the research questions (see Tables 7 and 8). MANOVA was utilized as the most appropriate statistical analysis to test for statistically significant findings and interaction between the two independent variables (customized workspace and office placement) and three dependent variables (work-related stress, productivity, and job satisfaction). Both independent variables had two levels (customized or non-customized workspace, and strategic or random office placement). Furthermore, Omnibus MANOVA was significant for only one of the independent variables, which was customized workspace. Statistically significant interaction was detected in relation to workspace and work-related stress and job satisfaction. Three univariate ANOVAs were conducted to determine on which of the three dependent variables were statistically significant in relation to customized workspace (see Table 9).

Three research questions were reviewed for statistical significance by looking at univariate ANOVAs for customized workspace effect on work-related stress, productivity, and job satisfaction, and it was determined that two out of nine research questions showed a statistically significant difference. Independent variables were workspace design and office placement and the dependent variables were work-related stress, productivity and job satisfaction. Statistically significant difference was discovered for Research Questions 4 and 7.

Table 7

*MANOVA Multivariate Test*

		Value	F	Hypothesis		Sig.	Partial
				df	Error df		Eta Squared
Effect	Pillai's Trace	.973	1529.448 <sup>b</sup>	3.000	125.000	.000	.973
Intercept	Wilks'	.027	1529.448 <sup>b</sup>	3.000	125.000	.000	.973
	Lambda						
	Hotelling's Trace	36.707	1529.448 <sup>b</sup>	3.000	125.000	.000	.973
	Roy's Largest Root	36.707	1529.448 <sup>b</sup>	3.000	125.000	.000	.973
Custom	Pillai's Trace	.108	5.026 <sup>b</sup>	3.000	125.000	.003	.108
	Wilks'	.892	5.026 <sup>b</sup>	3.000	125.000	.003	.108
	Lambda						
	Hotelling's Trace	.121	5.026 <sup>b</sup>	3.000	125.000	.003	.108
	Roy's Largest Root	.121	5.026 <sup>b</sup>	3.000	125.000	.003	.108
Office	Pillai's Trace	.030	1.269 <sup>b</sup>	3.000	125.000	.288	.030
	Wilks'	.970	1.269 <sup>b</sup>	3.000	125.000	.288	.030
	Lambda						
	Hotelling's Trace	.030	1.269 <sup>b</sup>	3.000	125.000	.288	.030
	Roy's Largest Root	.030	1.269 <sup>b</sup>	3.000	125.000	.288	.030
Custom * Office	Pillai's Trace	.011	.456 <sup>b</sup>	3.000	125.000	.714	.011
	Wilks'	.989	.456 <sup>b</sup>	3.000	125.000	.714	.011
	Lambda						
	Hotelling's Trace	.011	.456 <sup>b</sup>	3.000	125.000	.714	.011
	Roy's Largest Root	.011	.456 <sup>b</sup>	3.000	125.000	.714	.011

Table 8

*MANOVA Test of Between-Subject Effects*

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	Work Stress	7646.317 <sup>a</sup>	3	2548.772	15.708	.000	.271
	Productivity	380.953 <sup>b</sup>	3	126.984	2.976	.034	.066
	Satisfaction	126.048 <sup>c</sup>	3	42.016	8.432	.000	.166
Intercept	Work Stress	59452.232	1	59452.232	366.412	.000	.743
	Productivity	37132.375	1	37132.375	870.263	.000	.873
	Satisfaction	2860.452	1	2860.452	574.031	.000	.819
Custom	Work Stress	2104.569	1	2104.569	12.971	.000	.093
	Productivity	11.291	1	11.291	.265	.608	.002
	Satisfaction	37.808	1	37.808	7.587	.007	.056
Office	Work Stress	433.493	1	433.493	2.672	.105	.021
	Productivity	95.810	1	95.810	2.245	.136	.017
	Satisfaction	11.377	1	11.377	2.283	.133	.018
Custom * Office	Work Stress	5.800	1	5.800	.036	.850	.000
	Productivity	17.950	1	17.950	.421	.518	.003
	Satisfaction	3.558	1	3.558	.714	.400	.006
Error	Work Stress	20606.385	127	162.255			
	Productivity	5418.833	127	42.668			
	Satisfaction	632.853	127	4.983			
Total	Work Stress	417083.000	131				
	Productivity	426871.000	131				
	Satisfaction	39027.000	131				
Corrected Total	Work Stress	28252.702	130				
	Productivity	5799.786	130				
	Satisfaction	758.901	130				

**Research Question 1**

To investigate the research question 1 [Is there a difference in workers' productivity, in relation to workspace design (customized versus generic) as measured by the IWPQ] a Multiple Analysis of Variance (MANOVA) was conducted. The independent variables were workspace design and office placement and the dependent variables were work-related stress, productivity, and job satisfaction. The analysis showed a non-statistically significant difference in productivity in relation to workspace design [ $F(3,125) = 5.026, p > .05$ ; Wilk's Lambda = .892, partial Eta<sup>2</sup> = .108]. In addition to MANOVA analysis, Analysis of Variance (ANOVA) was also conducted to investigate the interaction between workspace design and productivity. This analysis confirmed that there was no statistically significant difference in productivity in relation to workspace design [ $F(1,129) = 3.073, p > .05$ ]. Therefore, the alternative hypothesis is rejected, and the null hypothesis is retained.

**Research Question 2**

To investigate the research question 2 [Is there a difference in workers' productivity in relation to office placement (strategic versus random) as measured by IWPQ?] a MANOVA was conducted. The independent variables were workspace design and office placement and the dependent variables were work-related stress, productivity, and job satisfaction. The analysis showed a non-statistically significant difference in productivity in relation to office placement [ $F(3,125) = 1.269, p > .05$ ; Wilk's Lambda = .970, partial Eta<sup>2</sup> = .030]. Therefore, the alternative hypothesis is rejected, and the null hypothesis is retained.

### **Research Question 3**

To investigate the research question 3 [Is there a difference in workers' productivity in relation to an interaction of workspace design and office placement as measured by the IWPQ?] a MANOVA was conducted. The independent variables were workspace design and office placement and the dependent variables were work-related stress, productivity, and job satisfaction. The analysis showed a non-statistically significant difference in productivity in relation to an interaction of workspace design and office placement [ $F(3,125) = .456, p > .05$ ; Wilk's Lambda = .989, partial Eta<sup>2</sup> = .011]. Therefore, the alternative hypothesis is rejected, and the null hypothesis is retained.

### **Research Question 4**

To investigate the research question 4 [Is there a difference in workers' overall levels of work-related stress in relation to workspace design (customized versus generic) as measured by the Work Stress Scale?] a MANOVA was conducted. The independent variables were workspace design and office placement and the dependent variables were work-related stress, productivity, and job satisfaction. The analysis showed a statistically significant difference in work-related stress based on workspace design, [ $F(3,125) = 5.026, p < .001$ ; Wilk's Lambda = 0.892, partial Eta<sup>2</sup> = .108]. In addition to MANOVA analysis, Analysis of Variance (ANOVA) was also conducted to investigate the interaction between workspace design and productivity. This analysis confirmed that there was statistically significant difference in work-related stress in relation to workspace design [ $F(1,129) = 30.223, p < .001$ ]. Therefore, the alternative hypothesis is accepted, and the null hypothesis is not retained.

**Research Question 5**

To investigate the research question 5 [Is there a difference in workers' overall levels of work-related stress in relation to office placement (strategic versus random) as measured by the Work Stress Scale?] a MANOVA was conducted. The independent variables were workspace design and office placement and the dependent variables were work-related stress, productivity, and job satisfaction. The analysis showed a non-statistically significant difference in work-related stress in relation to office placement [ $F(3,125) = 1.269, p > .05; \text{Wilk's Lambda} = .970, \text{partial Eta}^2 = .030$ ]. Therefore, the alternative hypothesis is rejected, and the null hypothesis is retained.

**Research Question 6**

To investigate the research question 6 [Is there a difference in workers' overall levels of work-related stress in relation to an interaction of workspace design and office placement as measured by the Work Stress Scale?] a MANOVA was conducted. The independent variables were workspace design and office placement and the dependent variables were work-related stress, productivity, and job satisfaction. The analysis showed a non-statistically significant difference in work-related stress in relation to an interaction of workspace design and office placement [ $F(3,125) = .456, p > .05; \text{Wilk's Lambda} = .989, \text{partial Eta}^2 = .011$ ]. Therefore, the alternative hypothesis is rejected, and the null hypothesis is retained.

**Research Question 7**

To investigate the research question 7 [Is there a difference in workers' job satisfaction in relation to workspace design (customized versus generic) as measured by

the Brief Index of Affective Job Satisfaction?] a MANOVA was conducted. The independent variables were workspace design and office placement and the dependent variables were work-related stress, productivity, and job satisfaction. The analysis showed a statistically significant difference in job satisfaction in relation to workspace design, [F (3,125) = 5.026,  $p < .01$ ; Wilk's Lambda = 0.892, partial Eta<sup>2</sup> = .108]. In addition to MANOVA, the ANOVA was also conducted to investigate the interaction between workspace design and job satisfaction. ANOVA results confirmed that there was statistically significant difference in job satisfaction in relation to workspace design [F(1,129) = 20.686,  $p < .001$ ]. Therefore, the alternative hypothesis is accepted, and the null hypothesis is not retained.

### **Research Question 8**

To investigate research question 8 [Is there a difference in workers' job satisfaction in relation to office placement (strategic versus random) as measured by the Brief Index of Affective Job Satisfaction?] a MANOVA was conducted. The independent variables were workspace design and office placement and the dependent variables were work-related stress, productivity, and job satisfaction. The analysis showed a non-statistically significant difference in job satisfaction in relation to office placement [F (3,125) = 1.269,  $p > .05$ ; Wilk's Lambda = .970, partial Eta<sup>2</sup> = .030]. Therefore, the alternative hypothesis is rejected, and the null hypothesis is retained.

### **Research Question 9**

To investigate research question 9 [Is there a difference in workers' job satisfaction in relation to an interaction of workspace design and office placement as

measured by the Brief Index of Affective Job Satisfaction?] a MANOVA was conducted.

The independent variables were workspace design and office placement and the dependent variables were work-related stress, productivity, and job satisfaction. The analysis showed a non-statistically significant difference in job satisfaction in relation to an interaction of workspace design and office placement [ $F(3,125) = .456, p > .05$ ; Wilk's Lambda = .989, partial Eta<sup>2</sup> = .011]. Therefore, the alternative hypothesis is rejected, and the null hypothesis is retained.

Table 9

*Univariate ANOVAs for Customized Workspace*

		Sum of	df	Mean Square	F	Sig.
		Squares				
Work_Stress	Between	5362.867	1	5362.867	30.223	.000
	Groups					
	Within Groups	22889.835	129	177.441		
	Total	28252.702	130			
Productivity	Between	134.928	1	134.928	3.073	.082
	Groups					
	Within Groups	5664.859	129	43.914		
	Total	5799.786	130			
Satisfaction	Between	104.875	1	104.875	20.686	.000
	Groups					
	Within Groups	654.025	129	5.070		
	Total	758.901	130			

### Summary

Out of the nine research questions, it was determined that two research questions showed a statistically significant difference. After completing the data analysis, the conclusion was made that there were statistically significant differences in job

satisfaction in relation to workspace design ( $p < .001$ ) and work-related stress in relation to workspace design ( $p < .01$ ). There was no indication of statistically significant difference in the remaining 7 research questions. It is important to note that there was a very strong indication of statistical significance of workspace design ( $p < .001$  and  $p < .01$ ) in relation to work-related stress and job satisfaction. This is a strong indication that the quality and customization of physical workspace can have a significant impact on employees' wellbeing, which is represented in this study by three dependent variables (work-related stress, productivity, and job satisfaction). Combination of office placement and workspace design did not have any statistically significant difference in relation to the three dependent variables (work-related stress, productivity, and job satisfaction). Office placement did not have any statistically significant difference in relation to the three dependent variables. Also, workspace design did not have any statistically significant difference in relation to productivity.

Chapter 5 will include a detailed overview of the entire study, a discussion and interpretation of the study's findings, elaboration on the study's limitations, recommendations for conducting additional research on this subject matter, potential implications of the study, along with the conclusion section.

## Chapter 5: Discussion

### **Introduction**

Workspace dynamics have significantly evolved over the last century, and the modern-day workforce is faced with many challenges including heavy workload, long hours, constantly evolving technology, and subpar workspace conditions (Marcatto et al., 2016; Vischer, 2007; Vischer, 2008). The workspace environment and its design have drastically changed in recent decades as designers continue to improve workspaces and find new and creative solutions to reduce work-related stress, increase productivity, and improve job-satisfaction levels. Vischer (2007, 2008) argued that there is a strong relationship between quality of workspace environment and employees' productivity and wellbeing. While researchers have recognized the importance of the relationship between workspace quality and employees' performance and wellbeing, the effects of customized workspace design along with strategic approach to office placement have not been properly evaluated. It was not until the early 1990s when researchers recognized the insufficiency of research regarding workspace conditions and the impact workspace environment can have on the workforce (Vischer, 2008). Furthermore, Vischer (2007) conclude that "studies of stress in the work environment pay little attention to features of the physical environment in which work is performed" (p. 175).

Researchers need better insight regarding the importance of providing customized workspace environments along with strategic office placement. The quality of physical workspace environment and effective management of workspace is likely to have a positive effect on the overall levels of productivity, work-related stress, and job

satisfaction. At present, there is a need to come up with innovative and creative solutions for the modern-day workspace environment along with optimal strategies for the management and office placement processes across different industries nationwide. The primary purpose of my research was to offer additional insight on this topic, and to affect positive social change by improving the overall quality of workspace environments nationwide.

After completing data analysis for my research study, I found that employees who feel their workspace is customized are less likely to experience work-related stress and have a higher level of job satisfaction. However, the customized workspace variable did not show a significant relationship with productivity. Furthermore, the office placement variable did not show a statistically significant relationship with all three dependent variables (work related stress, productivity, and job satisfaction). Furthermore, there was no relationship on any of the three dependent variables when I examined the combined effect of the two independent variables (customized workspace and office placement).

In the remaining sections of Chapter 5, I interpret the findings from my research, discuss the study's limitations, offer recommendations for follow-up research that would expand on the findings from my research study, discuss the implications of the findings and the potential for positive social change that this study and future research studies in this area can bring to the modern-day workforce, and offer conclusion of this chapter and my dissertation.

### **Interpretation of Findings**

The primary focus of my research study was to study and better understand the impact that the modern-day workspace and office placement process have on work-related stress, productivity, and job satisfaction. I developed this study with hopes to obtain a better understanding of the relationship between quality of physical workspace and office placement and work-related stress, productivity, and job satisfaction. This important topic is affecting companies across different industries nationwide. Marcatto et al. (2016) argued that work-related stress poses serious health and occupational safety hazards for many workers around the country and worldwide. The importance of physical work environment has been widely discussed in the research community, and there is consensus among many researchers that the physical work environment is a key component when it comes to developing and maintaining individual and collective physical and emotional wellbeing of the workforce (Danielsson et al., 2013). With the need for and importance of innovative office concepts for the modern-day workforce, I decided to focus my study on the effect of workspace quality and office placement strategy on the workforce's productivity and wellbeing (see Meijer et al., 2009). Considering the fact that modern-day workspace has experienced tremendous change and organic evolution over the last several decades, the expectations and demands placed on the modern-day workforce have become increasingly complex and challenging (Meijer et al., 2009). The ability to have high levels of productivity while maintaining physical and emotional wellbeing was one of the most important driving forces for this study. For all of the above-described reasons, I decided that additional research was needed to better

understand the impact of the modern-day physical work environment and office placement strategy on the overall levels of work-related stress, productivity, and job satisfaction.

The existing body of research in this area lacked specific understanding of how customized workspaces and strategic office placement affect employees' work-related stress, productivity, and job satisfaction. Therefore, I designed my research study and developed nine research questions and hypotheses for each of them. While only two of my research questions showed significant relationship between an independent variable and a dependent variable, I believe that the data collection and data analysis process was conducted successfully. All data was collected based on voluntary participation from employees of five different companies and organizations across the country. In order to be eligible to participate in the study, all prospective participants needed to complete the SurveyMonkey questionnaire on a voluntary basis, be willing to read and provide informed consent, and currently be a full-time employee from one of the participating companies or organizations. There were no additional exclusionary criteria for participation in my study. Research was conducted under an assumption of complete anonymity and confidentiality for all study participants and companies.

The findings from my study further reinforced the notion that additional research is needed on the topic of workspace quality and the office placement process and how it affects employees across different industries nationwide. There has already been a robust body of literature regarding the influence of workspace environment on workforce behavior and workers perceived job satisfaction (Kim & de Dear, 2013). However,

finding a long-term and stable solution in regard to optimal workspace environment, which would promote optimal levels of work-related performance and satisfaction, was not as simple of a process as just providing the workforce with an open-plan workspace design (Choi et al., 2015). If the workspace design and management of the office place is not optimal, the likelihood for deteriorating performance and morale is likely to increase (Choi et al., 2015). The findings from my research study did indeed show a statistically significant difference in levels of work-related stress and job satisfaction in relation to workspace design. For several decades now, researchers have made a strong connection between workspace design and employees' overall wellbeing and job satisfaction. Danielson and Bodin (2008) argued that employees' overall health and job satisfaction would vary across different approaches to workspace design and management.

### **Research Question 1**

Results for the first research question indicated that there was no statistically significant difference in productivity in relation to workspace design. Productivity levels were measured by the IWPQ, and the results of a MANOVA led me to conclude that there was no statistically significant difference as it pertains to RQ1. As I stated in Chapter 2, a majority of previous studies prior to Vischer (2007) did not pay much attention to the impact poorly designed workspace can have on employees' productivity and work-related stress. Physical work environment has often been linked with workforce overall wellbeing and employees' work-related performance and productivity (Meijer et al., 2009). Despite findings from past studies that showed a direct correlation between workforce performance and size and type of office workspace, the results from this study

did not show any significant difference in productivity in relation to workspace design (see Seddigh et al., 2014).

### **Research Question 2**

Results for the second research question indicated that there was no statistically significant difference in productivity in relation to office placement. Productivity levels were measured by the IWPQ, and the results of a MANOVA statistical analysis led me to an initial conclusion that there was no statistically significant difference as it pertains to RQ 2. As I mentioned in Chapter 2, there is still very little information regarding the effects of strategic office placement on employees' wellbeing, productivity, and job satisfaction. Bell and Brown (2015) were one of the few researchers who suggested that companies are most likely to achieve long-term success when, in addition to providing optimal workspace conditions, the management is able to put together a "right mix of individuals" (p. 2). In this particular research study, office placement did not show any statistically significant interaction with all the three dependent variables, and in relation to RQ 2 did not show statistically significant difference in productivity in relation to office placement.

### **Research Question 3**

The third research question indicated that there was no statistically significant difference in productivity in relation to an interaction of workspace design and office placement. Productivity levels were measured by the IWPQ and the results of a MANOVA statistical analysis led me to a conclusion that there was no statistically significant difference as it pertains to Research Question 3. As previously mentioned in

Chapter 2, the importance and relevance of providing optimal work environment has recently emerged as one of the key issues in the modern-day corporate world. Greenaway et al. (2016) emphasized the important role of workspace design and the impact it can have on human psychological and physiological day-to-day functioning, including workforce productivity. However, the results from my research study, did not find the statistically significant difference in productivity in relation to an interaction between workspace design and office placement. Researcher did expect to see statistically significant difference on all three dependent variables in relation to an interaction between the two independent variables, but that was not the case in this study.

#### **Research Question 4**

The forth research question indicated that there was a statistically significant difference in work-related stress in relation to workspace design. Work-related stress was measured by the Brief Stress Scale and the results of a MANOVA statistical analysis led me to an initial conclusion that there was statistically significant difference as it pertains to Research Question 4. After conducting ANOVA and analyzing the results, it was confirmed that there was a statistically significant difference as it pertains to Research Question 4. As previously mentioned in Chapter 2, there has been an accumulating amount of empirical evidence that supported the notion that physical workspace environment was directly affecting the overall levels of work-related stress (Vischer, 2007). Work-related stress, if not properly addressed, can have devastating effects on employees and can lead to higher rate of burnout and turnover (Laurence et al., 2013). The results from this research study further reaffirm the notion that additional research is

necessary to gain a better understanding on how to design optimal workspace environment. The statistically significant difference in work-related stress in relation to workspace design, should provide a strong indication to companies and organizations nationwide that more resources and time is needed in order to ensure optimal workspace conditions in order to prevent unhealthy level of work-related stress and other adverse effects of poorly designed workspace.

### **Research Question 5**

The fifth research question indicated that there was no statistically significant difference in work-related stress in relation to office placement. Work-related stress was measured by the Brief Stress Scale and the results of a MANOVA statistical analysis led me to a conclusion that there was no statistically significant difference as it pertains to Research Question 5. As previously mentioned in Chapter 2, very little is known about the effects of office placement on employees' levels of work-related stress. Researcher was quite surprised that office placement did not provide an indication of statistically significant difference in relation to all three dependent variables. This was the case when office placement was examined on its own, but a when it workspace was combined with the second independent variable (workspace design).

### **Research Question 6**

The sixth research question indicated that there was no statistical difference in work-related stress in relation to an interaction of workspace design and office placement. Work-related stress was measured by the Brief Stress Scale and the results of a MANOVA statistical analysis led me to a conclusion that there was no statistically

significant difference as it pertains to Research Question 6. As previously mentioned in Chapter 2, very little is known about the effects of office placement on employees' levels of work-related stress. Researcher was quite surprised that office placement did not provide an indication of statistically significant difference in relation to any of the three dependent variables. This was the case when office placement was examined on its own, and in combination with the second independent variable (workspace design). Based on my personal experience in modern-day workspace, I expected to see a statistically significant difference on all three dependent variables in relation to an interaction of workspace design and office placement.

### **Research Question 7**

The research question indicated that there was a statistically significant difference in job satisfaction in relation to workspace design. Job satisfaction was measured by the Brief Index of Affective Job Satisfaction and the results of a MANOVA statistical analysis led me to a conclusion that there was a statistically significant difference as it pertains to Research Question 7. After conducting ANOVA and analyzing the results, it was confirmed that there was a statistically significant difference as it pertains to Research Question 7. As previously stated in Chapter 2, the relationship between the quality of workspace and job satisfaction has been researched and well-studied and documented in several studies. Kim and de Dear (2013) noted that there was a robust amount of literature about the influence of workspace environment on employees' behavior and their perceived job satisfaction. The strong indication of statistically significant difference in job satisfaction in relation to workspace design further reinforces the current

need to come up with a more customizable approach to workspace design. If these recommended measures are not properly addressed and implemented, the likelihood for deteriorating morale and decrease in job satisfaction is likely to increase (Choi et al., 2015).

### **Research Question 8**

The eighth research question indicated that there was no statistically significant difference in job satisfaction in relation to office placement. Job Satisfaction was measured by the Brief Index of Affective Job Satisfaction and the results of a MANOVA statistical analysis led me to a conclusion that there was no statistically significant difference as it pertains to Research Question 8. As previously stated in Chapter 2, there is very little empirical data on the impact of office placement on employees' job satisfaction. The findings from this study, further reinforce the importance and necessity for additional research to evaluate the effects of office placement on workforce productivity and overall well-being.

### **Research Question 9**

The ninth research question indicated that there was no statistically significant difference in job satisfaction in relation to an interaction of workspace design and office placement. Job satisfaction was measured by the Brief Index of Affective Job Satisfaction and the results of a MANOVA statistical analysis led me to a conclusion that there was no statistically significant difference as it pertains to Hypothesis 9. As previously mentioned, researcher did not expect to find complete lack of statistically significant difference on either of the three dependent variables in relation to an interaction of

workspace design and office placement. Additional research is needed to further study the potentially beneficial effects of strategic office placement on workforce productivity and wellbeing.

### **Limitations of the Study**

This research study was limited to investigating the impact of two independent variables, which were labeled as workspace design and office placement, on the three dependent variables, which were labeled as work-related stress, productivity, and job satisfaction. My research study was limited to full-time employees across different industries nationwide. With that in mind, the results from a specific demographic group or a geographical region were not able to be examined in this study.

Another limitation of the study was the researcher's inability to interview participants in person to ensure consistency and highest quality of data. Researcher was limited on relying on participants self-reporting for the two independent and three dependent variables. While relying on the honesty of participants to obtain accurate information is a common practice in the research community, researcher believes that inability to conduct in-person interview or over-the-phone interview was a significant limitation for this study. With this in mind, potentially significant limitation regarding the data collection process could have included less-than truthful responses, which could have affected the overall accuracy of the collected data. In addition to the above-described limitations, the data that was collected could have also been affected by the participants' response bias. Response bias could have caused some participants to deny a certain behavior or work-related deficiency due to the fact that some of the questions

were very direct in terms of participants' ability to be productive and contributing member of their company's workforce.

Inability to visit the physical workspace environment and evaluate the quality of the workspace, was another limitation of this research study. However, due to the fact that this was an anonymous and confidential study, I had to rely on self-reporting of all participants and their subjective opinions regarding questions 2 and 3 which were answered by Yes or No and for the rest of the questions, all of which were presented to the participants in a Likert scale format. Study was limited to examining only two factors of the complex, modern-day workforce dynamics. Additional variables and factors should be considered in future studies. The factors and variables could include demographic differences, difference between different industries, working remotely versus working in traditional office setting, among many other factors that affect the modern-day workforce. In conclusion, many additional factors must be closely studied and examined to gain a more complete understanding of the factors that contribute to a superior quality of work environment and office management, which are strongly influencing the overall performance levels of the modern-day workforce along with individual and collective wellbeing of the modern-day workforce.

### **Recommendations**

The importance of understanding the relationship between workspace design and office placement and workforce productivity and wellbeing cannot be overstated. As previously mentioned, there is an insufficient amount of research in the area of workspace quality and customization and the effect it can have on the workforce

productivity and wellbeing. Same is the case for the office placement process. Many of the complex factors that influence the quality of workspace and the office placement process have not been adequately studied at present time. For the purpose of filling the existing gaps, my research study was conducted and looked at the impact that customized workspace and office placement process had on workforce productivity, work-related stress, and job satisfaction. The results of my research study were used as a guiding point for all of the recommendations for future studies in this field. All of the recommendations and feedback can be found in the subsequent sections below.

### **Recommendations for Future Research**

Additional research, with purpose of expanding on the findings from my research study, is strongly recommended in order to gain a better understanding and deeper insight into the effects of physical work environment and office placement process on the workforce's productivity and wellbeing. Furthermore, a more controlled type of study is highly recommended in order to account for potential confounding variable, ensure highest quality of the data, and minimize the risk of respondent bias. Current research study has found significant difference in workforce work-related stress and job satisfaction levels in relation to the workspace design along with significant difference in workforce work-related stress, job satisfaction, and productivity levels in relation to the office placement process, which provides a solid foundation on the additional research studies that would aim to build upon the existing body of research and the findings from this research study.

Additional recommendation would be to consider an experimental design study at one or two locations, which would allow the researcher to personally review the quality and the features of the workspace and to make an objective determination regarding the quality of the workspace and the level of customization that is applicable to the workspace. Furthermore, the experimental design would allow the researcher to conduct in-person interviews and administer the necessary assessments with the participants in a one-on-one setting. In addition to the two independent variables that were used in this research study (workspace design and office placement), there are other factors that the researchers should consider in future studies. These additional factors include more detailed demographic information, gender, length of employment, role/position at the company and the seniority level, as well an ability to work from home and at the office versus the employees who are expected to work the entire week in the traditional office setting.

Last recommendation would be to focus every future study on a specific industry, as I do believe there are significant differences in workforce productivity and wellbeing and the factors that affect the workforce in each industry. Part of the last recommendation would be to also consider a longitudinal study. By following the participants over an extended period of time, the researcher would also be able to gain a better insight into any potential differences in workforce's productivity and wellbeing as their tenure with the company matures.

## **Implications**

### **Positive Social Change Implications**

It is a duty and a responsibility of every scholar practitioner to strive to provide a meaningful scientific contribution that would, as a result, affect a positive social change in our community and potentially worldwide. In the modern-day workforce, one of the most important issues is the quality of workspace conditions and the potentially adverse effects that can be caused by an inadequate workspace quality and office placement process. Vischer (2007) did indeed point out to accumulating amount of empirical data that supported the notion that physical workspace environment was directly affecting job-related performance, satisfaction, and work-related stress. The results of my study further reaffirmed this notion by finding a statistically significant difference in work-related stress and job satisfaction in relation to the workspace design. Having a very strong confidence in both of these interactions, provides an encouraging and meaningful contribution to the scientific community and to the workforce across this nation. The results of my study further support the need for additional research and investment by the companies and organizations, across different industries, to invest significant resources and time to evaluate the quality of their existing workspace design and office placement process and to make the necessary improvements.

Providing the workforce with an optimal work environment would ensure the significant improvement in the overall levels of work-related stress and job satisfaction, which would undoubtedly have a strong, positive effect on many families and communities nationwide. This research study and the results obtained during the study,

provide the decision makers with additional information that emphasizes not only the need but the sense of urgency when it comes to ensuring optimal workspace conditions for all employees across the United States. Work-related stress was, and still is taking a serious toll on the health and productivity on the employees across different industries and demographics (Meijer et al., 2017). Immediate action is needed to remedy this problem and affect positive social change that would impact millions of people in this country. In addition to the above-mentioned benefits to individual employees and their families, the positive social change would not stop there. With a more productive workforce, that experienced lower levels of work-related stress and increased levels of job satisfaction, the companies would be likely to see positive effects on their overall profitability, which would, as a result, have a strong, positive effect on the country's economic prosperity.

Another contribution of this research study to positive social change is the suggested notion that companies and organizations, along with their management structure should employ a proactive approach to ensuring that the workspace design is optimal from the beginning and not wait until the adverse effects of subpar work conditions begin to show. This research study will not only intellectually stimulate other researchers to conduct additional studies, but also has the potential to affect positive social change by encouraging the decision makers at companies and organizations nationwide to invest more resources and time to develop optimal workspace environment for the constantly growing workforce. Job satisfaction is a crucial indicator that every company should use to project how successful how successful they really are. Decreased

job satisfaction can cause a lot of different problems for an organization including a spike in sick-days requests by the employees (Bockerman & Ilmakunnas, 2008). Many of these problems and adverse effects can be prevented by an efficient and proactive approach to ensuring optimal workspace conditions, in which the employees are likely to be more productive, less stressed, and more satisfied with their jobs.

### **Methodological Implications**

My research study used a quantitative 2x2 non-experimental design. The primary purpose of the study was to evaluate the impact of the two independent variables (workspace design and office placement) on the three dependent variables (work-related stress, productivity, and job satisfaction). The sample population was  $N = 131$ , which could be considered a small sample size, but was above the minimum threshold for statistically significant sample size ( $N = 128$ ). ). The already validated instruments were used to collect data from the participants were Work Stress Scale, IWPQ, and the Brief Index of Affective Job Satisfaction. In retrospect, the decision to use already validated instruments and to collect data via SurveyMonkey was the best option for this particular study, and future research can this study as a guidance on selecting the most appropriate methodological approach. The results, and the overall outcome of the study, were a strong indication that the appropriate research design was selected along with the appropriate statistical analysis, which allowed me to effectively examine my research questions and find statistically significant difference in two out of nine of the research questions. The results of my research study suggest that MANOVA and ANOVA were an appropriate selection in regard to the statistical analysis of the collected data.

## **Theoretical Implications**

The primary theoretical approach for this research study was the optimal distinctiveness theory. Optimal distinctiveness theory was utilized as a primary theoretical approach because it focused on the factors necessary to achieve optimal, small-group performance and their effects on the workspace related stress, productivity, and job satisfaction (Leonardelli & Lloyd, 2016). The results of my study do support the selection of the optimal distinctiveness theory as the primary theoretical approach. Employees were likely to have lower levels of work-related stress and higher levels of job satisfaction if they worked in the optimal, physical work environment. According to Shore et al. (2011), optimal distinctiveness theory provided the rationale for an instance when human beings want to be valued and confirmed as similar other members of the group as well as being recognized as unique and independent individuals. Similarly, employees in the workspace want to be valued and confirmed as unique and independent individuals within their workspace and the quality of workspace design is essential in providing the optimal environment for all employees.

The theoretical foundation of the optimal distinctiveness theory was used as a guide to further evaluate the necessary environmental conditions and employers' proactive approach when it comes to ensuring that every workspace was suitable for a small group or a unit, which was likely to achieve higher levels of cohesion, unity, and work-related performance. The second theoretical approach that was used in this research study was cognitive-motivational-relational theory. Although the workspace dynamics and expectations, that were presented to the workforce, have changed over the years, the

importance of controlling levels of work-related stress has been present for many centuries and was studied and documented by researchers from many generations before us (Lazarus, 1993). One of primary expectations of every employer was to maximize the workers' productivity while ensuring their well-being and manageable stress levels. However, most employees failed to recognize the importance that emotions have on the overall quality of employees' performance and their wellbeing (Lazarus, 1991). Emotions play a very important role in our lives and this should be taken into consideration when deciding on the best approach for designing an optimal workspace environment (Lazarus, 1991). The results of this research study support the notion that better understanding is needed when it comes to the applicability of the Cognitive-Motivational-Relational Theory and how it relates to the workers' productivity and overall wellbeing (work-related stress and job satisfaction). Further study of the employee's interaction with their workspace environment and the effect it has on their emotions also needs to be researched in more detail (Lazarus, 1991).

### **Recommendations for Practice**

The results of my research study provide a strong indication that additional resources must be invested in ensuring that optimal workspace environment is provided for the modern-day workforce. Furthermore, a statistically significant interaction between workspace design and employees' work-related stress and job satisfaction was discovered, as a result of this research study, along with statistically significant interaction between office placement and employees' work-related stress, productivity, and job satisfaction. With this in mind, it is important for the leadership and management

of every company and organization to consider the importance of workspace design and office placement when making the decisions pertaining to improvements necessary to ensure optimal workspace environment for their workforce. Furthermore, it is recommended that all companies conduct internal evaluations in regard to workforce stress, productivity, job satisfaction, and overall wellbeing. These internal evaluations should offer complete anonymity and confidentiality for all their employees.

In conclusion, it is strongly recommended for companies and organizations nationwide to pay more attention to the interaction of the workspace environment and office placement process and their employees work-related stress, productivity, and job satisfaction. Changes aimed at improving overall quality of workspace environment and office placement process should be proactive instead of reactive. Approaching this important matter in a proactive manner will ensure consistently high levels of productivity and improved overall wellbeing. With that being said, the result of my research study endorses the need for additional resources necessary for making significant and long-lasting improvements to workspace design and office placement, and, ultimately, workspace conditions for millions of employees nationwide.

### **Conclusion**

Due to a rapidly evolving modern-day workforce, a significant amount of additional research is needed in order to keep up with the constantly changing demands placed upon companies and organizations across different industries. Furthermore, modern-day workforce has been facing continuously increasing levels of work-related stress, which as a result often times leads to degraded productivity and deteriorating

levels of job satisfaction. While the modern-day workforce is struggling with many different issues (inadequate pay, longer hours and commutes, less than ideal work environment, job security, rapid technology innovations), work-related stress, productivity, and job satisfaction remain the most important evaluating factors for every corporation and organization nationwide (Choi et al., 2015; Douglas, 2017; Vischer, 2007, 2008). Changing the inadequate workspace dynamics and improving workspace conditions can have an immediate, positive impact on the overall productivity levels along with improved wellbeing on individual and collective level. While all of the necessary changes do require significant and substantial investment of time, resources, and personnel, the detrimental effects of inadequate workspace environment and office placement far outweigh the initial investment necessary to improve and maintain an optimal work environment.

My research study has built upon the existing literature on this topic, with hopes of contributing additional and relevant information to the research community. The results of the study provided a strong indication that the quality of workspace has a significant impact on the employees' levels of work-related stress and job satisfaction. However, additional research is required in regard to the effects of office placement process on employees' levels of work-related stress, productivity, and job satisfaction. Existing body of research had focused on the physical work environment and the factors that lead to an optimal or degraded workspace conditions. Connection between workforce productivity and workspace design has also been studied in great detail. However, a great

deal of unanswered questions still remains in regard to best practices and initiatives that are yet to be implemented across the entire workforce.

The results of my research study provide a strong indication and encouraging conclusions that the workspace environment has a direct impact on the wellbeing of the workforce. While I did not find statistically significant difference in 7 out of 9 of my research questions, the two research questions that were found to be statistically significant (Research Questions 4, and 7), showed a very strong relationship between the independent and dependent variables ( $p < .001$ ). The results generated in this study should serve as a motivation and justification not only for future studies that will build on the existing body of research, but also for companies and organizations nationwide to invest more resources and time to properly address all of the workspace deficiencies, which could degrade the overall performance and wellbeing of their employees, and lead to decrease in revenue and overall profitability. The corporations and organizations around this country and worldwide are continuing to place increasingly complex and difficult demands on the modern-day workforce. What the results from this study have indicated is that the increase in demands from the workforce must be accompanied by an increased attention to workspace conditions and the management of the workspace. Without proper resources and time invested in ensuring optimal workspace conditions, it is unrealistic to expect consistently strong performance by the workforce. Furthermore, it is equally unrealistic to expect that work-related stress remains low and that levels of job satisfaction and productivity remain high unless employers can ensure optimal workspace conditions and effective office management strategy.

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