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THE ROLE OF HIGH-PERFORMANCE WORK SYSTEMS AND RESILIENCE IN EMPLOYEE WELL-BEING IN THE PHARMACEUTICAL INDUSTRY OF GHANA

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THE ROLE OF HIGH-PERFORMANCE WORK SYSTEMS AND RESILIENCE IN EMPLOYEE WELL-BEING IN THE PHARMACEUTICAL INDUSTRY OF GHANA

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APPROVED FOR FINAL SUBMISSION

Supervisor: Dr. Njabulo Khumalo (PhD) **Signature:** **Date:** 18/08/2023

DECLARATION BY STUDENT

I declare that I conducted this thesis by following the guidelines provided by the Faculty of Management Sciences of the Durban University of Technology and further declare that the outcome of the entire study is the result of my independent investigation, except where otherwise stated. The references used have been duly acknowledged as in-text citations and have been referenced. Finally, I declare that no part of this dissertation has been submitted for the award of any other degree, or concurrently submitted in candidature for any other doctoral degree, in any other institution of higher education.

Name: Charles Ata Kwaku Hanu Signature: Date: January 2023

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ABSTRACT

In a business environment characterised by incessant disruptions, organisations must adopt a system of human resource practice that will enhance employee ambidexterity and employee and organisational resilience, which will eventually culminate in employee well-being. Grounded in the job-demand resource theory (JD-R), this study examines the role of high-performance work systems and resilience in employee well-being within the pharmaceutical industry in Ghana. Specifically, the study seeks to examine the effects of a high-performance work system on employee resilience, individual ambidexterity, and organisational resilience; and to establish the influence of employee resilience and ambidexterity on organisational resilience. Further, the study seeks to determine the role of organisational resilience in the relationship between high-performance work systems, employee resilience, employee ambidexterity, and employee well-being; and to develop a management framework for the improved implementation of high-performance.

The research follows the explanatory sequential mixed-method approach. The quantitative phase constitutes the dominant part of the mixed method. The quantitative data was based on 324 employees within the Pharmaceutical Manufacturers Association of Ghana. The respondents were sampled using a simple random technique. The qualitative data was generated from 12 participants, who were purposefully sampled, through semi-structured interviews. The quantitative data were analysed using SmartPLS, while the qualitative data was analysed using a thematic method with the aid of Nvivo, a computerised software for analysing qualitative data. Subsequently, the quantitative and qualitative data were integrated during the discussions of the outcomes.

The results from the quantitative data reveal that nine out of the twelve hypotheses were confirmed. A high-performance work system was found to be positively and significantly related to employee and organisational resilience, exploitation and exploration ambidexterity. The outcomes also indicate that exploitative ambidexterity positively and significantly predicts organisational resilience. However, employee resilience and exploration ambidexterity do not. Finally, the results confirm the mediating role of organisational resilience in the relationship between HPWS,

exploitation ambidexterity and employee well-being. Most of the qualitative data provides support for, and explains, the statistical outcomes.

This study contributes to the literature on employee well-being by applying the job-demand-resources theory to investigate the effect of high-performance work systems, employee resilience and individual ambidexterity, and organisational resilience, on well-being. The study proposes a management framework and recommends managerial practices that will enjoin pharmaceutical manufacturers' managers to enhance their organisations' resilience and the well-being of their employees.

Key words: high-performance work system, resilience, ambidexterity, employee wellbeing

DEDICATION

In loving memory of my late father, Mr. George Kwasi Hanu, and my late brother, Mr. Emmanuel Kodzo Hanu.

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LIST OF ABBREVIATIONS

AMO	Ability-Motivation-Opportunity
CMB	Common method bias
DUT	Durban University of Technology
EmRes	Employee resilience
EWB	Employee well-being
ExpLAmb	Exploitation ambidexterity
ExpRAmb	Exploration ambidexterity
H	Hypothesis
HPWS	High-performance work systems
HR	Human resources
HRM	Human resource management
JD-R	Job-demands resources
OrgRes	Organizational resilience
PMAG	Pharmaceutical Manufacturers Association of Ghana
RQ	Research questions

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CHAPTER ONE

GENERAL INTRODUCTION TO THE STUDY

1.1 Introduction

The global business landscape has become unpredictable, and organizations are constantly faced with unprecedented challenges and crises that demand agile responses to sustain their operations and safeguard their employees' well-being. The pharmaceutical industry of Ghana, like many others, has been significantly impacted by various crises, highlighting the need to navigate through crises, uphold employee well-being, and maintain operational resilience. At the heart of this complex interplay lies the dynamic synergy between high-performance work systems (HPWS), employee resilience, and organizational ambidexterity in enhancing both organizational resilience and employee well-being (Cooke, Wang, and Bartram 2019; Hillmann and Guenther 2021; Mu, van Riel, and Schouteten 2022).

However, the literature on the role of high-performance work systems, employee resilience, and ambidexterity on organizational resilience and employee well-being during crises in the pharmaceutical industry of Ghana is still relatively limited. While there is a growing body of research on the interaction among human resource practices, crisis management, organizational resilience, and employees in various contexts (Al-Taweel 2021; Hepfer and Lawrence 2022; Liang and Cao 2021), the specific context of the pharmaceutical sector in Ghana remains largely unexplored. This research filled this gap by investigating how these factors interrelate to influence organizational resilience and employee well-being during crises within the Ghanaian pharmaceutical industry.

In chapter one, this thesis provided a comprehensive overview of the research topic, outlining the significance of studying high-performance work systems, employee resilience, and organizational ambidexterity in the pharmaceutical industry of Ghana during times of crisis. The chapter laid the foundation for the research by introducing the current challenges faced by the industry and the importance of organizational resilience and employee well-being in effectively addressing such challenges. By presenting the research problem, aims, and specific objectives, the chapter indicated the course for the subsequent investigation, guiding the reader through the key research

questions that will be addressed in the study. Additionally, the chapter explores the theoretical and managerial significance of this research, highlighting the potential contributions to academia and practical implications for pharmaceutical firms seeking to enhance their resilience and support their employees during crises. The chapter also clarified the scope and structure of the thesis, providing a clear roadmap for the subsequent chapters and ensuring a coherent flow of information throughout the study.

1.2 Background

The contemporary work environment is characterized by fierce market competition, disruption of work processes, unstructured jobs, and challenging expectations that cause uncertainties for businesses and employees (Ikhide, Timur, and Ogunmokun 2022:1; Senbeto and Hon 2020:1119). External environmental factors, such as economic decline, changing customer demands, environmental challenges, political instability, and disruptions in value delivery systems, create many setbacks and distractions for individuals and organisations (Senbeto and Hon 2020:1119; Linnenluecke 2017:4; Herbane 2019: 476). Crises in the workplace tend to deplete the resources of individuals and organisations. For instance, industries such as tourism, construction, aviation, logistics, and hospitality had their business processes disrupted and struggled to survive during the COVID-19 pandemic (Rai, Rai, and Singh 2021; Dube 2021; Agyekum, Kukah, and Amudjie 2021; Rogerson and Rogerson 2021).

This research focused on the pharmaceutical industry in Ghana, which has its own unique set of characteristics and challenges. Ghana's pharmaceutical manufacturing sector is relatively small but essential, focusing on local production of generic drugs. It is regulated by the Ghana Food and Drugs Authority, which ensures product quality and safety. Challenges include limited access to capital, infrastructure, and high production costs. Additionally, counterfeiting and substandard drugs have been a concern, leading to efforts to strengthen regulatory oversight. The industry primarily serves the local market, with some companies exporting to neighboring West African countries. During the COVID-19 pandemic, the sector played a crucial role in producing essential medications and medical supplies. However, the pandemic has significantly impacted the resilience and employee well-being of pharmaceutical manufacturing firms in Ghana, including job losses, varying workloads, and health risks

taking a toll on individuals (Ajibo 2020; van Niekerk and van Gent 2021; Haque 2021; Yu, Park, and Hyun 2021; Wong, Olusanya, Parulekar, and Highfield 2021).

This study argued that the constantly challenging and disruptive work environment has substantial implications for both individual and organizational resilience, employee exploitation and exploration activities, and employee well-being, requiring organizations and employees to adapt swiftly to disruptions (Kuntz, Näswall, and Malinen 2016:460; Näswall, Malinen, Kuntz, and Hodliffe 2019:353). Hence, this research contended that the recent unforeseen COVID-19 pandemic, for example, highlighted the importance of enhancing resilience and employee well-being, particularly within the pharmaceutical industry of Ghana, which this researcher explored. This research aligned with other studies that highlighted the role of human resource management (HRM) practices in enhancing employee well-being, individual and firm resilience, and employee ambidexterity (Kuntz et al. 2016:460; Huang, Xing, and Gamble 2019:1323). Organizational resilience refers to an organization's ability to anticipate, respond to, recover from, and learn from adversity (Rahi 2019:85). Resilient employees, on the other hand, demonstrate the capability to adapt and flourish at work during challenges or crises (Hillmann and Guenther 2021; Duchek 2020; Linnenluecke 2017; Kuntz et al. 2016; Näswall, Kuntz, Hodliffe, and Malinen 2015: 1). The ability to be ambidextrous, both in exploiting current capabilities and exploring new opportunities, is increasingly valued in employees, especially during crises (Al-Agry 2021; Mu, van Riel, and Schouteten 2022; Kumkale 2022; Papachroni and Heracleous 2020).

Drawing from previous experiences, organizations and employees can face crises at any point in time. However, how individuals and firms respond to crises differs (Cooper, Liu, and Tarba 2014: 2466). While some individuals and organizations easily adapt and survive a crisis, others fail. Organizations that maintain their functions by mobilizing and accessing the resources to anticipate, respond to, recover from, and learn from, adversity are said to be resilient (Hepfer and Lawrence 2022:8; Hillmann and Guenther 2021:31; Tasic, Amir, Tan, and Khader 2020:713). In other words, organizational resilience describes how well-prepared organizations are to overcome or react to disruptions. Similarly, resilient employees demonstrate the capability to continually adapt and flourish at work when faced with challenges, or to quickly bounce back after

a crisis (Hillmann and Guenther 2021; Duchek 2020; Linnenluecke 2017; Kuntz et al. 2016; Näswall et al. 2015: 1). Due to frequent changes in the business environment, organizations are interested in employees who can successfully adapt to challenging work demands and seek out opportunities for continual improvement (Caniëls et al. 2022; Näswall et al. 2019:354). Näswall et al. (2015:1) suggest that organizations must facilitate and support the resilience of their employees. Hence, research on the effect of human resource practices on both organizational and individual resilience is steadily growing (Kim, Cho, and Yang 2022; Gerçek and Börekçi 2021; Rodríguez-Sánchez 2021; Rehman, Mata, Martins, Mariam, Rita, and Correia 2021).

Further, crises signal the need for organizations to develop the ambidextrous capacity of their employees to cope during crises and maintain continuous competitive performance. The term 'ambidexterity' is used to describe employees' ability to exploit their current capabilities and explore new opportunities (Al-Agry 2021; Mu, van Riel, and Schouteten 2022; Kumkale 2022; Papachroni and Heracleous 2020). In the past decade, organizations have valued and sought out employees who are ambidextrous. Thus, organizations seek employees who can exploit their current capabilities to cope with and adapt to challenges, while they explore new opportunities arising out of crises (Mu et al. 2022; Birkinshaw and Gupta 2013). Therefore, some scholars have proposed and encouraged the design of ambidextrous human resource management systems to facilitate and enhance employee ambidexterity (Garaus, Konlechner, Koprax, Lackner, Link, and Müller 2015:355; Patel, Messersmith, and Lepak 2013:1422), since all employees can contribute to the value creation of their existing organizations by responding appropriately to challenges or changes in their business environment. (Mu et al. 2022:2). As a result, researchers are paying attention to the influence of HR practices on individual ambidexterity (Úbeda- García, Marco- Lajara, Zaragoza-Sáez, Manresa- Marhuenda, and Poveda- Pareja 2022; Gürlek 2021; Raiden, Räisänen, and Kinman 2020). Its antecedents and outcomes are still in the burgeoning stage (Jørgensen and Becker 2017: 246).

The extant literature on HRM provides evidence about the roles of individual HR practices in achieving employee outcomes (Veth, Korzilius, van der Heijden, Means, and de Lange 2019; Yasir and Majid 2020) and organizational outcomes (Saha, Gregar, and Sáha 2017; Lai, Saridakis, and Johnstone 2017). For example, Guan and Frenkel

(2018:163) confirmed the link between training and employee performance. Similarly, scholars have examined the effects of HR practices, such as performance management and compensation management, on firm performance (Han, Sun, and Wang 2020; Islami, Mulolli, and Mustafa 2018; Okeke and Ikechukwu 2019). Some previous studies have suggested that combining individual HR practices yields desirable employee and firm outcomes. The outcome at the employee level includes commitment, performance, satisfaction, innovation behaviour, and knowledge sharing (Wongleedee 2020:211; Bhatti et al. 2020:439; Caniëls and Veld 2019:566; Edgar, Zhang, and Blaker 2019: 11358; Ma, Xiao, and Yin 2018: 247). At the organisational level, the outcomes include creativity, improved productivity, and branch performance (Jeong and Shin 2017: 909; Jiang and Liu 2014: 128; Shin and Konrad 2014: 974; Ali, Ali, Albort-Morant, and Leal-Rodrıguez. 2019: 793). Hence, the study posits that employee and organisational resilience, and employee ambidexterity, serve as conduits through which a high-performance work system leads to employee well-being (Cooke et al. 2019:687; Liu, Cooper, and Tarba 2019:1229).

A number of studies, such as those of Pretorius and Padmanabhanunni (2022), Czerw (2019), and Taris and Schaufeli (2018), have distinctively investigated organizational and individual influences in promoting the well-being of employees. Specifically, a growing number of studies have examined the role of HR activities on employee well-being. However, there is a dearth of studies assessing the extent to which organizational factors such as HPWS, and individual factors such as employee resilience and ambidexterity, influence employee well-being within the pharmaceutical manufacturing industry in Ghana. Given that the global business environment continues to be disruptive, it is crucial to fill the knowledge gap by examining how organizational resilience serves as a mechanism through which HPWS and individual factors enhance employee well-being within the pharmaceutical manufacturing sector of Ghana. The next section explains, in detail, the research gaps this research addresses.

1.3 Problem statement

The pharmaceutical manufacturing sector in Ghana has been recognized for its contributions to economic development and public health delivery (Mackintosh, Banda, Tibandebage, and Wamae, 2015:11). However, despite Ghana's annual intercensal population growth rate of 2.1% and potential demand for pharmaceuticals, only about

30% of pharmaceuticals are produced locally, with heavy dependence on imports from developed economies (ADP 2016:6 Ghana Statistical Service 2021). The local pharmaceutical manufacturers face numerous challenges, including economic factors like inflation and currency fluctuations, as well as issues related to information technology and supply chain disruptions (Asamoah, Abor, and Opare 2011:76; Mehralian, Zarenezhad, and Ghatari 2015:76).

To address this situation, the Ghanaian government has initiated coordinated investments to enhance local pharmaceutical production and improve manufacturing standards (ADP 2016). Additionally, calls have been made for capacity development and the implementation of good manufacturing practices (ADP 2016). However, there is limited research exploring the relationship between high-performance work systems, employee resilience, and ambidexterity on organizational resilience and employee well-being in the pharmaceutical industry of Ghana.

The influence of High-Performance Work Systems (HPWS) on individuals and firms has been studied in various contexts, revealing variations due to diverse organizational characteristics and environments (Datta, Guthrie, and Wright 2005: 136). While several studies have investigated the predictive role of HPWS on individual ambidexterity, employee resilience, and organizational resilience in different settings (Cooke et al. 2016: 2; Branicki, Steyer, and Sullivan-Taylor 2019: 2; Mu et al. 2022; Zhang et al. 2022; de Reuver, van de Voorde, and Kilroy 2021; Wang, Xing, and Zhang 2021), there is a scarcity of research exploring the combined effect of HPWS on employee ambidexterity, resilience, and organizational resilience in a single study, particularly within a specific industry context during crises, especially within the global south. Consequently, this knowledge gap in the literature necessitates further investigation.

Moreover, limited studies have discussed the influence of employee resilience (Liang and Cao 2021; Nyaupane, Prayag, Godwyll, and White 2020) and ambidexterity (Heinze 2022; Iborra, Safón, and Dolz 2020) on organizational resilience, resulting in a lack of comprehensive understanding of how these factors interact to build organizational resilience within pharmaceutical manufacturers. Furthermore, the influence of organizational resilience in enhancing employee well-being during crises, as part of strategic human resource management practices (Maree 2017; Wang, Cooke,

and Huang 2014:133), remains insufficiently explored. Additionally, the role of organizational resilience in mediating the relationship between employee resilience, HPWS, employee ambidexterity, and employee well-being within the pharmaceutical industry in Ghana has not been adequately examined.

Additionally, although there have been studies investigating the factors that influence ambidexterity and its consequences (Affum-Osei, Adom Asante, Kwarteng Forkouh, and Abdul-Nasiru 2020; Heinze 2022), a notable gap in research still exists. Specifically, studies that examined the separate moderating effects of exploitation and exploration ambidexterity concerning HPWS, employee resilience, organizational resilience, and employee well-being, particularly in the context of crises, are sparse (Rintala et al., 2022). In addition, the existing research on employee well-being primarily focuses on subjective well-being (Berraies 2022; Ali et al. 2021; Hu, Jiang, Probst, and Liu 2021) or psychological well-being (Obrenovic, Jianguo, Khudaykulov, and Khan 2020; Grant and McGhee 2020; Kundi, Aboramadan, Elhamalawi, and Shahid 2020). Comprehensive studies on overall employee well-being within the pharmaceutical manufacturing sector from the global South are scarce (Guest 2017; Hauff, Felfe, and Klug 2022; Wang, Zhang, and Wan 2022).

These knowledge gaps present an opportunity to explore the effects of HPWS on employee well-being by considering individual ambidexterity, employee resilience, and organizational resilience within the pharmaceutical manufacturing sector in developing economies like Ghana. Thus, this study addressed these research gaps and comprehensively investigated how HPWS, employee resilience, employee ambidexterity, and organizational resilience interact to promote employee well-being during crises within the pharmaceutical industry in Ghana.

1.4 Aim of the study

The overall aim of this research is to examine the role of high-performance work systems and resilience on employee well-being within the pharmaceutical industry in Ghana.

1.4.1 Objectives of the study

The objectives, stated below, provide guidance and direction in achieving the primary aim of the research. Thus, at the end of this study, the following objectives will have been achieved:

Objective 1: to examine the effects of a high-performance work system on employee resilience, employee ambidexterity, and organisational resilience within the pharmaceutical industry in Ghana.

Objective 2: to establish the impact of employee resilience and ambidexterity on organisational resilience within the pharmaceutical industry in Ghana

Objective 3: to determine the role of organisational resilience in the relationship between employee resilience, HPWS, employee ambidexterity, and employee well-being within the pharmaceutical industry in Ghana.

Objective 4: to propose a management framework for improved implementation of a high-performance work system necessary to develop a resilient organisation and employee well-being

1.5 Research questions

The following research questions (RQ), emanating from the specific objectives, will guide the thesis and be answered at the end of the research.

RQ1: What are the effects of high-performance work systems on employee resilience, employee ambidexterity, and organisational resilience within the pharmaceutical industry in Ghana?

RQ2: What is the impact of employee resilience and ambidexterity on organisational resilience within the pharmaceutical industry in Ghana?

RQ3: What is the role of organisational resilience in the relationship between employee resilience, employee ambidexterity, and employee well-being within the pharmaceutical industry in Ghana?

RQ4: What is the proposed management framework for improved implementation of a high-performance work system necessary to develop a resilient organisation and employee well-being?

1.6 Significance of study

This study made significant contributions to both theory and managerial practice. In contributing to theory, this thesis extended the literature on HPWS by simultaneously examining its predictive role in individual and organizational outcomes, especially during crises, in the pharmaceutical manufacturing sector in an emerging economy. Specifically, it added to the existing literature by directly testing the differential and causal effect of HPWS on employee resilience, individual ambidexterity, and organizational resilience. Grounded on the job demand-resource model (Wang, Fan, and Zhang 2022), the study also provided mechanisms through which HPWS led to employee well-being. To the best of the researcher's knowledge, studies investigating employee resilience, individual ambidexterity, and organizational resilience as a mechanism for achieving employee well-being were sparse or almost non-existent. Extensive studies on the predictive role of HPWS were largely grounded in the Ability-Motivation-Opportunity theory (Miao, Bozionelos, Zhou, and Newman 2021; Mat, Wan Norhayati, Salleh, and Yusof 2021; Bhatti, Zakariya, Vrontis, Santoro, and Christofi, 2020; Bartram, Cooper, Cooke, and Wang 2021). However, this thesis applied and extended the job demand-resource model to emphasize the direct outcome of HPWS in developing individual and organizational resources that enhanced employee resilience, mainly when challenges occurred. Another significant contribution of this thesis was that the findings were based on its research design. This explanatory sequential mixed-method was rarely used in many studies exploring the outcome of HPWS.

Practically, building and sustaining organizational resilience and employee well-being, especially during crises, were of paramount interest to corporate leaders. Crises and challenges occurred. However, the ability of the firm to persist and thrive through crises was essential for managers of organizations. The outcomes of the study, thus, offered guidelines for managers, particularly in the pharmaceutical manufacturing sector of Ghana. First, managers of pharmaceutical manufacturers needed to comprehend how the HPWS of their organizations contributed to their employees' ability to exploit existing capabilities, explore new ones during crises, and enhance resilience at the employee and firm levels. Second, the outcomes enabled managers to maintain their focus on achieving the well-being of their employees, even during challenging times. This study provided additional and valuable mechanisms for practitioners to achieve employee well-being. The study's implications demonstrated the need for managers to enhance their employees' well-being by enhancing their organizations' resilience through HPWS, employee resilience, and individual ambidexterity. By implementing High-Performance Work Systems (HPWS), managers can create a supportive and empowering work environment that fosters employee resilience. This, in turn, can contribute to the overall resilience of the organization as employees are better equipped to handle challenges and adapt to change. Additionally, fostering individual ambidexterity, or the ability to effectively balance and integrate different tasks and roles, can further enhance employee well-being and contribute to organizational resilience.

1.7 Scope and delimitation

As indicated under the aims and objectives, the primary purpose of this research was to examine the role of high-performance work systems and resilience in employee well-being within the pharmaceutical industry in Ghana. There were approximately 38 pharmaceutical manufacturing companies in Ghana at the time of this study. However,

this study was limited to the pharmaceutical manufacturers in Ghana, organised under the umbrella of the Pharmaceutical Manufacturers Association of Ghana (PMAG). Within the PMAG, the research was limited to pharmaceutical manufacturing companies in Accra, Ghana.

The domain of the research aligned with human resource management systems involving HPWS, resilience, ambidexterity, and employee well-being constructs. The research focused on the predictive role of a high-performance work system, which is grounded in the Ability-Motivation-Opportunity-enhancing model. The concept of resilience could be examined at the individual, team, group, and organisational levels. However, only individual and organisational resilience were investigated in this research. Employee resilience was construed as a behavioural concept rather than a dispositional or attitude concept. In addition, the study investigated the concept of employee well-being, which is a multidimensional construct. Several scholars have proposed various models, such as social well-being, psychological well-being, subjective well-being, and workplace well-being, for examining and measuring work well-being. This study followed the suggestion of Ryan and Deci (2001: 145) by integrating both hedonic and eudaimonic elements to constitute employee wellbeing. Hence, the research was limited to HPWS, employee resilience, ambidexterity, organisational resilience, and employee well-being. Finally, this study used organisational resilience as the mechanism through which HPWS, employee resilience, and employee ambidexterity relate to employee well-being.

1.8 Structure of the thesis

This thesis comprises seven chapters. The first chapter is the introduction. The chapter provided the background of the thesis, the statement of the research problem, and the research objectives. The questions, which emanated from the research objectives, were also presented. It further explained the significance of the research, and the scope and limitations of the study. The rest of the dissertation is organised as follows:

Chapter Two: Chapter Two constitutes the literature and the theoretical reviews. This chapter explained the key variables used in the study. The first part of the chapter provided a literature review of the concept that constitutes the research framework. It reviewed the concepts of high-performance work systems; employee resilience;

individual ambidexterity; organisational resilience; and employee well-being. The second part of this chapter reviewed the literature on the theoretical basis for this research and explained how the theory is related to the concepts.

Chapter Three: This chapter focused on the research framework and provided empirical evidence and support for the relationship between the constructs under study and how the hypotheses were developed. The review is guided by the research objectives and the research questions. The conceptual model was presented and described in the chapter's final section.

Chapter Four: This chapter presented the methodological approach used to conduct the research. It provided information on the research approaches, the sampling design, and the research instruments. It also provided information on how both the quantitative and qualitative data were collected. In addition, it provided details on using partial-least-square structural equation modelling (PLS-SEM) and Nvivo in analysing both the quantitative and qualitative data, respectively. The ethical considerations and data quality are also discussed.

Chapter Five: In this chapter, the findings from the data analyses were presented. The quantitative results from the explanatory sequential mixed methods were initially showcased to demonstrate the relationships between the constructs. Subsequently, the outcomes of the qualitative data were presented to complement the quantitative findings.

Chapter Six: In this chapter, the outcomes of the data analysis were examined in relation to the research questions and the specific objectives of the study. The discussion also assessed the correlation or divergence between the quantitative and qualitative outcomes, aligning with the existing literature.

Chapter Seven: This chapter provided an overview of the entire research. It summarized the extent to which the research objectives have been achieved by answering the research questions set out in Chapter One. The chapter also detailed the specific contributions of the research by providing the theoretical and managerial

research implications of the study, after which it presented the limitations of the research and directions for future studies.

1.8 Conclusion

The introductory chapter laid the foundation for the entire research. Firstly, it provided background by explaining the concepts to be studied. Secondly, the research gap, the primary and specific objectives, and the questions guiding the study were stated. Thirdly, the theoretical and managerial contributions of the study were explained. Fourthly, the scope and limitations within which the study was conducted were delineated. Finally, how the entire research was organised and what was covered in each chapter were specified. The next chapter focused on reviewing the literature on the concepts used in the research model and the theoretical bases on which the study is grounded.

CHAPTER TWO

CONCEPTUAL AND THEORETICAL REVIEW OF THE STUDY

2.1 Introduction

This chapter focused on the literature review and the theoretical perspectives underpinning the study. The first part of the chapter primarily reviewed literature on the concepts in the research framework. Specifically, it provided insights into high-performance work systems; employee and organizational resilience; individual ambidexterity; and employee well-being. The second section elucidated the theoretical basis on which the study is grounded. The exposition on the theory used was presented in tandem with the research objectives. The last section presents the conclusion.

2.2 Conceptual review

2.2.1 High-performance work systems

The extant literature on strategic human resource management acknowledges the roles of human resource (HR) practices in improving organizational and individual outcomes (Hauff, Felfe, and Klug 2022; Meijerink, Beijer, and Bos-Nehles 2021; Ismail, Majid, Rahman, Jamaluddin, Susantiy, and Setiawati, 2021; Katou, Budhwar, and Patel 2021; Al-Jedaiah and Albdareen 2020; Wattoo, Zhao, and Xi 2020). In the human resource management literature, researchers have proposed many distinct HR practices and systems that yield high employee performance (Menezes and Wood, 2006; Fu, Ma, Bosak, and Flood 2015). Studies in strategic human resource management also emphasize bundles of human resource systems in achieving optimum performance, instead of concentrating on a distinct HR practice (Boon, den Hartog and Lepak, 2019:2499). Lepak, Liao, Chung, and Harden (2006:221) have described an HR system as a combination of individual HR practices "that are espoused to be internally consistent and reinforcing to achieve some overarching results." HPWS (Boxall and Purcell 2003; Bartram et al. 2021; Kim, Messersmith, and Allen 2021), flexible HR systems (Menezes and Wood 2006), high-involvement work systems (Guthrie, 2001); and high-commitment work systems (Arthur, 1994) are examples of HR systems cited in the HR literature. These HR systems have a common denominator: a set of HR practices as a mechanism for managing and leading employees to achieve enhanced individual, team, and firm performance. This dissertation focuses on conceptualising

and operationalizing HPWS as a bundle of universal HR systems employed by the pharmaceutical industry in Ghana to directly predict employee ambidexterity, and individual and organizational resilience.

Competing definitions of HPWS are documented in the HR management literature. For example, the initial study by Huselid (1995:635) described HPWS as "comprehensive employee recruitment and selection procedures, incentive compensation and performance management systems, and extensive employee involvement and training that can improve the knowledge, skills, and abilities of a firm's current and potential employees." A decade later, Datta, Guthrie, and Wright (2005:135) defined HPWS as "a set of HR practices designed to enhance employee's skills, commitment, and productivity in such a way that employees become a source of competitive advantage." Subsequently, Armstrong, Flood, Guthrie, Liu, MacCurtain, and Mkamwa. (2010: 978) defined HPWS as "a system of HR practices that includes comprehensive employee recruitment and selection procedures, compensation and performance management, extensive communication and employee involvement, and training and development that can improve acquiring, developing, and retaining a workforce that is a source of potential competitive advantage", while Takeuchi, Chen, and Lepak (2009: 1) defined it as "a group of separate but interconnected HR management practices designed to enhance employee and firm performance outcomes through improving workforce competence, attitude and motivation."

In the last decade, many researchers have grounded the definition of HPWS in the Ability-Motivation-Opportunity (AMO) model (Fu et al. 2015:53; Shahzad 2019:48). As an illustration, Rabl, Jayasinghe, Gerhart, and Kühlmann (2014: 3) defined HPWS as related HR practices designed to increase performance by enhancing employee ability, motivation, and opportunity. Similarly, van de Voorde, and Beijer (2015:63) described it as "a group of separate but interconnected HR practices designed to enhance employee and firm performance through enhancing employee skills, motivation and opportunity to contribute." Despite the non-existence of a single definition of HPWS, there are shared principal elements across the myriad definitions. Firstly, HPWS involves a bundle of individual human resource practices rather than a single HR practice. Combining individual HR practices has a synergistic effect on managing employee outcomes; instead of the effects of separate HR practices (Chung

and Pak 2020:2054). Thus, no individual component of the AMO model is sufficient and adequate to achieve performance or influence employee and organizational outcomes (Shahzad, Arenius, Muller, Rasheed, and Bajwa 2019:1003). Secondly, the HPWS is directed at enhancing both individual and organizational outcomes. This dissertation adopts the perspective of the AMO model to reflect the dimensions of HPWS. Thus, the study operationalized HPWS as the extent to which pharmaceutical manufacturers within the context of Ghana design a specific bundle of HR practices to enhance employee ability, stimulate employee motivation, and create opportunities for employees to be productive. Thus, this study suggests that resilience at the organizational and employee levels and individual ambidexterity, emanate from HPWS.

2.2.1.1 HPWS as a reflection of the AMO model

The AMO theory suggests that employees achieve high performance when they have the abilities; when they have the motivation to perform; and when the work environment provides opportunities for them to perform (Marin-Garcia and Tomas 2016; Appelbaum, Bailey, Berg, and Kalleberg 2000; Boxall and Purcell 2011). The AMO framework suggests that "performance in any kind of role is some function of the individual's abilities, motivation, and their opportunity to perform in the specific context" (Boxall and Purcell 2011:190). The proponent of the theory used it to explain how human resource practices relate to individual and organizational performance (Appelbaum et al. 2000; Boxall and Purcell 2003). The equation for this model is p = f (Ability, Motivation, Opportunity). Thus, performance is a function of individual ability, motivation, and opportunity (Cai et al. 2020:4). The AMO components have been identified as the resources needed by the employees to perform their work successfully (Mat, Mohamed, Salleh, and Yusof 2021:2573) and are traditionally designed to increase firm performance by improving employee ability, motivation, and opportunity to contribute (Appelbaum et al. 2000; Boxall and Purcell 2003).

2.2.1.1.1 Ability-enhancing practices

Ability is an important element that predicts the work behaviour and outcomes of employees (Dietz, Burmeister, and Fasbender, 2022:261; Nadeem and Rahat 2021: 169). The AMO framework considers ability as the skills, knowledge, and other characteristics that an organization requires, and which potential and existing

employees possess (Alqudah, Carballo-Penela, and Ruzo-Sanmartín 2022; Nadeem and Rahat 2021; Miao et al. 2020; Cai et al. 2020). Facilitating employee ability ensures that they "possess the necessary knowledge, skills, and aptitudes" to achive performance (Boxall and Purcell 2011:5). According to Elbaz, Agag, and Alkathiri (2018: 122), ability is "the talent, knowledge, skills, proficiency, and experience required to achieve a task." Organizations develop employee abilities through meticulous and scientific recruitment and selection processes, job rotation, training, and continual development strategies (Nadeem and Rahat 2021:168; Zhang et al. 2020: 911; Meddour, Abdussalaam, and Abdul Majid 2020:512; Miao et al., 2020; Bello-Pintado and Garces-Galdeano 2019:2972). The staffing process and the activities involved in updating the skillsets and knowledge of employees are designed and intended to enhance and support employees to perform their tasks effectively and efficiently (Jiang et al. 2012:1266-1267; Chung and Pak 2021:2055). As a result, ability-enhancing practices such as rigorous recruitment and selection procedures enable organizations to acquire talented individuals with the capacity to think creatively. Alternatively, an organization can develop the talents and competencies of employees through training and continuing development, which could influence employees' ability to be resilient and ambidextrous. The ability-enhancing element is skewed towards improving the knowledge and skills of employees to achieve anticipated performance. Employees who perceive the work environment to be ability-enhancing develop and direct positive attitudes to organizational success. Empirical investigations have found a positive and significant relationship between employee ability and work performance (Bello-Pintado and Garces-Galdeano 2019; Hastari, Mufidah, Wahyudi, and Laksmita 2021; Obeidat, Mitchell, and Bray 2016).

2.2.1.1.2 Motivation-enhancing practices

Motivation has been defined as "the willingness or the degree to which an individual is motivated to perform it" (Elbaz et al. 2018:122), or the willingness and the enthusiasm with which employees perform their work (Marin-Garcia and Tomas 2016:1042). Motivation-enhancing practices include developmental performance management; pay for performance; incentives and rewards; extensive benefits; job security; and career development (Nadeem and Rahat 2021:169; Zhang et al. 2020:912; Jiang et al. 2012: 1267). These elements are designed to improve and stimulate the efforts and behaviours of employees to accomplish specific unit and/or organizational goals (Ujma and

Ingram, 2019: 141; Jiang, Takeuchi and Lepak, 2013:1450). Researchers have noted that, even if employees have the expected skills, knowledge, and abilities to perform in their roles (Dhiman 2020), it is necessary for organizations to motivate them to align their skillsets and interests with the needs of the organizations (Eib et al. 2022:2145; Boxall and Purcell 2011:7), which enables motivation-enhancing HR practices to ensure that employees are ready and willing to perform their work sustainably. Notwithstanding, Jiang et al. (2012:1267) observed that the components of motivation-enhancing practices are largely focused on extrinsic motivation, where employees' decisions are significantly related to expected rewards for their efforts. Additionally, Chung and Pak (2020: 2056) observed that motivation-enhancing HR practices provide information for employees on their work expectations and how their contributions would be rewarded. Since HPWS motivates, it stimulates employees to take the initiative to be innovative, resolve problems, and change present situations beyond their work-related tasks (Arefin, Arif, and Raquib 2015:133).

2.2.1.1.3 Opportunity-enhancing practices

In explaining opportunity-enhancing practices, Boxall and Purcell (2011:5) suggested that "the work structure and its environment provides the necessary support for employees even if they have the necessary ability and motivation. Opportunity-enhancing HR practices are those designed to inspire employees to be creative, share new ideas, assume responsibility for setting goals and complete expected tasks (Bhatti et al. 2021: 436). Chang, Gong, and Peng (2012:929) defined opportunity practices as "the search and utilization of resources and opportunities through social relationships to solve difficulties in transferring knowledge." Opportunity-enhancing practices include employee participation in decision-making; teamwork; flexible job design; innovative information and knowledge sharing; employee involvement; goal setting; decentralization; and increased job autonomy (Zhang et al. 2020: 912; de Reuver et al. 2021:2889; Jiang et al. 2012:1267). In providing opportunities, HR practitioners consider both individual characteristics and the work environment in empowering employees to use their skills and motivation to achieve organizational objectives (Marin-Garcia and Tomas 2016:1043; Jiang et al. 2012:1267). HR practices that provide opportunities for employees are characterized by participatory decision-making, knowledge sharing, teamwork, and problem-solving (Boxall and Macky 2009:7). Such opportunity-enhancing practices provide employees with essential

support; increase their confidence levels; facilitate opportunities for employees to voice their opinions; and enable employees to exercise discretion and autonomy in fulfilling their roles (Alqudah et al. 2022; Obeidat et al. 2016:580). In support, Eib et al. (2022:2146) argued that employee performance is engrained in a specific context, so that employees with optimum ability and motivation would not be effective in an unsupportive environment.

Since its operationalization, HPWS has been deemed a fundamental and unique system of configuring human resource management practices to achieve competitive advantage (Bhatti et al. 2020; Miao et al. 2020; Boxall and Purcell 2011). The adoption of HPWS improves employee abilities, motivates employees to successfully achieve performance, and provides opportunities for employees to participate in firm decision-making processes in promoting new ideas (Bhatti et al. 2020:438). As indicated under the defining characteristics of HPWS, HPWS is considered as a co-ordinated bundle of HR practices intended to enhance employee performance (Chung and Pak 2020: 2050; Posthuma et al. 2013:1184; Boxall and Purcell 2011:191).

A well-designed HPWS has the three dimensions of HR practices that are mutually reinforcing, work simultaneously to enhance high employee performance, and make it costly for competitors to imitate unlike individual high-performance work practices (Alatailat, Elrehail, and Emeagwali, 2019:373; Fu et al. 2015:54; Garaus et al. 2015:356). Neither ability, nor motivation, nor opportunity can exclusively guarantee individual or organizational performance (Alqudah et al. 2022). For example, without ability, neither motivation nor opportunity will add much to performance and other outcomes. Appropriately bundling and using a set of ability, motivation, and opportunity practices will improve employee performance, rather than using an isolated practice (Delery and Roumpi 2017: 2). Hence, improved employee ability, the existence of adequate employee motivation, and a work environment that creates opportunities for employees are deemed the set of independent HR practices that should be bundled together to constitute an HR system that can guarantee high performance (Obeidat et al. 2016; Jiang, Lepak, Hu, and Baer 2012; Boxall and Purcell 2011). Empirical studies provide support for the mutually reinforcing effect of each dimension of HPWS. For instance, studies have confirmed that the selection process, training and development, and reward schemes, positively predict employee competencies and motivations, while

performance appraisal and job design also influence employee motivation and empowerment (Chung and Pak 2020:2050). In addition, Edgar, Zhang, and Blaker (2019:11358) found that ability-enhancing practices facilitate both ability and opportunity, while opportunity-enhancing practices influence motivation.

Grounded in the AMO theory, which departs from earlier studies where the outcomes of individual HR practices were investigated, HPWS enables HR practitioners to develop their human capital, since the bundle of activities is deliberately designed to improve the knowledge, skills, abilities, and other characteristics of employees (Miao et al. 2020:444; Wattoo et al. 2020:129). As well as HPWS-performance linkage, researchers have investigated its application in several other organizational and employee outcomes, such as job satisfaction and organizational identification (Liu, Ye, and Guo 2016: 2); employee engagement (Huang, Ma, and Meng, 2018:341); employee commitment (da Silva Fabi, Lacoursière, and Raymond 2015:772), and psychological ownership (Banahene, Ahudey, and Mensah 2016:632).

2.2.2 The Concept of Resilience

Resilience is a multi-disciplinary concept that has been developed and is gaining substantial attention, not only in management literature, but across several sectors and disciplines (Ozdemir, Sharma, Dhir, and Daim 2022; Sharma, Thomas, and Paul 2021; Andres and Marcucci 2020; Herbane 2019; Burnard, Bhamra, and Tsinopoulos 2018). The resilience concept emerged from clinical psychology research into the ability of children to overcome, and sometimes thrive in response to, traumatic experiences from the 1970s (as incited in Luthar, Cicchetti, and Becker 2000). Many children were also found to thrive, and developed in healthy and positive ways, even though they grew up in unhealthy, traumatic, and deprived conditions (Masten, Best, and Garmezy, 1990).

Given that resilience is essential for individuals, teams, and organizations to properly function (Britt et al. 2016:379), researchers have conceptualized and operationalized resilience in many fields such as management (Douglas 2021; Herbane 2019); tourism (Ntounis et al. 2022; Sharma et al. 2021); safety (Bento, Garotti, and Mercado 2021; Aidoo, Fugar, Adinyira, and Ansah 2022); sports (Sarkar and Page 2022; Blanco-García, Acebes-Sánchez, Rodriguez-Romo, and Mon-López 2021); and supply chains (Ozdemir et al., 2022; Das et al., 2021). The resilient concept has garnered growing

attention as the world, and organizations, continue to experience increasing complexities, disruptions, and unpredictable events and challenges, that inhibit their continued operation and performance (Hatton and Brown, 2021; Tasic et al. 2020:713). Investigating the concept of resilience, especially in an increasingly dynamic business environment, is fundamental to understanding how employees and organizations succeed, regardless of unstable or adverse conditions (Lengnick-Hall et al. 2011: 245; Hartmann, Weiss, Newman, and Hoegl 2020: 913).

Scholars have described the process where individuals, teams, and organizations adjust, survive, and thrive amidst adversity or crises as resilience (Hillmann and Guenther 2021; Kuntz et al. 2017; Lengnick-Hall et al. 2011). Resilience was initially referred to as "a measure of the persistence of systems and of their ability to absorb change and disturbance and still maintain the same relationships between populations" (Holling 1973:14). Williams et al. (2017:742) described resilience as a process where individuals, organizations, or communities develop and use their endowed capabilities to interact with the environment in a way that positively allows them to adjust and continue functioning before, during, and after adversity. The resilience literature has recorded several ways in which scholars define resilience. Some of the definitions are presented in Table 2.1:

Table 2.1 Definitions of resilience

Definition	Source
"Both the ability to persist despite disruptions and the ability to regenerate and maintain existing organization."	DesJardine, Bansal, and Yang (2019: 1436)
"Ability to absorb strain and preserve or improve functioning, despite the presence of adversity."	Kahn, Barton, Fisher et al. (2018: 509)
"The ability of entities to cope with external stressors and disturbances."	Dai, Eden, and Beamish (2017: 1482)
"The ability of systems to recover quickly from negative experiences of management crisis, adversity, or disaster."	Park, Sharman, and Rao (2015: 321)
"The demonstration of positive adaptation in the face of significant adversity."	Britt, Sinclair, and McFadden (2013: 6).
"The ability of an organisation to anticipate and respond to uncertainty in a complex adaptive environment, i.e. its adaptive capacity."	Dahms (2010: 27)
"A positive resource for navigating a turbulent and stressful workplace."	Avey, Luthans, and Jensen (2009: 682)
"As a process linking a set of adaptive capacities to a positive trajectory of functioning and adaptation after a disturbance."	Norris, Stevens, Pfefferbaum et al. (2008: 130)
"Developable capacity to rebound or bounce back from adversity, conflict, failure, or even positive events, progress, and increased responsibility."	Luthans (2002b: 702)
"Dynamic process encompassing positive adaptation within the context of significant adversity."	Luthar, Cicchetti, and Becker (2000: 543).

The numerous definitions of employee resilience indicate the complex nature of the concept of resilience, with a lack of consensus on what resilience is, and how to support and develop it (Southwick et al. 2014). However, four themes emerged from the myriad definitions of resilience. The first theme emphasizes the notion of adversity, which may occur as a crisis or as a form of work stress (DesJardine et al. 2019; Kahn, Barton, Fisher et al. 2018; Park et al. 2015). As noted by Vanhove et al. (2016:279), adversity may vary, but it is a prerequisite to demonstrating resilience. This notion was supported by Fisher, Ragsdale, and Fisher (2019:586) as they argue that "without the experience of difficulties, adversity, or hardship there is nothing to be resilient against." The second theme focuses on the ability to adapt to adverse conditions (Franken, Plimmer, Malinen, and Bryson 2022:146; Kuntz et al. 2017:226; Kuntz et al. 2016: 458). Fisher et al. (2019:587) refer to it as "positive adaption", where resilient individuals and organizations maintain their optimal performance, as usual, despite the difficulties they

face. The third theme underscores the ability to recover quickly from adversities to function optimally (Linnenluecke 2017; Park et al. 2015; Luthans 2002b). Many authors often refer to it as the ability to "bounce back" (Linnenluecke 2017; Park et al. 2015), which translates to the restoration of normal business functions after the adverse, short-lived impact of a challenging situation; or to pre-adversity levels of functioning (Crane and Searle, 2016:468: Fisher et al. 2019:606). The fourth theme stresses the ability to seek new opportunities for continual work improvement during adversity (Näswall et al. 2019; Hall et al. 2018). The concepts of employee and organizational resilience are explained in the subsequent sections.

2.2.2.1 Employee resilience

Due to the continual and frequent changes that characterise the global work environment, scholars and practitioners are paying increasing attention to how employees can overcome such challenges (Franken et al. 2022; Liang and Cao 2021; Annor and Amponsah-Tawiah 2020; Näswall et al. 2019; Caniëls and Baaten 2019; Tonkin, Malinen, Näswall, and Kuntz 2018; Britt 2016). At the individual level, resilience is seen as the aptitude of employees to adjust, bounce back, and succeed when challenged with adversity (Linnenluecke 2017:2; Kuntz et al. 2016:460). Luthans (2002b:702) defines employee resilience as "the capability of individuals to cope successfully in the face of significant change, adversity, or risk" and as "the positive psychological capacity to rebound, to bounce back from adversity, uncertainty, conflict, failure or even positive change, progress, and increased responsibility." Näswall et al. (2015:1) and Nguyen, Kuntz, Naswall, and Malinen (2016:3) refer to it as "employee capability, facilitated and supported by the organization, to utilize resources to continually adapt and flourish at work, even if/when faced with challenging circumstances." Thus, resilient individuals embrace their current circumstances equably; find meaning in adverse situations; and have the ability to adapt and respond to their current situations to overcome adversity (Khan et al. 2019:1347).

The resilience literature classifies employee resilience as traits, capacity, and process (Kossek and Perrigino 2016; Hartmann 2020). The trait perspective is grounded in personality studies in the field of psychology. For example, resilient employees are deemed as "persons who experience high degrees of stress without falling ill and have

a personality structure differentiating them from persons who become sick under stress" (Kobasa 1979:3). Thus, trait resilience is considered an inherent individual characteristic, which is a relatively stable personal resource, and enables the individual to adapt to workplace adversity (Britt et al. 2016:383; Cani¨els and Baaten 2019:563; Kossek and Perrigino, 2016: 73). According to Britt et al. (2016:383), trait resilience is assessed through self-reports and varies along a continuum, with high resilience at one end and vulnerability at the other (Britt et al. 2016: 383; Cani¨els and Baaten 2019: 563). The inference is that employees who are resilient handle adversity better than those who lack resilience (Shin, Taylor, and Seo 2012: 729).

The capacity perspective of employee resilience, as Näswall et al. (2015), for example, suggest in their definition, is a function of an individual's capabilities that the organization can facilitate and develop to use the firm's resources to achieve work performance when a crisis occurs. As a behavioural concept, employee resilience is perceived as workplace behaviour and response to workplace adversity, instead of personal attitudes and beliefs (Tonkin et al. 2018:209). Thus, resilience is seen as a malleable resource to be developed, or a capacity that can be enhanced (Hartmann et al. 2020: 918; Kossek and Perrigino 2016:734). Furthermore, organizations should perceive employee resilience as a positive internal resource (Avey, Luthans, and Jensen 2009: 679), or a set of skills and attributes that employees can use to manage turbulence and stress at work (Kuntz et al. 2016: 461; Wang, Cooke, and Huang 2014). Individual resilience is a dynamic capability and existing individual capabilities erode over time, since such capabilities are only relevant, based on the changing demands of a firm's environment (Seville 2018). Hence, organizations should design programmes and systems to continually develop the resilience of their employees to enable them to deal with routine workplace challenges, and not only when a crisis emerges (Seville 2017:8). Thus, resilient development becomes inherently 'business as usual', and occurs when the environment is characterized by low-to-moderate levels of exposure to adversity, until every employee is equipped with the necessary resources for capability development (Kuntz et al. 2016:458). Resilient organizations place emphasis on developing their employees' resilience, which enables employees to exhibit ability and motivation in capitalizing on organizational resources as part of business-as-usual and not only as a response to a crisis (Kuntz et al. 2017b:419). Thus, the extent to which employees exhibit resilient work behaviour is dependent on the extent to which the

organization facilitates or supports employee resilience (Seville 2017:18), in that positive and proactive employee behaviours are intricately associated with supportive and resilient development-oriented working environments (Kuntz et al. 2016:460). In practice, the organization provides "a context for developing employee resilience, and employees use the resources available to engage in resilient behaviors, which in turn develop and sustain resilience capability" (Kuntz et al. 2016: 459). The process dimension perceives employee resilience as the process by which employees adapt to a challenging work environment. As noted earlier, the process view suggests that employee resilience is contingent on the existence of adversity and that only employees who are exposed to, and have experienced the effects of, crises or adversity can be said to be resilient (Crane and Searle 2016; Fisher et al. 2019). Hence, the process view describes resilience as an incremental response to a myriad of challenges, which leads to positive adaptation.

This study focuses on the predictive role of HPWS on employee resilience during crises and, hence, conceptualizes employee resilience as a trait, a capacity, and a process. The conceptualization of employee resilience as a resource that can be developed indicates that employee resilient behaviours are premised, not only on personal attributes, but also on organizational enablers during diversity (Kuntz et al. 2017; Kuntz et al. 2016: 457). This study adopts the assumption that trait resilience enhances employee behavioural capacity within a challenging work environment. Organizational enablers facilitate and support employee resilience by creating a resilience-promoting environment for employees to use the resources available to engage in resilient behaviours, which in turn develop and sustain resilience capability (Kuntz et al. 2016: 459). In other words, when challenges emerge, "trait resilience induces employees to perceive the organization's policies and practices as learning-supportive" (Caniëls, Hatak, Kuijpers, and de Weerd-Nederhof 2022).

There is a growing number of studies in the literature that have examined some antecedents of employee resilience. For example, Foerster and Duchek (2017: 281) investigated the effect of individual traits and abilities, situational factors, and behavioural factors on the resilience of leaders. Likewise, Malik and Pooja Garg (2017:1071) confirm the effect of learning organizations on employee resilience. In a recent study, while Djourova, Rodríguez Molina, Tordera Santamatilde and Abate

(2020: 264) found support for the influence of self-efficacy on employee resilience, Zhu and Li (2021:1) believe a proactive personality influences employee resilience. Likewise, Aparna and Sahney (2022) confirmed the predictive role of creativity-oriented, high-performance work practices on employee resilience. Other earlier studies have recorded significant outcomes of employee resilience (Bani-Melhem, Quratulain, and Al-Hawari 2021; Al-Hawari, Bani-Melhem, and Quratulain 2020; Cooke et al., 2019; Youssef and Luthans 2007). For example, studies have established that employee resilience leads to a positive employee learning culture (Caniëls and Baaten, 2019); work engagement (Blaique, Ismail, and Aldabbas 2022; Jangsiriwattana 2021:1); and employee creativity (Anser et al. 2020: 39; Yu, Li, Tsai, and Wang 2019: 420).

2.2.2.2 Organizational resilience

A resilient organization is one that is able to survive and potentially thrive to accomplish its principal objectives, not only in the face of adversity, but when any change occurs in its world of business (Seville et al. 2008: 258; Seville et al. 2017: 18). Researchers have provided a myriad of definitions for organizational resilience. According to Vogus and Sutcliffe (2007:3418), organizational resilience is "the maintenance of positive adjustment under challenging conditions such that the organization emerges from those conditions strengthened and more resourceful." McManus et al. (2008:81) and Seville et al. (2008: 259) also defined a resilient organization as "a function of an organization's overall situation awareness, management of keystone vulnerabilities, and adaptive capacity in a complex, dynamic, and interconnected environment." Lengnick-Hall and Beck (2011:224) defined organizational resilience as "a firm's ability to effectively absorb, develop situation-specific responses to, and ultimately engage in, transformative activities to capitalize on disruptive surprises that potentially threaten organization survival", while Denyer (2017:3) defined it as "the ability of an organization to anticipate, prepare for, respond and adapt to, incremental change and sudden disruptions in order to survive and prosper." Synthesizing these definitions, Hillmann and Guenther (2021:31) defined organizational resilience as "the ability of an organization to maintain functions and recover fast from adversity by mobilizing and accessing the resources needed." Entrenched in these definitions is the idea that organizational resilience is about managing crises effectively and being able to identify new growth opportunities, even in times of crisis (Kuntz et al. 2016:457; Lengnick-Hall et al. 2011:224); and

positioning the firm to adjust, and avoid wilting during crises; to subsequently recover (Tasic et al. 2020: 713). In other words, organizational resilience should enable organizations to resist and adapt to environmental changes to survive and be competitive (Liang and Cao 2021: 1064).

Nilakant et al. (2016: 35) have suggested that organisational resilience is a process, not an organisational trait. Assuming the process perspective, the literature provides two views on organizational resilience. Firstly, organizational resilience is the ability of the firm to anticipate, absorb, and recover from the effects of crises (Hepfer and Lawrence, 2022: 6; Duchek, 2019; DesJardine et al., 2019; Lengnick-Hall et al., 2011: 224). This view focuses on how firms can prepare to survive when faced with threats (Ma et al. 2019: 248). Secondly, organizational resilience refers to the capacity of the firm to continually achieve competitiveness by developing resources to take advantage of identifiable opportunities in crises (Linnenluecke 2017; Kuntz et al. 2016:465). As Seville (2017: 3) indicates, change is not always negative and existential crises can lead to an organization re-evaluating its goals, and its operating environment, and finding new opportunities to explore. This dissertation operationalizes organizational resilience by aligning with both dimensions, and emphasizes the definition of McManus et al. (2008:81) and Seville et al. (2008:2) in developing and enhancing a resilient organization, since such resilience emanates from firm capabilities, routine practices, and processes (Lengnick-Hall et al. 2011: 246). Thus, organizational resilience emanates from an organization's resilient behaviour, resilience resources, and resilience capabilities (Hillmann and Guenther 2021: 31).

2.2.2.2.1 Developing organizational resilience

Resilient organizations are future-ready, with inbuilt capacities, not only to weather the storms of change, but also to thrive in such environments (Seville 2017:24). They have the ability to dynamically reinvent business models and strategies as situations change and to change before the need becomes desperately obvious (Cooper et al. 2014:2467). As recorded in the literature on resilience, Figure 1 presents 13 measures to build resilient organizations that are applicable, notwithstanding the firm size, sector, or type of organization (Seville 2017:21; Lee et al. 2013:37; McManus et al. 2008).

Fig. 2.1: Indicators of organizational resilience

In an earlier study, McManus et al. (2008:82) grounded the 13 indicators on three main pillars: situation awareness, managing firm vulnerability, and adaptive capacity. In another study, Lee et al. (2013) proposed four dimensions aimed at measuring organizational resilience: resilience ethos, situation awareness, adaptive capacity, and management of keystone vulnerabilities. In a recent study, and as shown in Figure 1, the 13 indicators are built on three interrelated key organizational activities (Seville 2017:19). The first is leadership and culture, which involves the extent to which organizations create strong leaders who will act on shared priorities when there are crises (Seville 2017:18-19; Seville et al. 2008). Leadership and culture assess a series of firm characteristics including leadership, situation awareness, staff engagement, decision-making, and innovation and creativity. The second key activity is change-readiness, which assesses firm activities involving unity of purpose, proactive posture, planning strategies, and stress testing (Seville 2017:19). Change-readiness refers to the process of self-assessment and preparation that results in the firm's ability to decisively respond to risks as they occur (Bode and Macdonald 2017: 845). The third key activity

involves networks and relationships, which evaluate effective partnerships, leveraging knowledge, breaking silos, and internal resources in the organization (Seville 2017:19).

In elucidating the indicative measures, Seville (2017:18) reported that resilient organizations foster innovation and creativity within teams and encourage information and knowledge sharing across the organization. They have highly engaged and networked staff and promote a climate of trust. They invest in leadership across the organization and direct the efforts of employees towards a common purpose. They actively develop partnerships and networks they can leverage when they need to. Each of the indicative measures is explained in Table 2.2.

Table 2.2 Indicators of organizational resilience

Factors	Indicators	Meaning
Leadership and culture	Leadership	Strong crisis leadership provides good management and decision-making during times of crisis, as well as continual evaluation of strategies and work programmes against organizational goals
	Situation awareness	This is a measure of an organization's understanding and perception of its entire operating environment. Staff are encouraged to be vigilant about the organization, its performance, and potential problems. Staff are rewarded for sharing good and bad news about the organization, including early warning signals, and these are quickly reported to organizational leaders.
	Staff engagement	This is the engagement and involvement of staff who understand the link between their own work, the organization's resilience, and its long-term success. Staff are empowered and use their skills to solve problems.
	Decision-making	Staff have the appropriate authority to make decisions related to their work and authority is clearly delegated to enable a crisis response. Highly skilled staff are involved, or can make decisions, where their specific knowledge adds significant value, or where their involvement will aid implementation.
	Innovation and creativity	Staff are encouraged and rewarded for using their knowledge in novel ways to solve new and existing problems and for utilizing innovative and creative approaches to developing solutions.
Change readiness	Unity of purpose	Ensuring that all people have a shared understanding of where they are heading, and are working together rather than against each other, to achieve that goal.
	Proactive posture	This is a strategic and behavioral readiness to respond to early warning signals of change in the organization's internal and external environment before they escalate into a crisis. It is a capability that must be proactively nurtured and maintained over time.
	Planning strategies	Plans and strategies are developed and evaluated to manage vulnerabilities in relation to the business environment and its stakeholders.
	Stress testing	Actively stress test your plans. This involves the participation of staff in simulations or scenarios designed to practise response arrangements and validate plans.
	Effective partnerships	Look beyond the organization and build relationships with others the organization might have to work with during a crisis.

Networks and relationships	Leveraging knowledge	This is to ensure that the knowledge your organization already has is both protected and accessible so that it can be used to full advantage by the organization.
	Breaking silos	Be intentional about creating a work environment that brings people together, and rewarding collaborations and positive behaviours.
	Internal resources	The management and mobilization of the organization's resources ensures its ability to operate during business-as-usual, as well as being able to provide the extra capacity required during a crisis.

Source: Seville (2017:19); Lee et al. (2013:34); and McManus et al. (2008:83)

Some researchers have categorized the 13 indicators into planned and adaptive resilience (Seville 2017; Lee et al. 2013; McManus et al. 2008). Planned resilience consists of the use of present, programmed planning, and capabilities, as demonstrated in business continuity and risk management planning (Prayag et al. 2020:1221). It is about creating the required agility to adapt to unforeseen challenges (Seville, van Opstal, and Vargo 2015:6). Lee, Vargo, and Seville (2013:30) posit that firms should not only respond and adapt to environmental turbulence, but should also actively initiate, restore, update and redesign organizational structures and relationships so that they can thrive in adversity. Thus, planned resilience focuses on the use of existing, predetermined planning and capabilities in enhancing organizational resilience (Prayag et al. 2020:1221).

Kuntz et al. (2016:458) suggest that employees and firms are resilient, based on the extent to which they engage in a deliberate, continuing process of developing resilience capabilities. If organizations can prepare well and respond to a crisis, then they are resilient (Hepfer and Lawrence 2022:8; Tasic et al., 2020:721; Koronis and Ponis 2018:38). Thus, planned resilience means that managers must strengthen an organization's resistance against potential threats by designing various measures that they can activate before, during, and after a crisis (Darkow 2019:147). Planned resilience increases organizational preparedness for future challenges and underscores the importance of a resilience-enabling organizational environment during times of stability that ensures resilience in the event of a crisis (Kuntz et al. 2016: 457-458). In defining organizational resilience, McManus et al. (2008:82) and Seville et al. (2008:2) posit that: "resilience is a function of an organization's overall situational awareness and management of keystone vulnerabilities and adaptive capacity in a complex,

dynamic, and interconnected environment." It follows that, in planned resilience, organizations need to be aware of their company situation by scanning the operating and business environments to identify and evaluate key vulnerabilities that will have a significant impact on their success and competitiveness (Darkow 2019; Seville 2017; Lee et al. 2013; McManus et al. 2008:82). The process enables organizations to anticipate, cope with, and recover from shocks (Hepfer and Lawrence 2022:6). Organizations can engage in stress-testing mechanisms, such as engaging in plausible crisis scenarios or simulations to build resilience capacity (Seville 2017; Seville et al. 2008). This allows the firm to examine the ideas and value systems of the organization that might materialize when crises eventually occur (Seville et al. 2008).

In addition, resilience is an adaptive process, when an organisation can address major challenges through responsiveness and reinvention to achieve organizational renewal (Herbane 2019:478). Adaptive resilience refers to effective responsiveness to occasions of substantial adversity (Kuntz et al. 2016:458). It is about developing the necessary agility and the capacity to seize opportunities from adversity (Seville et al. 2015:6). In adaptive resilience, organizations develop new capabilities by adopting unplanned measures to respond to changing situations, or dynamically reinvent their business models and strategies as situations change, to change before the need becomes apparent (Cooper et al. 2014:2467; Seville et al. 2015:7; Lee et al. 2013:32). Some researchers, such as RuizMartin, Lopez-Paredes, and Wainer (2018:16) have noted that several organizations do not simply 'bounce back' to their previous state, but emerge stronger from experience with adversity by 'bouncing forward'. This perspective goes beyond returning to its established functions as an organization, to leverage its resources and capabilities to exploit opportunities and build a successful future (Lengnick-Hall et al. 2011:244). Lengnick-Hall et al. (2011:244) describe adaptive capability as "a firm's ability to effectively absorb, develop situation-specific responses to, and ultimately engage in, transformative activities to capitalize on disruptive surprises that potentially threaten the firm's survival." Seminal studies have identified leadership, staff engagement, situation awareness, and decision-making, as the necessary adaptive capacity dimensions to build organizational resilience (Seville 2017; Seville et al. 2008). By implication, adaption resilience is grounded in an organization's risk intelligence, ambidexterity, and readiness to change (Seville et al. 2015:11).

2.2.3 Employee Ambidexterity

The original definition of ambidexterity was the ability of a person to be equally skillful with both hands (Birkinshaw and Gupta 2013:287). This has since been used to describe the capacity of employees, teams, and organizations to perform two distinct things equally successfully (Kumkale 2022; Hughes et al. 2020; Birkinshaw and Gupta 2013; March 1991). Many researchers have since directed substantial efforts into examining antecedents and outcomes of ambidexterity at the organizational level (Cannaerts, Segers, and Warsen 2020; Tarba et al. 2020; Keller and Weibler 2015; O'Reilly and Tushman 2013); the team level (Han, Bai, and Peng 2022; Dean 2021); and the individual employee level (Mu et al. 2022; McPhee and Schlosser 2022; Papachroni and Heracleous 2020; van der Borgh, de Jong, and Nijssen 2017; Keller and Weibler 2015; Mom et al. 2009). The concept of ambidexterity has also been investigated in a myriad of industry contexts, such as healthcare (Gleiss and Lewandowski 2022; Salas Vallina, Moreno-Luzon, and Ferrer-Franco 2019); higher education (Kolster 2021; Chang et al. 2016); telecommunications (Affum-Osei et al., 2020); technology (de Ruyter et al. 2020); legal services (Luu, Rowley, and Dinh 2018); and banking (Mom et al. 2019).

2.2.3.1 Defining individual ambidexterity

At the outset, most studies on ambidexterity were centered on organizational ambidexterity. Scholars have theorized organizational ambidexterity to mean the ability of the organization to be "aligned and efficient in its management of today's business demands while simultaneously being adaptive to changes in the environment" (Raisch and Birkinshaw 2008:375). He and Wong (2004:481), for example, described it as "the need for firms to achieve a balance between exploration and exploitation innovation strategies." However, more recently, researchers have begun investigating individual ambidexterity, citing its importance at the individual level of the firm (Mu et al. 2020; Bidmon and Boe-Lillegraven, 2020; Rosing and Zacher, 2017). Following the descriptions of organizational ambidexterity, such as those of Raisch and Birkinshaw (2008) and Birkinshaw and Gupta (2013), many scholars have defined individual ambidexterity to reflect the ability of the employee to simultaneously engage in exploitation and exploration activities (Tempelaar and Rosenkranz 2019; Rogan and Mors 2014). More specifically, Mu et al. (2020:53) refer to individual ambidexterity as the ability of employees to simultaneously sustain present performance while being

receptive to new ideas and circumstances. Similarly, Caniëls and Veld (2019:567) define employee ambidexterity as the ability of individuals to concurrently exploit current knowledge capabilities while exploring new knowledge opportunities in sustaining competitive performance. Mom et al. (2009) and Rogan and Mors (2014) focused on individual ambidexterity at the managerial level. From that perspective, Mom et al. (2009:812) defined individual ambidexterity as a "manager's behavioural orientation towards combining exploration and exploitation-related activities within a certain period of time". Synthesizing earlier definitions, Mu et al. (2020:354) conceptualized individual ambidexterity as a "self-regulated activity that combines individual exploration and exploitation".

2.2.3.2 Exploration and exploitative activities

Although what constitutes individual exploration and exploitation varies across industries and the job positions individuals occupy within organizations (Mu et al 2020:354), the ambidexterity literature has distinguished between exploration and exploitation activities. Exploration ambidexterity has been described as "things captured by terms such as search, variation, risk-taking, experimentation, play, flexibility, discovery, innovation" (March 1991:71). It comprises "searching for, discovering, creating, and experimenting with new opportunities" (Mom et al. 2007:910). Thus, individual exploration activities refer to the behaviours of employees that can be associated with experimentation, learning from mistakes, and seeking unique means of successfully performing and accomplishing tasks (Rosing and Zacher 2017:695–696). Individuals who behave exploratorily depart from routine activities and try something new, which enhances their ability to be creative, flexible, and innovative (Mu et al. 2020:347; Luu et al. 2018:507).

Exploitation ambidexterity is defined as "such things as refinement, choice, production, efficiency, selection, implementation, execution" (March 1991:71). Exploitation describes the ability of the employee to use existing knowledge and skills in improving efficiency (Caniëls and Veld 2019:567). Exploitation activities focus on the capability of employees to "select, implement, improve, and refine existing certainties" (Mom et al. 2007:910). Employees who demonstrate exploitative behaviour depend on previous or current experience and methods to perform their tasks effectively (Rosing and Zacher 2017:696). Rosing and Zacher (2017:695-696) refer to exploitative employee

ambidexterity as “relying on previous experience, putting things into action, and incrementally improving well-learned actions.” The emphasis on exploitative activities is to enhance the ability of employees to achieve performance efficiency in the short term, with current resources, through their refinement, efficiency, and implementation (Mu et al. 2020:347).

2.2.3.3 Approaches to ambidexterity

There is no consensus in the literature about the ability of organizations to achieve a balance in conflicting explorative and exploitative activities simultaneously (Mu et al., 2022; Mu et al. 2020; Caniëls and Veld 2019; Luu et al. 2018). However, researchers have presented various views to explain the concept of individual ambidexterity. Thus, ambidexterity can be examined from contextual, structural, and sequential perspectives (O’Reilly and Tushman 2013). Authors who adopted the structural perspective proposed that organizational characteristics should enable employees to engage in explorative and exploitative activities simultaneously and internally (Mu et al. 2020; Zacher, Robinson, and Rosing 2016; Raisch and Birkinshaw, 2008). They are of the view that it is conceivable for employees to concurrently engage in the exploration of new knowledge and the exploitation of existing capabilities. Da Silva Faia and Vieira (2017:448), for example, explained that some industries, such as “in the services field, look for employees who have the dual capacity of exploiting existing competencies in service encounters and exploring new sales opportunities” simultaneously. Other studies have also argued that individuals who can demonstrate exploration and exploitation activities at the same time are valued in fields such as sales (Sok, Sok, and De Luca 2016:146); higher education (Markides, 2007); and product development (Lewis et al. 2002). As an illustration, Sok et al. (2016:146) argued that engaging in service-sales ambidexterity requires salespersons to manage fundamentally conflicting behavioral demands, since the cross-up-selling task reflects exploration activities and the customer service task is akin to exploitative activities. Furthermore, Mom et al. (2009) have studied ambidexterity at the managerial level and concluded that managers with a high tolerance for ambiguity explore new knowledge, and exploit current capabilities equally and concurrently. However, scholars like Bledow et al. (2009) argued that the structural approach is more suited to teams or groups, rather than to individuals. They argued that, in a team, while some employees exert their efforts on exploitative activities, others also focus on performing explorative activities.

Secondly, researchers who espoused the contextual perspective on ambidexterity argue that employees should engage in explorative activities independent of exploitative activities (Bidmon and Boe-Lillegraven 2020; Birkinshaw and Gibson 2004). This is because, unlike teams and organizations, it would be difficult for individuals to perform both explorative and exploitative activities at the same time (Papachroni, Heracleous, and Paroutis 2016; Gupta et al. 2006). Birkinshaw and Gibson (2004:3) indicated that contextual ambidexterity requires employees to choose between alignment-oriented and adaptation-oriented activities in the context of their daily employment. Scholars such as Bidmon and Boe-Lillegraven (2020), Rapp et al. (2017), Bledow et al. (2009), and Jasen et al. (2009:797), explained that exploration activities require architecture, resources, and capabilities that are distinct from the resources and capabilities needed for exploitative activities, and that both activities should be performed distinctly. In an empirical study, Mom et al. (2009:919, 922) showed that exploitation activities and exploration activities are two distinct factors, and they statistically demonstrated the non-correlation. In supporting the contextual viewpoint, some scholars have argued that what motivates individuals differs, and that employees who need to be explorative may require personal traits distinct from employees who are engaged in exploitation activities (Caniëls and Veld 2019:569; Tempelaar and Rosenkranz 2019). Thus, the contextual approach is embedded in social factors that allow people to appreciate the value of both exploratory and exploitative endeavors, boosting their ability to behave ambidextrously (Tempelaar and Rosenkranz 2019:1520).

Thirdly, the sequential approach to ambidexterity refers to a temporal cycle through periods of exploration and periods of exploitation (Pertusa-Ortega et al. 2021:361). Schnellbächer, Heidenreich, and Wald (2019:444) suggested that the challenge of individual ambidexterity is not merely integrating or co-ordinating exploration and exploitation activities, but smoothly switching between these two activities. Relying on cognitive evidence, researchers such as Gupta et al. (2006) suggest that it is difficult to be cognitively engaged in both explorative and exploitative activities at the same time. Hence, there is a temporal need for employees to switch back and forth between explorative and exploitative activities to achieve a balance between them over time, rather than achieving ambidexterity and performing both simultaneously (Tempelaar and Rosenkranz, 2019). Thus, in the sequential approach, exploration and exploitation activities are sequentially separated and undertaken by individuals at different times in

their work (Klonek, Volery, and Parker, 2021; Bidmon and Boe-Lillegraven 2020; Keller and Weibler 2015).

In comparing the structural and the sequential approaches in a study to ascertain whether, and how, innovative work behaviour is related to explorative and exploitative activities, Caniëls and Veld (2019:578) concluded that when employees specialize in exploitative activities, innovative work behaviour is higher than when employees undertake both explorative and exploitative activities in equal amounts. However, studies on the sequential approach revealed some challenges. For example, the optimal time interval for switching has not been determined (Klonek et al. 2021:43), and switching back-and-forth can lead to emotional, cognitive, and behavioral switching resistance (Bidmon and Boe-Lillegraven 2020:1). Specifically, Bidmon and Boe-Lillegraven (2020:7) found that a request from top managers to employees to switch from one activity to another could trigger negative emotional responses like anger, dissatisfaction, confusion, and feelings of stress. These emotional reactions activate resistance from employees, which can lead to ignoring, postponing, or skipping the switch, questioning the outcome or purpose of the switch; or bargaining about the switch (Bidmon and Boe-Lillegraven 2020:7).

The different approaches to ambidexterity indicate that scholars are yet to agree on a universal definition or understanding of individual ambidexterity. Recognizing the various approaches, this study operationalized individual ambidexterity to reflect the capability of individuals to perform contradicting activities and switch between different mindsets and action sets (Bledow et al. 2009:322). This operationalization follows the proposition that employees can achieve ambidexterity, at the level of a particular work task and activity, by exploring new opportunities and exploiting existing capabilities over a period of time, but not at the same time (Schnellbächer, Heidenreich, and Wald 2019:443; Bidmon and Boe-Lillegraven 2020:2). This enables individuals to switch between both explorative and exploitative activities to achieve ambidexterity over time (Tempelaar and Rosenkranz 2019).

The extant literature continues to investigate the effect of individual ambidexterity on employee and organizational outcomes. For example, da Silva Faia and Vieira (2017:447) confirm a positive and significant influence of the ambidextrous behaviour

of frontline employees on sales performance and customer satisfaction. Likewise, van der Borgh et al. (2017:331) found a positive effect from a sales manager's ambidextrous selling orientation on salespeople's proactive selling of both new and existing products. Furthermore, ambidextrous leadership was recorded as being positively associated with frontline public employees' individual ambidexterity (Luu et al. 2018: 506) and the innovative behaviour of managers operating in an open innovation context (Majhi, Snehvrat, Chaudhary, and Mukherjee 2020:281). A study by Zhang et al. (2022: 930) also revealed that both employee exploration and exploitation have a positive effect on task performance, while a study by Schnellbächer and Heidenreich (2020: 1535) demonstrated a positive relationship between individual ambidextrous knowledge and higher performance.

2.2.4 Employee well-being

In the dynamic global business environments, employees continue to invest a considerable amount of time and effort in work (Czerw 2019:332; Bartels, Peterson, and Reina 2019:1). As a result, scholars and practitioners have put substantial effort into understand employees' work well-being (Hauff, Felfe, and Klug 2022; Wang, Zhang, and Wan 2022; Bartels et al. 2019; Keeman, Näswall, Malinen, and Kuntz, 2017), in many disciplines such as health (Brunetto, Dick, Xerri, and Cully 2020; Wong, Lee, Teh, and Chan 2021); education (Samad, Muchiri, and Shahid 2021; Ofori and Antwi 2020); manufacturing (Elvin and Hubbard 2022; Widyastuti, Kurniawan, and Majid 2022); and tourism (Ponting 2020; Kimbu, Adam, Dayour, and de Jong 2021).

Despite the growing interest in employee well-being, there is no consensus on a universal conceptualization and definition of individual well-being. Many scholars have defined well-being based on what it means to them, which makes well-being a multidimensional concept (Diener, Heintzelman et al. 2017; Huang, Ahlstrom, Lee, Chen, and Hsieh 2016; Huta and Waterman 2014). However, well-being has generally been linked with "job satisfaction, life satisfaction, positive emotion, and quality-of-work life that serve as an effective proxy for well-being in an organizational context" (Huang et al., 2016:299). The literature on well-being has recorded various definitions of well-being, based on how each scholar conceptualizes, operationalizes, or defines individual well-being. For example, individual well-being has been defined as "the

overall evaluation of one's life, as the overall quality of an employee's experience and functioning at work, including life satisfaction and positive affect which influence individual performance" (Huang et al. 2016:299). Rath and Harter (2010:137) define well-being as "all the things that are important to how we think about and experience our lives." Additionally, Grant et al. (2007:54) describe employee well-being as "the overall quality of individual experience and effectiveness at work". Achieving employee well-being is essential for organizational competitiveness.

In a review of the literature on well-being, Huta (2016) organized the well-being concepts into 'categories' and 'contents'. By focusing on the categories, the various well-being definitions and conceptualizations of well-being are grouped into four: orientations, behaviours, experiences, and functioning (Huta and Waterman 2014:1431; Huta 2016:14). Orientation refers to the 'why' of behaviour. It reflects what an individual seeks in life, which involves the individual's values, motives, priorities, and goals that guide the behaviour a person decides to pursue (Huta and Waterman 2014:1432; Huta 2016:14). Additionally, these authors explained that the behavioural category focuses on 'what' the individual does and the nature of the task. Thus, the behaviour represents the content of the task and the activity a person performs, instead of why he or she does it. Furthermore, while experiences describe a person's subjective feelings and cognitive-affective evaluation, functioning indicates how well a person is doing in life and how far the person has come, in terms of their abilities, accomplishments, healthy habits, and healthy long-term functioning (Huta 2016:14). Orientations and behaviours refer to what a person decides to do in life, while experiences and functioning constitute the outcomes of employee well-being (Huta and Waterman 2014; Huta 2016).

Huta (2016:14) posits that each of the well-being categories has a content. For instance, whiles the content of the orientation category includes seeking pleasure and pursuing personal growth, the content of the behaviour category includes attending parties and writing down goals. Furthermore, while the content of experiences comprises indicators like positive affect, life satisfaction, and meaningful experience, that of the functioning category involves having a sense of maturity and being good at self-regulation. The consensus in the literature is that the various contents of the well-being categories have been grouped into hedonia and eudaimonia well-being (Huta 2016; Braaten and Huta

2018; Diener et al. 2018; Grant and McGhee 2020; Chtioui et al. 2022). The next section provides an extensive review on both hedonia and eudaimonia well-being.

2.2.4.1 Overall well-being at work

As indicated in Section 2.1.4, overall employee well-being is a multidimensional construct and many scholars have proposed various distinct models, such as social well-being; psychological well-being; subjective well-being; and workplace well-being for examining and measuring employee well-being (Berraies, Lajili, and Chtioui 2020; Diener, Oishi, and Tay 2018; Ryan and Deci 2001). Following the suggestion of Ryan and Deci (2001:145), this study combines the elements of hedonic and eudaimonic well-being to examine employee well-being. Generally, researchers define work well-being as whatever it means to them (Fisher 2014:16). However, in conceptualizing and measuring overall work well-being, researchers have emphasized the integration of hedonic and eudaimonic well-being and have applied this in specific work contexts (Pradhan and Hati 2022; Berraies et al. 2020; Grant and McGhee 2020; Braaten and Huta 2018; Diener et al. 2017; Zheng et al. 2015; Fisher 2014). Thus, employee well-being should not only be construed as what happens in an individual's life, but also as the purpose and meaning a person obtains in life. Hedonic and eudaimonic well-being are explained in Sections 2.1.4.1.1 and 2.1.4.1.2, respectively.

2.2.4.1.1 Hedonic and subjective well-being

Given the various well-being categories, scholars have discretely examined the contents of each, and have classified employee well-being into hedonic and eudaimonia well-being (Berraies et al. 2020; Lambert, Passmore, and Holder 2015; Huta and Waterman 2014; Huta 2016; Ryan and Deci 2001; Ryan and Deci 2000). The well-being literature has reported that, although the eudaimonic and hedonic dimensions are the two fundamental ways employees pursue well-being, they have significant diverse and unique influences on employee well-being (Chtioui et al. 2022; Li et al. 2022; Diener et al. 2018; Braaten and Huta 2018; Ryan and Deci, 2001). Thus, there is an increasing call to distinguish between eudaimonic and hedonic well-being (Pataki-Bittó and Kun 2022:321; Guzzo, Wang, and Abbott 2020:354). Hedonic well-being is happiness-oriented and emphasizes employee subjective experience of happiness (Pradhan and Hati 2022:388; Diener et al. 2003:403; Ryan and Deci 2001:145). The hedonic well-being includes comfort, pleasure, enjoyment, satisfaction, and painlessness (Huta

2016:15). Employees who seek hedonic well-being seek to experience pleasure and avoid pain (Diener et al. 2018:253; Ryan and Deci: 2001:145). The focus of hedonic content is on "the self, the present moment, and the tangible, and a focus on taking and consuming what one needs and wants" (Huta 2016:15). Hedonic well-being underscores how employees appraise their lives, both in terms of emotional responses and cognitive judgments of life satisfaction, which is an inner feeling that is principally consonant with the literature on subjective well-being (Pataki-Bittó and Kun 2022:321; Cheng et al. 2022:2; Grant and McGhee 2020:3; Diener, Oishi, and Lucas 2003:403).

Diener et al. (2017:87) defined subjective well-being as "people's overall evaluations of their lives and their emotional experiences". Oishi, Diener, and Lucas (2016:1) refer to it as "a person's cognitive and affective evaluations of his or her life as a whole". Thus, subjective well-being consists of cognitive or intuitive experiences and emotional-affect balance (Pleeging, Burger, and van Exel 2021:1022). Cognitive evaluation refers to life satisfaction, or an evaluation of an individual's entire life, regarding how he or she thinks that his or her present life situation compares with what the individual envisioned as the most ideal life (Pleeging et al. 2021:1022; Diener, Oishi, and Tay 2018:253). A positive cognitive evaluation indicates achieving what a person expects from his/her life situations. Emotional evaluation refers to how employees react emotionally to "events, their moods, and judgments they form about their life satisfaction, fulfilment, and satisfaction with work" (Diener et al. 2003:403; Oishi et al. 2016:1), which is achieved when positive feelings like happiness and pleasure exceed the negative emotion (Berraies 2022). Thus, what constitutes employee well-being is subjectively dependent on what individuals think and experience in their lives, based on the experience of positive affect, avoidance of negative affect, and sense of life satisfaction (Diener et al. 2018; Diener et al. 2017). Based on its subjective nature, Diener (2006:400) refers to subjective well-being as "an umbrella term for different valuations that people make regarding their lives, the events happening to them, their bodies and minds, and the circumstances in which they live."

The literature stresses that subjective well-being broadly explains how individuals demonstrate and respond to the conditions, situations, and circumstances in their lives (Diener et al. 2017:87). Traditionally, subjective well-being comprises three tenets: experiencing high levels of positive emotions and moods (affect); low levels of negative

emotions and moods (affect); and high levels of cognitive evaluation of life satisfaction (Pradhan and Hati 2022: 389; Diener et al. 2017:87; Oishi et al. 2016:2). According to Diener et al. (2017:87), positive affect involves an individual's desirable or pleasant emotions, such as enjoyment, gratitude, and contentment; while negative affect includes anger, sadness, and worry. Life satisfaction includes aspects such as the health of a person, level of income, the nature and quality of one's work, and non-work activities such as leisure activities (Nakamura et al. 2022:1044; Diener et al. 2017:87). Life satisfaction is relatively stable and is not subject to external influences (Tien, Anh, Duc, Trang, and Ngoc 2021:3319). In a recent study, Saef, Beck, and Jackson (2021:180) proposed a more dynamic approach that focuses on within-person differences and microlevel processes (affects, cognitions, attention) in understanding the concept of subjective well-being in the workplace. Saef et al. (2021:181) argued that "these within-person processes offer a better lens to understand how the components of SWB (positive affect, negative affect, life/job satisfaction) are linked to one another, in continuous time, as well as why (and for how long) outside forces, such as situational features or stress, have an impact on SWB in the workplace."

Studies have shown that positive affect, negative affect, and life satisfaction are distinct dimensions of subjective well-being, and their antecedents and outcomes can be examined separately or as a composite construct (Hwang and Wang, 2021; Labban and Bizzi 2022; Diener et al. 2017). For example, Mohr et al. (2021) have found supportive supervisor training to be a determinant of positive affection; while team performance and employee voice behaviour were found to be outcomes of positive emotions and moods (Adler, Bliese, Barsade, and Sowden 2022; Liu, Liu, Zhang, and Hu 2021). By contrast, employees' use of social media while working, and abusive supervision, were found to be examples of antecedents of negative affection (Labban and Bizzi 2022; He, Wu, Wu, and Fu 2021), while negative affection was found to predict negative work-life balance and counterproductive work behaviours (Moreo, Cain, and Chang 2020; Labban and Bizzi 2022).

Grounded in the distinctive nature of the facets of subjective well-being, the literature has alluded to its malleability and relatively changing nature over time (Diener et al. 2017:89; Joshanloo 2019:185). This is because the subjective well-being of an individual can vary, depending on how the individual thinks, feel, or behaves (Diener

et al. 2017; Tay and Kuykendall 2013). Circumstances change and "the choices people make in life can, and do, influence their long-term subjective well-being" (Diener et al. 2017:89). The changing circumstance can be positive or negative life events (Tay and Kuykendall 2013:159). The thinking, feelings, or behaviour of an individual (Diener et al. 2018:253) are not necessarily dictated by genetics, heredity, temperament, and personality (Nes and Roysamb 2015 in Diener et al. 2017:89). Contrary to the claim that an individual's hedodic well-being is a result of the person's genes and heredity (Lykken and Tellegen 1996, in Diener et al. 2017:89), Diener et al. (2017:89) indicate that "heritability is not a fixed constant; rather, it is influenced by the amount of variability in the environment." Hence, in measuring subjective well-being, most studies have focused on its composite nature, consisting of emotional affect, negative avoidance, and life satisfaction.

The literature on individual well-being has documented numerous antecedents and outcomes of subjective well-being. For example, Korankye and Lartey (2022) investigated the life satisfaction and happiness of self-employed persons and wage employees in Ghana. The results show that being self-employed is associated with lower life satisfaction than being a waged employee. Likewise, Hu et al. (2021:203) also examined how qualitative job insecurity influences the subjective well-being (life satisfaction, positive affect and negative affect) of Chinese employees. The result revealed a negative relationship between qualitative job insecurity and subjective well-being. Other studies have also linked subjective well-being to work context constructs such as innovative work behaviour (Chughtai 2021: 821); turnover intention (Nae and Choi 2021:1); effect commitment (Kundi, Aboramadan, Elhamalawi, and Shahid 2020:746); and job performance (Chughtai 2021: 821; Kundi et al. 2020:746).

2.2.4.1.2 Eudaimonism and psychological well-being

The content analysis of the various well-being categories has shown that emotional responses and cognitive judgments of life satisfaction are limited measurements of employee well-being. For example, Ryan and Deci (2001:146) argued that, even when subjective happiness is achieved, it would not necessarily lead to employee well-being. Thus, according to the dictates of eudaimonism, subjective happiness does not predict employee well-being.

Eudaimonism is concerned with achieving one's growth and potential, and flourishing (Ryan and Deci: 2001:145,146), and is akin to functioning or psychological well-being, which focuses on positive functioning relating to emotional and mental conditions, the level of satisfaction from work, and overall life satisfaction" (Obrenovic et al. 2020:3; Grant and McGhee 2020:3). In other words, psychological well-being refers to "the positive affective states associated with happiness and meaningfulness at work" (Avey et al. 2012:25). Eudaimonism relates to personal achievement, self-actualization, or self-positioning (Zheng, Zhu, Zhao, and Zhang 2015:623) and involves living a good life that is linked to the satisfaction of basic human needs for competence, autonomy, relatedness, and self-acceptance (Fisher 2014:3). Eudaimonia emphasizes "personal excellence built on striving to know oneself and striving toward excellence consistent with one's given potentialities" (Ryff 2019:650).

Psychological well-being has been conceptualized empirically as demonstrable outcomes (Li et al. 2022; Ryff 2019; Ryff and Singer 2008). In a seminal study, Ryff (1989:1071) explained eudaimonism based on the following six defining characteristics: self-acceptance; autonomy; positive relationships with others; purpose in life; environmental mastery; and personal growth. Ryff (1989:1071) refers to self-acceptance as having a positive attitude to oneself; self-actualization; optimal functioning; and demonstrating a sense of maturity. Having a positive relationship with others involves showing empathy and affection, demonstrating genuine love and true friendship, and identifying completely with others. Autonomy represents the ability of the individual to be independent and to evaluate decisions by his/her standards without recourse to others for approval, to function effectively. Environmental mastery exemplifies a person's ability to influence, adapt to, or control changing and complex environments in order to work effectively, as anticipated (Berraies 2022). This includes effective use of the available resources, while creating an enabling environment to suit personal needs and values (Ryff 2019:652). 'Purpose in life' refers to the situation where a person functions positively by having goals, intentions, and a sense of direction, which provides a sense of a meaningful life for the person. Finally, 'personal goals' refer to the tendency of an individual to continually overcome new challenges, develop his/her potential, and advance and grow as a person. Integrating and measuring the six facets explains the extent to which an individual battles with the vicissitudes of life (Keyes, Hysom, and Lupo 2000:146).

In response to the empirical challenge to further examine the six facets of measuring psychological well-being (Ryff 1989:1071), empirical outcomes have become associated with self-acceptance, autonomy, and positive personal relationships with others, and with subjective well-being (Pretorius and Padmanabhanunni 2022). Thus, subjective well-being is deemed to be an integral part of psychological well-being and is linked to a variety of outcomes (Pretorius and Padmanabhanunni 2022:1). The attribution of the self-acceptance, autonomy, and quality inter-personal relationship dimensions of the eudaimonic perspective to subjective well-being makes it difficult to draw a clear and distinct line between psychological and subjective well-being. By contrast, having a purpose in life, mastery of the environment, and attaining personal growth, are better predictors of employee well-being (Ryan and Deci, 2001). Notwithstanding the scholarly disagreement about the six dimensions of Ryff (1989), his proposition remains essential to measuring employee psychological well-being. For instance, Koburtay and Abualigah (2022), Delgado, Roche, Fethney, and Foster (2021:1238) and Manchiraju (2020:2) examined the psychological well-being of nurses by assessing all six components. Similarly, Ostafin and Proulx (2020:607) conducted a study on employee psychological well-being by measuring only purpose in life and the quality of relationships with others, out of the six characteristics of employee psychological well-being. In an earlier study, Czerw (2019:333) also examined work well-being by employing Ryff's six dimensions of assessing eudaimonic well-being.

2.2.4.2 Enhancing employee wellbeing

Investigating the factors that could predict employee well-being, in general, or in a specific domain such as a workplace (Taris and Schaufeli 2018:192), is essential for enhancing high levels of employee well-being. Since this study focuses on a particular industry, it is useful to examine the extent to which workplace interventions enhance employee well-being within specific domains (Taris and Schaufeli 2018:192). For example, in diagnosing the work well-being of a group of 724 working adults, Czerw identified four distinct ways of enhancing employee work well-being: "positive organization, fit and development, positive relations with co-workers, and contribution to the organization" (Czerw 2019:331).

Based on Czerws' (2019:334) exposition, firstly, a positive organization focuses on developing the sense of agreement and functioning of the organization; ensuring that

the employers and their employees can work for the common good; making the organization reliable and conducive to the employees; and demonstrating evidence of supervisor and organizational support for employees. Secondly, 'fit and development' refers to ensuring that workers are satisfied with their performance and level of development, including the acquisition of new skills and knowledge; and that they are in the right position and perform the appropriate tasks to the best of their abilities and competencies. Many academics and practitioners have backed the call for well-being-oriented human resource management practices that will ensure fit and development (Salas- Vallina, Alegre, and López- Cabrales 2021; Hauff, Guerci, and Gilardi 2020; Guest 2017; Appelbaumet al. 2000). For instance, some researchers have cited engaging work, a positive social environment, and supportive leadership, as HR practices that may enrich employee knowledge, skills and abilities (Khoreva and Wechtler 2018:241; Cooper et al. 2019:89). In addition, Guest (2017:30), suggests in his model of well-being-oriented HR practices, that HR practices such as careful recruitment and selection, training and development, investment in people, and support for career-related activities are most likely to enhance employee well-being. Thirdly, positive relationships with co-workers require the promotion of quality, honest, open, and trusting relationships among employees, in the context of work, at all levels of the organization. It also involves ensuring that colleagues are willing and able to help one another when necessary. In support of this position, some researchers encourage the creation of high-quality relationships between organizational members, where such social links provide resources to the latter by boosting their positive psychological states (Berraies, 2022). Additionally, Diener (2018:253) advocated for the promotion of supportive social relationships, which have been determined as predicting subjective well-being. Finally, 'contribution to the organization' is ensuring that employees develop self-worth in the context of the workplace; that they play a major role, as members of the organization; and that their actions are valued and contribute to the common good of the organization (Úbeda-García et al. 2018). In looking at contribution to the organization, Wang et al. (2022) emphasized the direct role of HPWS in enhancing employee well-being. The opportunity-enhancing practices enable employee contribution to the organization, which facilitates their self-worth.

2.3 Job-demands resources theory

This research is underpinned by the Job-Demands Resources Theory (JD-R theory). JD-R theory has evolved as an important conceptual model for evaluating and elucidating the factors that influence employee well-being (Rietze and Zacher 2022; Granziera, Collie, and Martin 2021; Radic et al. 2020; Lattrich and Büttgen 2020; Huang, Xing, and Gamble 2019; Bakker and Demerouti 2018). Demerouti, Bakker, Nachreiner, and Schaufeli (2001) initially proposed the JD-R theory. The theory suggests that, although every workplace has specific risk factors related to job stress and burnout, they can generally be categorized into two dimensions: job demands and job resources (Demerouti et al. 2001:499). Accordingly, the JD-R model can be applied differentially to numerous occupational settings, regardless of the specific demands and resources involved (Bakker and Demerouti 2018:170).

Job demands are "those physical, psychological, social, or organizational aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort and are therefore associated with certain physiological and/or psychological costs" (Bakker et al. 2004:86; Xanthopoulou, Bakker, Demerouti, and Schaufeli 2007:768). They include psychological, social, physical, and organisational stressors that require continual effort and are associated with some related costs (Bakker and Demerouti 2014:2). Some studies have classified job demands in proximal and distal contexts (Elidemir, Ozturen, and Bayighomog 2020; Pak, Kooij, de Lange and van Veldhoven 2019; Miao and Cao 2019). These scholars referred to the proximal context as job demands that are within the immediate job context and immediately influence the employees' work performance. Van Veldhoven and Peccei (2015:4) describe the proximal context as all elements that constitute an essential or direct part of the work activities. On the other hand, distal job demands refer to activities that are in the broader work context. The distal context describes the organizational and societal contexts in which the work takes place (Pak et al 2019:339; Elidemir, Ozturen, and Bayighomog 2020:12). Examples of proximal job demands include physical (e.g. machines or tools), social (co-workers or clients) or intangible (orders or scripts) demands; while examples of distal job demands include environmental conditions; work schedules; and job resources such as job security; organizational justice; and social support (Pak et al., 2019:338).

Job resources refer to the physical, psychological, social, or organizational aspects of the job that are functional in achieving work goals; reducing job demands and the associated physiological and psychological costs; or stimulating personal growth and development (Bakker and Demerouti 2007:3121; Xanthopoulous et al. 2007:768). Examples of job resources include autonomy, skill variety, performance feedback, and opportunities for growth (Bakker and Demerouti 2018:274). The extended dimension of the JD-R model includes the employees' resources (Xanthopoulous et al., 2007; Demerouti 2018; Hobfoll, Johnson, Ennis, and Jackson 2003). Personal resources refer to the beliefs people have about the extent to which they control and influence their environment (Bakker and Demerouti 2018:275; Hobfoll et al. 2003). Personal resources, which include adaptability, self-efficacy, and cognitive and behavioural coping, can directly or indirectly influence how job demands and job resources affect employee outcomes (Granziera et al. 2021:231). Accordingly, individuals with high personal resources believe that good things will happen to them and that they can handle unexpected events (Bakker and Demerouti 2018:275). As an illustration, adaptability, which is a personal resource, may affect an employee's perception of their work environment (a job resource), which may eventually influence their views about their well-being.

Job demand is deemed to have negative effects on employee outcomes (Granziera et al. 2021; Bakker and Demerouti 2018; Bakker, Demerouti, de Boer, and Schaufeli 2003:341). Thus, job demands impair or deplete employees' physical and psychological resources, which adversely affects positive employee outcomes (Bakker and Demerouti 2018:278; Schaufeli and Taris 2014:44). The essence of job resources is to initiate motivation, and buffer or reduce the negative effect of job demands on employees (Granziera et al. 2021:231; Bakker and Demerouti 2018:278). Job resources can improve employee motivation when they are faced with intense job demands. In other words, job demands motivate employees to fully use their job resources to achieve desirable individual and firm outcomes (Miao and Cao 2019:6). Thus, job demands are seen as playing a crucial role in impeding positive outcomes; but not in the motivational process (Bakker and Demerouti 2018:278). For example, in a study of 1,012 employees at an institute for higher learning, Bakker, Demerouti, and Euwema (2005:170) confirmed that job resources, such as job autonomy; social support; employee-supervisor relationships; and performance feedback, eased the adverse effects of job

demands such as physical and emotional job demands, work-life conflict, and work overload.

Drawing on the JD-R theory, Guests' study conceptualized employee well-being as an "end rather than as means" (2017:25) and provided insight into how personal resources (employee resilience and ambidexterity) and job resources (HPWS and organizational resilience) can serve as mechanisms for promoting employee well-being, because of changes in job demands (Lattrich and Büttgen, 2020:769). The job demand-resource model suggests that job demands, and both job resources (HPWS, organizational resilience) and individual resources (employee ambidexterity and resilience), interrelate to predict employee wellbeing (Bakker and Demerouti 2014:11). Thus, employee well-being, which is the dependent outcome of this study, is achieved because of a balance between the employee's perceived job demands and resources (Bakker and Demerouti, 2007; Demerouti et al., 2001).

The JD-R model is an essential theoretical framework for examining HPWS, due to flexibility in its application (Bakker and Demerouti 2018:275; Schaufeli, and Taris 2014:44). While some empirical studies consider HPWS as a job demand (Miao and Cao 2019:6), others consider it a job resource (Cooke et al. 2019:1240; Elidemir et al. 2020:12). For example, studies show that a high-performance work system will predict employee work well-being by increasing the availability of psychological and social resources (Miao and Cao 2019:6). Thus, Miao and Cao (2019) related HPWS to high-intensity job demands, including rigorous selection, results-based performance appraisal, and strict discipline management. Specifically, Miao and Cao (2019:7) operationalized HPWS as proximal job demands, since they consider that the activities involved in enhancing ability, motivation and opportunities, are activities within the immediate work environment, and are directly associated with the tasks employees are called to perform. In contrast, Cooke et al. (2019:1241) conceptualized HPWS as a job resource, because it serves as a link through which HRM activities can affect employee outcomes.

Furthermore, this study conceptualized and operationalized individual ambidexterity as personal resources that will enable employees to achieve their well-being by exploiting their current capabilities and exploring new opportunities. Employing ambidexterity as

a personal resource extends the literature on antecedents of organizational resilience, which is a job resource for facilitating employee well-being (Ikhide et al. 2022; Cai, Cao, and Wan 2021; Granziera et al. 2021; Cooke et al. 2019; Bakker and Demerouti 2018; Xanthopoulous et al. 2007). In a challenging work environment, employees require skills and capabilities to maintain continual work performance and maximize future opportunities (Ikhide et al. 2022:3; Zhang, Wei, and van Horne 2019:4). Ambidextrous employees will focus on achieving the best in present challenging circumstances, while exploring the opportunities they present (Pertusa-Ortega et al., 2021; Caniëls and Veld 2019; Zhang et al. 2019). Drawing on the JD-R theory (Bakker and Demerouti 2018:275), employees ambidexterity as a buffer against challenging job demands (Lakshman, Wang, Adhikari, and Cheng 2022:2474).

Resilience has become essential to personal and job effectiveness (Kossek and Perrigino 2016:730). In the context of JD-R theory, both employee and organizational resilience are significant resources that enable employees to adapt and overcome adversity, and thereby enhance employee well-being (Cooke et al. 2019). Employee resilience is a personal resource that determines the degree to which individual employees effectively recover and learn from adverse circumstances (Seville 2017; Näswall et al. 2015; Nguyen et al. 2016). Employee resilience is an essential resource that motivates and enables employees to manage and adjust to challenging job demands. Thus, employees who have adequate personal resources can cope with variations in job demands, enabling the employees to thrive and achieve well-being (Bakker and Demerouti 2018:274). Similarly, organizational resilience provides job resources for employees to cope with higher levels of changing job demands. Consistent with van de Voorde and Beijer (2015:26), when employees experience a high level of job resources, it motivates them to exert their resources to be productive in the face of challenges. Many studies have also identified support for resilience as a personal resource based on the JD-R theory (Barello et al. 2021; Granziera et al. 2021; Huang et al. 2019; Bakker and de Vries 2021).

In the context of employee well-being, the JD-R theory has been used to explain the degree of both job and personal resources to enhance employee well-being (Demerouti and Bakker, 2011). As indicated, the interaction between job resources and job demands will influence employee behaviour and attitudes (Bakker and Demerouti 2017:276).

Thus, in circumstances where job demands are high, job resources can predict employee well-being (Nguyen and Tuan 2022:316). Some empirical studies have suggested that personal resources predict employee well-being by mitigating the negative effect of job demand (Granziera, Collie, and Martin 2021; Radic et al. 2020; Lattrich and Büttgen 2020) as well as increasing the positive effect of job resources (Bhattacharyya, Jena and Pradhan 2019:164). Given that environmental challenges have an enormous effect on employee well-being, developing employee ambidexterity and resilience (personal resources) and organizational resilience (job resources), through the implementation of HPWS, would improve employee ability to meet their job demands, thereby improving the well-being of employees. Therefore, grounding this study in the JD-R model is fit for purpose.

2.4 Conclusion

The current study filled several important gaps in the existing literature on HPWS resilience, ambidexterity, and employee well-being. Firstly, while previous research had explored the relationship between HPWS and employee well-being, there was limited understanding of the underlying mechanisms through which HPWS influenced employee well-being. By drawing on the Job-Demands Resources (JD-R) theory, this study provided a novel theoretical framework to explain how HPWS could act as a job resource and enhance employee well-being. Moreover, the study introduced the concept of individual ambidexterity as a personal resource that might moderate the relationship between HPWS and employee well-being. This was a significant contribution as it addressed the gap in the literature regarding the role of personal resources in the context of HPWS and well-being.

Secondly, the study extended the concept of resilience beyond the individual level and explored the role of organizational resilience in promoting employee well-being. While prior research had highlighted the importance of employee resilience, the influence of organizational resilience in supporting employee well-being remained underexplored. This study bridged this gap by examining how organizational resilience could act as a job resource and buffer the negative effects of job demands on employee well-being within the JD-R model. By incorporating both individual and organizational resilience as resources, the study presented a comprehensive view of how resilience factors could contribute to employee well-being in the context of HPWS.

Finally, this study made a significant contribution to the body of knowledge by providing a novel theoretical framework that integrated the JD-R theory, HPWS, individual ambidexterity, and both individual and organizational resilience to understand and enhance employee well-being. By addressing the gaps in the literature and introducing new concepts, this research offered unique insights and extended the understanding of factors that promoted employee well-being in the workplace. The findings of this study could have practical implications for HR managers and organizational leaders, as they could use the insights to design strategies that could promote employee organizational resilience and well-being, especially within the research context.

This chapter focused on the role of HPWS, employee ambidexterity, and employee and organisational resilience, in promoting employee well-being. The first part of this chapter presented a review of the literature on the constructs under study. The review on HPWS was grounded in the Ability-Motivation-Opportunity Model. Employee resilience in this study has been conceptualized as the integration of a trait, a capacity, and a process of resilience, while organizational resilience was examined as the ability of the firm to anticipate, absorb, and recover from the effects of crises, as well as the capacity to continually achieve competitiveness by developing resources to take advantage of identifiable opportunities in crises. In recognizing the various approaches to ambidexterity, this study operationalized individual ambidexterity to reflect the ability of individuals to engage in conflicting activities and switch between different ideas and behaviors (Pertusa-Ortega et al. 2021). The employee well-being concept was explained to reflect the integration of the hedonic and eudaimonic conceptualisations of well-being.

The second part of this chapter presented a detailed review of the theoretical foundation on which the research is grounded. The section focused on how the research framework, the J-DR model, explained each of the constructs in the research model.

The next chapter presents the empirical review, according to each objective, which is followed by developing the hypotheses to be tested in this research. The first section reviews empirical studies on the high-performance work system; employee resilience;

employee ambidexterity; and organisational resilience. The section provides empirical evidence for the impact of employee resilience and ambidexterity on organisational resilience. The third section focuses on the mediating role of organisational resilience in the relationship between employee resilience, HPWS, employee ambidexterity, and employee well-being.

CHAPTER THREE

EMPIRICAL REVIEW AND HYPOTHESIS DEVELOPMENT

3.1 Introduction

This chapter focuses on the research framework and provides empirical literature to support the relationship between the constructs in the research model. In the first section of this chapter, HPWS is the predictor variable, and the review explored its impact on employee ambidexterity and employee and organisational resilience. In the second section, the study reviewed the effect of employee resilience and ambidexterity on organisational resilience. The third section first provides empirical support for the direct relationship between organisational resilience and employee well-being. Thereafter, the empirical review of the mediating role of organisational resilience in the relationship between the exogenous constructs and employee well-being in pharmaceutical manufacturing firms follows. Finally, drawing from the empirical reviews, the study develops a conceptual model, which is presented in the final section of this chapter.

3.2 The link between HPWS on employee and organizational resilience, and employee ambidexterity

The first objective of this research is to examine the predictive effects of a high-performance work system on employee resilience, employee ambidexterity, and organizational resilience within the pharmaceutical industry in Ghana. Empirical studies of HPWS are grounded in "the need to specify how work reforms are meant to affect employee's attitude and behaviour, aimed at building higher levels of employee performance" (Boxall and Macky 2009:11)**.** Consequently, researchers have investigated the effects of HPWS on several organizational and individual outcomes in various contexts. At the organizational level, studies have shown that HPWS predicts outcomes. For example, studies have shown that HPWS improves organizational performance and knowledge management (Oh and Kim 2021:511; Úbeda-García et al. 2018; Jyoti and Rani 2017:1770), and organizational innovation (Kakakhel and Khalil 2022:78; Liu et al. 2016). To further illustrate the predictive role of HPWS on firm outcomes, Jeong and Shin (2019:11) confirmed high-performance work practices and increased organizational creativity relationships during organizational changes using a sample of 454 Korean companies across 16 industries.

Researchers have also observed, at the individual level, that HPWS can lead to outcomes like job performance (Wang and Chen 2022; Bartram et al. 2021:285); employee well-being (Wang, Zhang, and Wan 2022:92; Hauff, Felfe, and Klug 2022:2109; Haar and Harris 2021:1); and knowledge-sharing behavior (Abbasi et al. 2021:4; Bhattiet al. 2020). In addition, a study of 302 telecommunication employees in Ghana, conducted by Sokro, Dogbe-Zungbey, and Osei-Bonsu (2020:23) confirmed that HPWS relates positively to psychological ownership. Likewise, in a study of 569 employees in 44 firms, Miao et al. (2020:16) found that HPWS related positively and substantially to psychological capital, job satisfaction, and affective commitment. Specific to the context of this study, and with particular reference to the first research question, the following subsections provide empirical evidence of the predictive role of HPWS on employee resilience, organizational resilience, and employee ambidexterity.

3.2.1. High-performance work systems and employee resilience

To evaluate employee resilience as a behavioural concept, it is essential to ascertain the contribution of a high-performance work system to employees' ability to manage daily challenges at work and act in a resilient manner that will yield firm performance and sustainability (Näswall et al. 2019:354). Researchers have observed that employee resilience can be developed using organizational resources, and through HR activities and management practices (Kim, Cho, and Yang 2022; Gerçek and Börekçi 2021:682; Rodríguez-Sánchez 2021:83; Cooke et al. 2019:87; Näswall et al. 2015:357). Wang et al. (2021:2264) suggest that resilience is a skill that can be developed through training and development. Many empirical investigations have confirmed the predictive influence of HPWS on employee resilience. For example, in a study of 780 managerial-level employees working in small and medium Chinese enterprises, Rehman et al. (2021:158), found a significant and positive relationship between strategic human resource practices and resilient employee behaviour.

In a related study of over 1500 banking employees and 310 university students, Wang et al. (2014:133) indicated that HPWS constitutes a bundle of activities that can enhance employee resilience. In addition, a cross-sectional survey of 317 front-line employees working in the service sector in Pakistan revealed that employee resilience partially serves as a link between HPWS and employee outcomes (Nadeem, Riaz, and Danish

2019:1). Other researchers have relied on the job demands-resources model (Hartmann et al. 2019) to investigate links between HPWS and employee resilience in China's banking industry, with a sample of 2040, with results confirming the existence of a significant and positive linkage (Cooke et al. 2019:12). Similarly, studies within the telecommunication sector in Pakistani revealed that HPWS is positively associated with employee resilience (Nadeem et al. 2019:1; Khan et al. 2017:11). In an example from Ghana, Abugre and Nasere (2020:541) investigated HPWS in ten multinational corporations and, based on the results from the data generated from a sample of 317 employees, they concluded that HPWS directly and significantly affects the performance of employees. Furthermore, Bustinza et al. (2016:1370) surveyed a sample of 205 employees from over 20 manufacturing companies in Spain to examine how employees develop resilience capabilities in the context of a changing environment, and reported that employee resilience is the consequence of a bundle of HR practices. Recognizing that a bundle of HR practices and interventions can boost workforce resilience, this dissertation extends the burgeoning literature on the influence of HPWS in enhancing employee resilient and posits the following hypothesis:

H1a: HPWS is significantly and positively related to employee resilience within the pharmaceutical industry of Ghana.

3.2.2 High-performance work systems and organizational resilience

Besides employee resilience, an organization's ability to cope, adapt, and 'bounce back' (Guerrero 2021:437) is equally contingent on its HR practices. In a cross-sectional survey of 518 SME managers in Nigeria, Meddour, Abdulssalaam, and Abdul Majid (2020:516) concluded that HPWS enables organizations to realize long-term, and improved, performance in providing innovative goods and services. Similarly, and grounded on the AMO framework, Obeidat et al. (2016:12) surveyed 118 senior HR managers in the manufacturing and financial sectors in Jordan and confirmed the relationship between the dimensions of HPWP and financial measurements of organizational performance. A survey of 1134 managers and employees in 177 small and medium firms in Nigeria has shown that HPWS enhances the ability of organizations to bounce back in times of adversity (Zhou, Edafioghor, and Doherty 2019:4262). In a related study, data elicited from 181 branch managers and a sample of 504 employees in the Chinese banking sector revealed that the link between HPWS and

branch performance was significant and positive (Ali et al. 2019:793). A recent study which Al-Taweel (2021:2088) conducted within the health section in Saudi Arabia confirmed the relationship between HPWS and organizational resilience. Further, Kim et al. (2021:1) established a positive relationship between HPWS and firm performance, based on a study of 307 Korean firms in 39 industries. In a study that was based on an exploratory sequential mixed-methods approach, Teng-Calleja, Hechanova, Sabile, and Villasanta (2020:393) determined that the presence of resilience-building initiatives contributes to organizational resilience. Drawing on empirical evidence of the outcomes of HPWS, this study proposes that:

H1b: HPWS has a significant and positive effect on organizational resilience within the pharmaceutical industry of Ghana.

3.2.3 High-performance work systems and employee ambidexterity

Thus, the role of HR practices in developing the abilities of employees to exploit and explore, which eventually yield organizational ambidexterity, cannot be overstated. As Patel et al. (2013:1422) indicated, "Although the ability to achieve ambidexterity arises out of the human resource base itself, it is likely to be supported by the system of HRM practices employed by an organization." In support of the proposition by Patel et al. (2013), Garaus et al., in a seminal study, proposed the design of an ambidextrous HRM system and described it "as a special type of high-performance work system (HPWS) that facilitates the continuous integration of exploration and exploitation in the pursuit of ambidexterity and efficiency (2015:355)."

The literature on HRM has reported on the significant role of bundles of HR practices in facilitating employee ambidexterity. For example, separate studies have investigated the effects of HPWS on organizational ambidexterity, with data collected from senior managers of 100 four-star (Gürlek 2021) and five-star hotels (Úbeda-García et al. 2018) in Spain. While one study established an indirect effect of HPWS on organizational ambidexterity, mediated by intellectual capital (Gürlek 2021:30), the other study confirmed that HPWS exerts a direct influence on organizational ambidexterity (Úbeda-García et al. 2018:403). Similarly, Úbeda- García et al. (2022:32) also confirmed the relationship between green HPWS and green ambidexterity among employees in a sample of Spanish hotel firms. The results of their study also show that

HPWS shapes and integrates exploitation and exploration activities by nurturing and developing a culture that encourages organizational diversity and shared vision, which are necessary to create an appropriate context for ambidexterity (Úbeda- García et al. 2022:32). Prieto-Pastor and Martin-Perez (2015:604) investigated high-involvement HR systems in 182 companies in Spain and found that HR systems positively and significantly relate to the behavioural ambidexterity of employees. In a seminal study, which Patel et al. (2013:1423) conducted with a sample of 215 employees in high-tech small-to-medium-sized enterprises in the US, the predictive role of HPWS on individual and organizational ambidexterity was confirmed. In addition, the result of a survey of 2,887 employees and 536 managers of 58 banks in Taiwan confirmed that "unit-level employee human capital mediates the relationship between firm-level HPWS and unit organisational ambidexterity" (Chang 2015:79). A similar study of employees and managers from 58 banks in Taiwan confirmed the effect of HPWS on employee ambidexterity (Chang 2014:11). In addition, Garaus et al. (2015:19) established the effect of HPWS on employee ambidexterity, based on an empirical study of high-tech manufacturing firms in Austria.

Besides the direct impact of HPWS on employee ambidexterity, empirical studies have also confirmed a positive and significant relationship between HPWS and organizational ambidexterity (Chang 2016; Fu et al. 2015; Flickinger, Gruber-Mücke, and Fiedler, 2013). For instance, in a survey of 580 employees placed by the German Employment Agency in 14 industries, Flickinger et al. (2013:939) found a strong relationship between HPWSs and organizational ambidexterity. The outcome of the study revealed a stronger relationship between HPWS and exploitation activities than between HPWS and exploration activities. The result of a similar study, based on many sources collected from 346 employee, and data from 184 managers at different levels, in 33 electronic engineering firms, found that unit HPWS was positively associated with unit organizational ambidexterity (Chang 2016:424). Consistent with the empirical outcomes in the previous studies, this research proposes that HPWS predicts the abilities of employees within the pharmaceutical manufacturing companies in Ghana to explore and exploit. Thus,

H1c: HPWS industry has a significant and positive effect on employee explorative ambidexterity within the pharmaceutical industry of Ghana.

H1d: HPWS has a significant and positive effect on employee exploitative ambidexterity within the pharmaceutical industry of Ghana.

3.3 The impact of employee resilience and employee ambidexterity on organizational resilience

Researchers continue to examine the outcomes of employee resilience (Khan et al. 2017; Sok et al. 2021; Bani-Melhem, Quratulain, and Al-Hawari 2021; Al-Hawari, Bani-Melhem, and Quratulain 2020; Cooke et al., 2019) and individual ambidexterity (Mu et al. 2022; McPhee and Schlosser 2022; Schnellbächer and Heidenreich 2020; Affum-Osei, et al. 2020). In considering the second objective of this dissertation, the following subsections review empirical evidence of the effect of employee resilience and individual ambidexterity on organizational resilience.

3.3.1 Employee resilience and organizational resilience

Employees constitute one of the most significant internal resources of organizations (Schneider, Bullinger, and Brandl 2021:1291). The calibre of employees that organizations have impacts on the extent to which the organization becomes competitive and successful. Thus, it stands to reason that resilient employees build resilient organizations (Hillmann and Guenther 2021; Hall et al. 2018; Kuntz et al. 2017; Shin, Taylor, and Seo 2012). Since resilient employees can respond to uncertainties, and at the same time quickly adapt when faced with obstacles, it eventually improves the capacity of the organization to be responsive to uncertainties in the business environment (Liang and Cao 2021:1065). From a general perspective, Lengnick-Hall et al. (2011) stress that organizational resilience is a function of the skills, knowledge, abilities, and other characteristics of employees. In support, Seville (2018) suggests that enhancing employee resilience is vital for organizational resilience, although a study of 312 employees in the US Bureau of Land Management revealed that employees perceived themselves as resilient, but reported low confidence in the resilience of their organization (Nyaupane et al. 2020:658).

The literature on resilience provides credence to the proposition that employee resilience and organizational resilience are linked. For example, based on the conservation of resource theory and resource-based theory, with a dataset of 329

respondents from China's high-tech industries, service industries, and traditional manufacturing industries, Liang and Cao (2021:1063) reported that employee resilience positively relates to organizational resilience. In another survey of tourism business owners, managers, and employees in New Zealand, Prayag Spector, Orchiston, and Chowdhury (2020:1216) established that employee resilience contributes to organizational resilience. Similarly, Nilakant et al. (2016:35) found, in their study in New Zealand, that employee resilience enables organizations to adapt to crises and challenges. In a survey of owners and employees of tourism companies in Canterbury, Prayag et al. (2020:1216) found a significant and positive relationship between employee resilience and organizational resilience. Likewise, a survey of 830 full-time employees in the U.S indicates that organizational resilience is generated by employees, as a resilient system, through their psychological ability and positive communication behaviors (Kim 2020:47). Based on the evidence from the above studies, this research proposes that resilient employees of pharmaceutical manufacturing organizations in Ghana will contribute to the resilience of the organizations.

H2a: Employee resilience has a significant and positive effect on organizational resilience within the pharmaceutical industry of Ghana.

3.3.2 Employee ambidexterity and organizational resilience

The extant management literature suggests that, on the account of a dynamic business environment, organizations that achieve competitive advantage are those that have the adaptive capacity and simultaneously undertake exploitative and explorative activities that are contingent on the changing circumstances (Erbaş 2018; Patel et al. 2013). Similarly, research has shown that organizational resilience is a consequence of the ambidextrous behaviour of employees (Heinze 2022; Iborra et al. 2020). Thus, organizations become resilient when employees can explore new experiences to create a plausible future, while exploiting current skills and knowledge to perform a present task effectively (Mu et al. 2020:53; Caniëls and Veld 2019:567).

Previous studies have shown that employee ambidexterity enhances the adaptive capacity of organizations (Heinze 2022; Iborra et al. 2020). For instance, Amah and Onwughalu (2017:27) conducted a study on managers in Nigeria and established that exploration and exploitation activities had a significant relationship with organizational

resilience. In addition, Heinze (2022) conducted a study on how leaders can enhance crisis management to achieve higher organizational resilience in SMEs. The result supports the relationship between ambidextrous leadership and organizational resilience. Apart from the limited studies on employee ambidexterity and organizational resilience, researchers have also investigated the role of organizational ambidexterity in enhancing organizational resilience. In a study of 2,765 small-medium-scale manufacturing enterprises in Spain, Iborra et al. (2020:9) concluded that small and medium enterprises could achieve resilience through ambidexterity and strategic consistency.

In addition to examining the predictive role of individual ambidexterity on organizational resilience, some researchers have also examined the effect of organizational ambidexterity on firm resilience (Bechthold, Lude, and Prügl 2021; Gayed and Ebrashi 2022). As an illustration, Bechthold et al. (2021:178) asserted that organizational ambidexterity leads to higher levels of firm resilience, after a case study of an integrated service company in the tourism and leisure industry located in the Swiss Alps. A similar survey of manufacturing firms in Pakistan, conducted by Aslam (2020), also revealed the positive effect of supply chain ambidexterity on supply chain resilience. Likewise, Wang et al. (2021:15) found a positive relationship between exploitation and exploration activities and the supply chain resilience of a firm in their study. In a reverse study of 202 firms in Egypt, by Gayed and Ebrashi (2022), the results indicated that organizational ambidexterity capability influences firm resilience. Taking a cue from the sparse empirical evidence for individual ambidextrous and organizational resilience in the extant literature, and drawing further lessons from the existing empirical outcomes, this study proposes that individual ambidexterity will lead to organizational resilience within the pharmaceutical industry of Ghana, and hence posits that:

H2b: A positive and significant relationship exists between employee explorative individual ambidexterity and organizational resilience within the pharmaceutical industry of Ghana.

H2c: A positive and significant relationship exists between employee exploitative individual ambidexterity and organizational resilience within the pharmaceutical industry of Ghana.

3.4 The direct and mediating role of organizational resilience

Achieving employee wellbeing, especially during crises, is essential for organizational competitiveness. The antecedents of employee well-being have been reported at the individual (Korankye and Lartey 2022; Hu et al. 2021; Chughtai 2021); team (Hartmann et al., 2021; Stoverink et al., 2020); and organizational (Wang et al., 2022; Cooper et al., 2019; Czerw, 2019) levels. Studies have shown that individuals are equally responsible for their well-being, since individual characteristics are associated with an employee's specific traits or personal resources (Tripathi, 2011:18). For example, in a study of 804 employees working in different sectors, Abid et al. (2020:79) reported that employees' perception of fairness leads to employee well-being, while Karimi et al. (2021) asserted that employee emotional intelligence predicts employee well-being.

Following the claims of researchers such as Tripathi (2011) and Abid et al. (2020), as indicated above, organizations are also responsible for the wellbeing of their employees. At the organizational level, researchers have reported on the role of organizations in directly promoting the well-being of their employees. For instance, in a qualitative study, Lamb and Cogan (2016:480) noted that building employee resilience has a positive effect on employee well-being. Again, in a quantitative study of 301 workers in small- and medium-sized enterprises in China, Rasool, Wang, Tang, Saeed and Iqbal (2021:2294) indicated that organizational support leads to employee well-being.

Beyond studies on the direct antecedents of employee wellbeing, a growing number of studies have also investigated the mechanisms through which employee and organizational characteristics affect employee well-being. Mediation occurs if organizational resilience interferes in the relationship between the exogenous variables and employee well-being (YahiaMarzouk and Jin, 2022). Thus, mediation occurs when the direct effect of HPWS, employee resilience and ambidexterity on organizational resilience, the effect of organizational resilience on employee well-being, and the effect

of HPWS, employee resilience and ambidexterity on employee well-being, are all significant.

The extant literature on employee well-being has reported that employee humility mediates the relationship between leader humility and employee well-being (Zhong et al. 2020:19); quality work-life mediates the relationship between organizational social capital and employee well-being (Ko 2021:163); and intrinsic motivation mediates the relationship between abusive supervision and employee well-being (Hussain et al. 2020:11). In addition to this example, recent studies have shown growing interest in examining the mediating role of resilience in an independent-dependent variable relationship. This thesis focused on the mediating role of organizational resilience in how HPWS, employee resilience, and employee ambidexterity, relate to employee well-being within the pharmaceutical manufacturing firms in Ghana.

A review of the extant literature reveals few studies on the mediating role of organizational resilience in the relationship between HPWS and employee well-being, employee resilience and employee well-being, and individual ambidexterity and employee well-being. However, some studies have examined the role of the individual, team, and organizational resilience as the link between antecedents and outcomes. The literature on team resilience indicates support for its mediating role. For example, a study Meneghel, Martínez, and Salanova (2016:248) conducted in Spain, involving "1,076 employees nested in 216 teams from 40 companies revealed that team resilience mediates the relationship between positive emotions and team performance." In addition, Dimas, Rebelo, Lourenço, and Pessoa (2018:358) investigated whether team resilience mediates the relationship between transformational leadership, the dimensions of team viability, and the quality of the group experience, in a survey of 90 teams involving 445 employees from 40 companies. The results from their study showed support for the mediating effect of team resilience, serving as a mechanism through which transformational leadership relates to team viability and the quality of the group experience. Drawing on conservation resource theory, team resilience capacity was found to mediate the positive effect of the association between voice climate and team learning, in an empirical study comprising 48 teams of start-up technology firms in Canada (Brykman and King 2021:737).

At the individual level, a longitudinal study of 305 white-collar employees revealed that employee resilience mediates the effects of collective work-unit perceptions of social context on employee performance (Meneghel, Borgogni et al. 2016:2047). Similarly, Arasli et al. (2020) found, in a study involving 557 participants in green hotels, that individual resilience serves as a link through which human resource management practices and work engagement relate. Further, in a study of 467 students in two senior high schools in Xi'an and Guilin, Wang and Kong (2020) found resilience to be the mechanism through which trait mindfulness is linked to life satisfaction. Furthermore, a cross-sectional survey of 300 IT professionals in India partially confirmed the mediating role of employee resilience in the relationship between organizational learning and work engagement (Malik and Garg 2020:1071). Individual resilience was also found to mediate the relationship between trait gratitude and subjective well-being in a study of 1445 Chinese adolescents (Kong, Yang, Yan, and Li, 2021:1611). Furthermore, individual resilience was linked to well-being-oriented HRM practices and employee performance in a study of 300 employees in Bangkok (Aeknarajindawat, Aeknarajindawat, and Aswasuntrangkul 2020). In a related study of 371 front-line employees working in the service sector of Pakistan, HPWS was positively linked with the service performance and organizational citizenship behaviour (Nadeem, Riaz, and Danish 2019:1).

At the organizational level, Channa, Shah, and Ghumro (2019:2632) conducted a study involving 176 HR managers of textile firms in Pakistan and confirmed the mediation role of organizational resilience between strategic human resource management and crisis management. Further, organizational resilience was confirmed to mediate social capital, team empowerment, goal interdependence and organizational functioning during a crisis in a study involving 98 schools and 1,132 educators in Israel (Shain 2020:127). Additionally, Rodríguez-Sánchez et al. (2021:442) conducted a survey of 296 companies in Spain and concluded that organizational resilience serves as a conduit between corporate social responsibility for employees and organizational learning. Taking a cue from the shreds of empirical evidence at the individual, team, and organizational levels, this study posits that organizational resilience significantly mediates how HPWS, employee resilience, and individual ambidexterity, relate to employee well-being. Hence, the following hypothesizes have been put proposed to test these assumptions:

H3a: Organizational resilience positively and significantly relates directly to employee well-being within the pharmaceutical industry of Ghana.

H3b: Organizational resilience mediates the relationship between employee resilience and employee well-being within the pharmaceutical industry of Ghana.

H3c: Organizational resilience mediates the relationship between HPWS and employee well-being within the pharmaceutical industry of Ghana.

H3d: Organizational resilience mediates the relationship between employee exploitation ambidexterity and employee well-being within the pharmaceutical industry of Ghana.

H3e: Organizational resilience mediates the relationship between employee exploration ambidexterity and employee well-being within the pharmaceutical industry of Ghana.

3.5 Conceptual model

The conceptual model for this research is shown in Figure 3.1. The conceptual model shows the relationship between high-performance work systems (as the independent variable), employee resilience, employee ambidexterity, organizational resilience (as mediating variables), and employee wellbeing (as a dependent variable). The framework illustrates how the constructs are related and provides the basis to develop the research hypotheses. Grounded on the relevant literature, the conceptual model proposes that a high-performance work system positively and significantly relates to employee resilience (Kim et al. 2022; Rodríguez-Sánchez 2021; Cooke et al. 2019); employee ambidexterity (Úbeda- García 2022; Gürlek 2021; Úbeda-García et al. 2018); and organizational resilience (Meddour et al. 2020; Zhou et al. 2019; Obeidat et al. 2016:12). The research model further proposes that employee resilience and ambidexterity have positive and significant effects on organizational resilience (Liang and Cao 2021; Prayag et al. 2020; Heinze 2022; Iborra et al. 2020). Finally, it is proposed that organizational resilience has a significant and positive influence on enhancing employee well-being through a high-performance work system, employee resilience, and ambidexterity (Aeknarajindawat and Aswasuntrangkul 2020; Channa et al. 2019; Zhong et al. 2020).

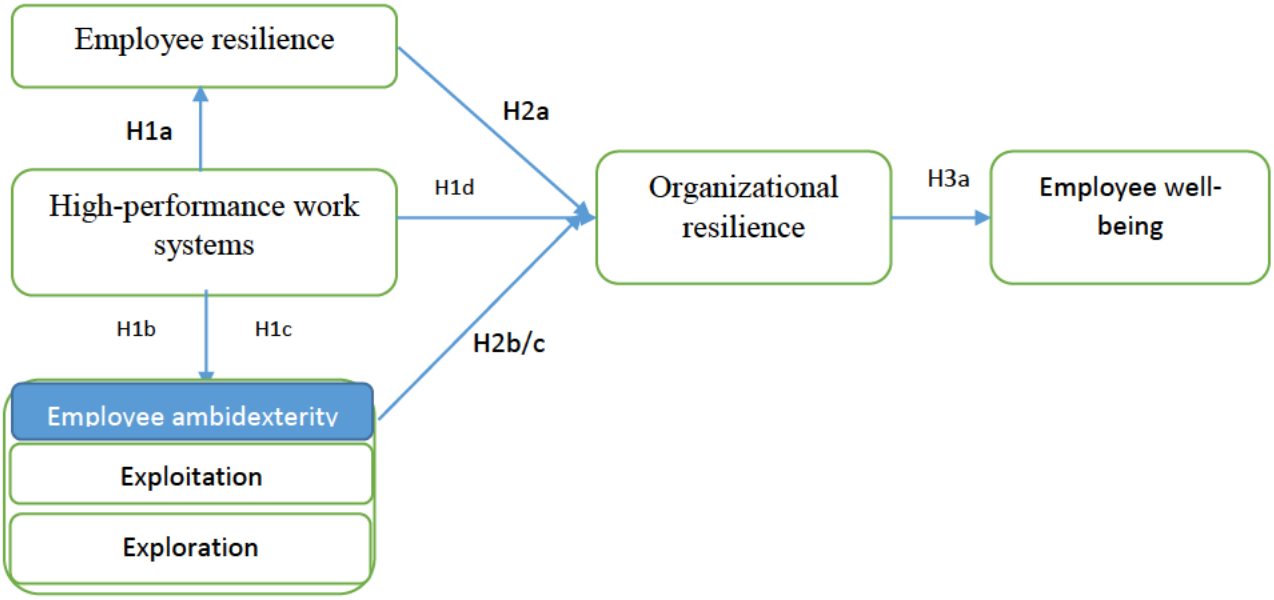


Fig. 3.1 The proposed research framework

3.6 Conclusion

This chapter provided empirical reviews on how the main constructs in the research model relate. In tandem with the first objective of the study, empirical reviews of the effects of a high-performance work system on employee resilience, individual ambidexterity, and organisational resilience were conducted. This was followed by a review of the impact of employee resilience and ambidexterity on organisational resilience and the role of organisational resilience in the relationship between employee resilience, employee ambidexterity, and employee well-being. Based on the empirical evidence and research gaps, this chapter developed ten hypotheses to be tested.

The next chapter describes the methodology. The chapter presents the methodological approach to conducting the research. It provides information on the research approaches, the sampling design, and the research instruments. It also provides detailed information on how quantitative and qualitative data were collected, as well as on approaches for using the partial least square structural equation modelling (PLS-SEM) and Nvivo for analysing both the quantitative and qualitative data, respectively. The ethical considerations and data quality will also be discussed.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 Introduction

This chapter presents the methodological approaches used in examining the role of high-performance work systems and resilience on employee well-being within the pharmaceutical industry in Ghana. For replicability, the chapter provides detailed information on all the sections in the chapter. It provides information on the research paradigm, approach, design, and strategies followed in undertaking the research. This chapter also provides detailed information about the sampling process. Information about the research instruments used and how quantitative and qualitative data were collected and analysed is also provided. The ethical considerations and data quality are also discussed.

4.2 Research philosophy

Everyone has a way of perceiving or understanding the reality of life. People may look at the same object but may make different meanings out of it, based on their knowledge and experiences. In academic research, scholars also have various perspectives on what and how they perceive and interpret reality, or a particular subject or phenomenon. Saunders, Lewis, and Thornhill (2019:133) explained that people's assumptions about reality, their knowledge, and experience, shape how they see and conduct research. Some scholars refer to it as the researchers' worldview (Creswell 2009:6) or a research philosophy or paradigm (Saunders et al. 2019:130). Specifically, a research paradigm refers to systems of beliefs, assumptions, and practices that influence the development of knowledge, or how researchers select the questions they study, and the methods they use to study them (Saunders et al. 2019:130; Morgan 2007:49). These assumptions, beliefs, and practices form the worldview of a researcher and serve as a set of principles that guide and influence the choice of a specific methodological approach, research strategy, data collection techniques, and analysis (Saunders et al. 2019:130).

The research philosophies are positivist; critical realism; interpretivism; post-modernism; and pragmatism (Saunders et al. 2019:144). Since the paradigms are distinct, deciding on a particular research paradigm is central to conducting a research

project. Thus, a researcher must choose the perspective to guide the research or address the problem. Table 3.1 provides a list of the research philosophies and the methods that typically correspond to each paradigm. However, to select a research paradigm, researchers need to consider three basic assumptions on which research paradigms are grounded and differentiated. The three underlying perspectives are ontology, epistemology, and axiology (Saunders et al. 2019: 133; Sekaran and Bougie 2016:28). Ontology refers to the assumptions researchers make about the nature of reality (Saunder et al. 2019:133). The assumptions researchers hold about what constitutes reality about a specific research phenomenon guide them in how they perceive and approach the research project. Epistemology speaks of what researchers claim and how they know what they know (Saunders et al. 2019:133). Epistemology emphasises what represents "acceptable, valid, and legitimate knowledge, and how researchers can communicate the contributions of knowledge they make as a result of their research outcomes" (Saunders et al. 2019:159). Axiology explains the role of values and ethics within the research process. It includes questions about how researchers deal with their values and the values of the research participants (Saunders et al. 2019:159).

4.2.1 Positivist

The positivists believe that scientific research is the way to understand the world well enough to establish the objective truth and predict and control it (Sekaran and Bougie 2016:28). According to Saunders et al. (2019:144), positivist research is skewed towards the natural sciences and seeks to elicit and measure credible data about an observable social reality, and to use the outcomes to establish causal relationships that make law-generalisation possible. Positivists use existing theories to develop hypotheses for testing and use universal rules to explain and predict behaviour and events. Positivists focus on objectivity in the data collection processes and avoid any human interference. They also rely on structured methodology and stress quantifiable observations that lend themselves to statistical analysis.

4.2.2 Critical realism

Saunders et al. (2019:159) argue that what people experience are sensations, which are the manifestations of the things in the real world rather than the actual things. Critical realism supports the belief in external reality (e.g. resilience, well-being) and simultaneously argues that external reality is always subject to interpretation and cannot

be measured objectively (Sekaran and Bougie 2016:29). Critical realists suggest that measuring external realities is subjective. The researcher is inherently biased in generating imperfect data (Sekaran and Bougie 2016:29). Hence, critical realists focus on explaining what people see and experience in terms of the underlying structures of reality that shape the observable events (Saunders et al. 2019:159). Thus, critical realists use several methods, such as triangulation and observation, to conduct studies on historical analysis of changing or enduring societal and organisational structures to obtain a better insight into what is happening (Saunders et al. 2019:159; Sekaran and Bougie 2016:29).

4.2.3 Interpretivism

As Saunders et al. (2019:160) explain, interpretivism seeks to make sense of the subjective and socially constructed meanings expressed about the phenomenon, and to create new, richer understandings of a phenomenon, or organisational realities. Interpretivists believe that there is neither universal truth nor a worldview, since the future is perceived as a random, chaotic, and unpredictable chain of events (Kankam 2019:86; Melnikovas, 2018:37). Empirically, interpretivism focuses on individuals' lived experiences and cultural artefacts. Unlike the positivists, who stand external to the process and assume an ontological perspective, interpretivists include their participants and their interpretations in their research, thereby assuming an epistemological position to achieve the subjective meaning of the researched phenomenon (Bryman 2008:13).

4.2.4 Postmodernism

Postmodernism holds that knowledge is neither eternal nor exhaustive; and concepts, theories, and methods used to describe the world are social creations that are accepted on social grounds, despite the lack of objective reality (Javanmardi, Liu, and Xie 2020:906). Postmodernists seek to question the accepted ways of thinking and give voice to alternative worldviews that have been marginalised and silenced by dominant perspectives (Saunders et al. 2019:160). They question the possibility of discovering the universal truth since there is no objective reality, which renders the scientific approach inapplicable (Sułkowski, Lenart-Gansiniec, and Bilan 2020:422).

4.2.5 Pragmatism

Pragmatism describes research as a process where concepts and meanings (theory) are generalisations of past actions and experiences and of interactions with our environment (Sekaran and Bougie 2016:29). Pragmatism arises out of actions, situations and consequences, and researchers who assume the pragmatic paradigm focus on research problems rather than the method (Abutabenjeh and Jaradat 2018:246). The pragmatists believe that the current truth is temporary and will change with time (Sekaran and Bougie 2015:29) and thus focus their ontology, epistemology, and axiology on improving practice (Saunders et al. 2019:160). Scholars who support pragmatism believe that true knowledge can be obtained by mixing methods and strategies that can help find answers to the research problem (Rahi 2017:1). They believe those different perspectives, ideas, and theories help people better understand the world (Sekaran and Bougie 2015:29). Thus, pragmatists adopt multiple research strategies, the choice of which is driven by the specific nature of their research problems (Saunders et al. 2019:160).

Table 4.1 Classification of research philosophies

Paradigms	Typical methods
Positivist	Typically, deductive, highly structured, large samples, measurement, quantitative methods of analysis, but a range of data can be analysed.
Critical realism	Retroductive, in-depth historically-situated analysis of pre-existing structures and emerging agency, range of methods, and data types to fit the subject matter.
Interpretivist	Typically, inductive, small samples, in-depth investigations, and qualitative methods of analysis, but a range of data can be interpreted.
Post-modernism	Typically deconstructive – reading texts and realities against themselves, in-depth investigations of anomalies, silences and absences, range of data types, typically qualitative methods of analysis.
Pragmatism	Following a research problem and research question, range of methods: mixed, multiple, qualitative, quantitative, and action research. Emphasis on practical solutions and outcomes.

Source: Saunders et al. (2019:144-145)

4.2.6 Choice of paradigm

This study was grounded in the pragmatic research paradigm. Drawing on pragmatism, the researcher used both quantitative and qualitative methods in examining the predictive role of HPWS on employee well-being, since the underlying assumption of pragmatism allowed for using mixed methods. Within pragmatism, the quantitative part of the study collected observable and real data, linked theory to data, and tested hypotheses to establish cause-effect linkages (Abutabenjeh and Jaradat 2018:247). This approach aligned with the natural sciences and the ontological worldview of objectivity. Hence, pragmatism enabled a more comprehensive exploration of the research problem and helped to establish cause-effect relationships between HPWS and employee well-being through empirical evidence and statistical analysis. This integration of quantitative and qualitative methods enhanced the richness and validity of the study's conclusions. Moreover, the qualitatitive part sought to explain the causal relationships by collecting qualitative data. This approach was necessary, since it operates in tandem with interpretivism and provides for subjective interpretation and meaning of the statistical information. Hence, using pragmatism facilitated the connection of useful points between the qualitative and quantitative data (Tran 2016:10).

Again, **a**dopting pragmatism also allowed for contextualisation of the study to a specific industry by exercising subjective reflections and maintaining objectivity in gathering and analysing data to address the research problem (Shannon-Baker 2016:4). This is because the pragmatists believe that research on both objective, observable phenomena and subjective meanings can produce useful knowledge (Sekaran and Bougie 2016:29). For example, employee well-being is a complex construct influenced by both objective factors (e.g., work conditions, benefits) and subjective experiences (e.g., job satisfaction, psychological well-being). Pragmatism paradigm facilitated this study in capturing the multidimensional nature of employee well-being, leading to a more holistic understanding of the phenomenon. In other words, pragmatism allowed the researcher to consider contextual factors and exercise subjective reflections while maintaining objectivity (Abutabenjeh and Jaradat 2018:246; Saunders et al. 2019:160). This is particularly relevant when studying the relationship between HPWS and employee well-being in a specific industry or organizational context. Acknowledging the importance of context and subjectivity provided more nuanced and relevant recommendations tailored to the unique challenges and opportunities faced by

organizations in the research context. Thus, considering that the study aimed to comprehend the predictive role of HPWS in promoting employee well-being, a pragmatic approach ensured that the research outcomes were relevant and useful for managers and organizations. The findings could inform HR practices and policies, enabling organizations to design and implement effective high-performance work systems to enhance employee well-being.

Additionally, in the business environment, uncertainties are common, and the ability to adapt and respond effectively is crucial. Pragmatism aligned well with this reality, as it allowed the researcher to be flexible and adapted research methods based on the emerging needs of the study (Abutabenjeh and Jaradat 2018:246; Saunders et al. 2019:160). By acknowledging uncertainties and adopting a pragmatic approach, the study produced practical insights that can help managers navigate and address challenges related to HPWS, resilience, ambidexterity, and employee well-being in a dynamic business landscape within the research context.

While facilitates a comprehensive, practical, and contextually relevant exploration of the predictive role of HPWS on employee well-being, it also had some immplications for this study. For instance, this research placed more emphasise on the quantitative aspect, resulting in a trade-offs in depth and breadth. Thus, conducting both quantitative and qualitative research within the same study required allocating resources and time accordingly. As a result, this emphasized breadth of data collection and analysis, reducing the overall robustness of the research. Again, pragmatic studies often focus on context-specific and practical solutions (Abutabenjeh and Jaradat 2018:248). Hence, the findings of this study were limitedly contextutal and may lack generalizability to other settings or industries. This meant that while the findings of this study and context-specific and provided valuable insights are valuable to the research context, they may not be directly applicable in different organizational contexts such as telecommmuication, banking, and mining.

4.3 Approaches to theory development

Scientific studies are usually grounded on theories. In other words, the theoretical perspective that researchers assume influences how they design their research projects.

With reference to the seminal work of Peirce (1980), Saunders et al. (2019:152) identified three main research approaches: deductive, inductive, and abductive.

4.3.1 Deductive approach

Grounding research in the deductive approach means that the researcher seeks to develop a hypothesis to test an existing theory by collecting new data from respondents and observing the findings by applying various statistical tests (Rahi, Alnaser, and Abd Ghani 2019:1162; Mitchell and Education 2018:104). As indicated by Saunders et al. (2019:154), in the deductive approach, the theory, the research design, and the research strategy are developed prior to collecting quantitative empirical data from a large sample of respondents to explain causal relationships between concepts and variables. Researchers who follow the deductive approach also use a highly structured methodology to make replicability and generalizability of their study possible.

4.3.2 Inductive approach

In the inductive approach, the researcher collects data and develops a theory or pattern of meanings based on the outcomes of the data analysis (Creswell, Plano Clark, Guttman, and Hanson 2003:9). Unlike with the deductive research approach, a theory is only developed after the empirical data has been collected and analysed in an inductive approach. The inductive approach becomes meaningful when the researcher seeks to understand outcomes and the nature of the problem without imposing pre-determined expectations, which also allows for the study of how individuals interpret their social reality, while not being concerned with the generalisation of outcomes (Saunders et al. 2019:155). Hence, studies following the inductive approach rely on small sample sizes and qualitative data collection techniques and stress subjective interpretations grounded in the interpretivism philosophy (Saunders et al. 2019:155).

4.3.3 Abductive approach

The third research approach is the abductive approach, which combines inductive and deductive approaches to research (Hurley, Dietrich, and Rundle-Thiele 2021:67). Abductive studies are characterised by first developing a conceptual model based on data generated through qualitative means. The data is then used to explore a phenomenon, identify themes, and explain patterns. Finally, the additional data is used

to generate a new, or modify an existing, theory, which is often tested through other data collection.

4.3.4 Choice of research approach

The descriptions of the three approaches above show that the deductive approach usually aligns with the positivist scientific ideal and the inductive approach aligns with the interpretivism perspective. The abductive approach combines both deductive and inductive methodologies. However, this labeling are potentially misleading and of no practical value, since the best approach depends on the researcher's philosophy, the nature of the research topic, and the researcher's emphasis (Saunders et al. 2019:157-158).

A deductive research approach was predominantly adopted in this study. Grounded in resource-demand theory, hypotheses were developed to test how HPWS relates to employee resilience, employee ambidexterity, and organisational resilience; how employee resilience and employee ambidexterity also relate to organisational resilience; and to explain the causal relationship between organisational resilience and employee well-being. Further data was collected through surveying a large sample of respondents, and the study was conducted based on well-documented and laid down methodological footprints, which allowed for replicability. In addition, the inductive approach was introduced after analysing the quantitative data. Subsequently, qualitative data was collected through in-depth interviews with a small sample to explain the outcomes of the research propositions.

4.4 Research design

Designing research is a critical step in conducting scientific research. The research design describes the general plan a researcher adopts in answering research questions (Saunders et al. 2019:163), and is guided by the researcher's philosophy. The generic approaches to designing research include quantitative, qualitative, and mixed research methods (Hair, Page, and Brunsveld 2020; Saunders et al. 2019; Taherdoost 2016).

4.4.1 Quantitative versus qualitative design

Quantitative research is concerned with numeric data and is linked with the positivist paradigm and a deductive approach (Saunders et al. 2016:166). A quantitative study

uses “measurements in which numbers are used directly to represent the characteristics of something” (Hair et al. 2019:161) and deals with examining the relationship between variables that use pre-determined structured data collection instruments to test hypotheses and existing theory (Saunders et al. 2019:166; Antwi and Hamza 2015:2020). A quantitative design provides objectivity because the hypotheses are tested by collecting data, and statistical criteria are applied to assess the measurements (Hair et al. 2019:161).

By contrast, qualitative research deals with non-numeric data and is mostly related to an interpretive philosophy (Saunders et al. 2019:165). As Hair et al. (2019:161) explained, instead of using numbers assigned to collected data, qualitative data is sourced by recording words, phrases, and sometimes textual or visual descriptions to provide in-depth information on a phenomenon. Unlike quantitative research, qualitative research usually culminates in developing conceptual models and hypotheses. In additional, data collection in a qualitative study is partly guided by the literature review in developing open-ended questions (Hair et al. 2019:161).

4.4.2 Mixed method

A mixed research method is the type of research in which a researcher combines elements of both qualitative and quantitative approaches in a single study to obtain a breadth and depth of understanding and corroboration (Johnson, Onwuegbuzie, and Turner 2007:123). Researchers who conduct mixed-method studies collect quantitative and qualitative data sequentially or concurrently to understand the research problem better. Creswell, Plano Clark, Gutmann, and Hanson (2003) indicated that researchers must consider priority, implementation, and integration when designing mixed-method research. As a priority, researchers must decide whether they will focus more on quantitative or qualitative design. Implementation requires the researcher to decide whether the collection and analysis of the numeric and non-numeric data will be done sequentially or concurrently. Finally, integration refers to “the extent that different data elements and/or varied strategies for analysis of those elements are combined in such a way as to become interdependent in reaching a common theoretical or research goal” (Bazeley 2016:10). Thus, the researcher must decide the stage at which the quantitative and qualitative data connect within the research process.

Mixed-method scholars have provided various approaches to conducting mixed-method research (Johnson and Christensen 2017:478; Teddlie and Tashakkori 2009:151; Morse and Niehaus 2009:25). As an illustration, Creswell and Plano Clark (2011) provided six dimensions of mixed-method design, namely, convergent parallel design; embedded design; exploratory sequential design; explanatory sequential design; transformative design; and multiphase design. In the convergent parallel design, the researcher collects qualitative and quantitative data on the same phenomenon separately, after which the results are put together for interpretation. The embedded design means that one method is used in a secondary supporting role, allowing researchers and readers to make meaning of the whole study. In an exploratory design, the researcher first collects and analyses the qualitative data and follows it up with the quantitative data for analysis and interpretation. By contrast, in the explanatory sequential design, the researcher collects the quantitative data and then follows up with the qualitative data to explain the quantitative outcomes. In a transformative design, a transformative theoretical model shapes the interaction, priority, timing, and mixing of the qualitative and quantitative designs. Finally, the multiphase design requires using more than two phases, or both sequential and concurrent strands combined over a period of time, within a programme of study addressing an overall programme objective.

4.4.3 Choice of research design

This study was approached from the perspective of explanatory, sequential, mixed methods. The quantitative data was first generated through a structured questionnaire survey, and the outcomes informed the sourcing of the qualitative data through in-depth interviews (McCrudden and McTigue 2019:307). Thus, the quantitative design emphasised the predictive power and relationships between the exogenous variables in the research model, and organisational resilience on the one hand; and organisational resilience and employee well-being on the other. This was followed by collecting qualitative data to understand why the predictive constructs serve as significant predictors of organisational resilience and employee well-being, thereby enriching the quantitative data outcomes. The sequential approach is shown in Figure 2, below, and explains the factors considered in this design, as suggested by Creswell et al. (2003).

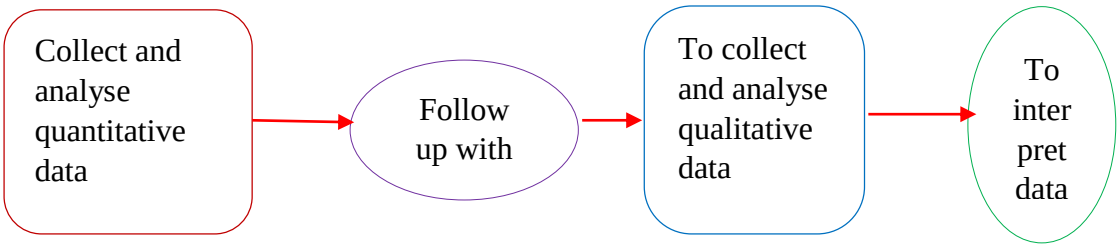


Fig. 4.1: Explanatory sequential mixed methods (Creswell and Plano Clark 2007)

As indicated earlier, the design of this mixed-method study was quantitatively driven. This was because the quantitative design constituted the core component of the study, while the qualitative formed the supplementary aspect of the study. The quantitative design was also the first in the sequence, and both the quantitative and qualitative methods integrated at the point of designing an interview guide from the quantitative results and selecting the interviewees. The outcomes from both designs were further integrated during the discussion phase of the research outcomes.

The need to collect both qualitative and quantitative data within a single study in this sequential manner arose from the fact that neither quantitative nor qualitative methodologies were sufficient to encapsulate the predictive role of HPWS in enhancing employee ambidexterity and both individual and organisational resilience (Ivankova, Creswell, and Stick 2006:3). Thus, the results from the quantitative data generally provided significant information on the research questions and the proposed hypotheses. The qualitative data explained the statistical outcomes of the proposed hypotheses by investigating the primary causes of the nature of relationships found in the quantitative results which, in the end, justified the statistical results.

4.5 Research Strategy

A researcher needs to decide on the strategy to adopt in conducting research. Saunders et al. (2019:680) describe a research strategy as the overall plan a researcher adopts in answering the research questions of a specific project. The researcher, for example, must decide if the purpose of the design is to gain a broad view of the phenomenon or to gain a deep understanding of the study concepts. Deciding on an approach helps to attain a reasonable level of consistency and logic throughout the research design and to focus on achieving the research questions (Saunders et al. 2019:190). Examples of research strategies provided in the extant literature on research methods include

experiments; surveys; case studies; grounded theory; ethnography; action research; narrative inquiry; and archival research (Saunders et al. 2019:190).

The main features of conducting a study based on an *experimental* research strategy are manipulation and control (Singleton Jr. and Straits 2010:195). Experimenting requires that the researcher intentionally test the probability of how a change in an independent variable will cause a change in the dependent or the endogenous variables (Saunders et al. 2019:190). In undertaking a *survey*, the researcher has to collect the data using a standardised or structured procedure to elicit information on a particular subject from a group of people. Simply put, a survey consists of identifying a particular group of people and collecting information from some of them to obtain insight into what the entire group does or thinks (de Leeuw, Hox, and Dillman 2008:1). In *case studies*, the case is the individual, the group, the organisation, the event, or the situation the researcher is interested in (Sekaran and Bougie 2015:98). In adopting a case study research strategy, the researcher seeks to investigate a specific contemporary phenomenon within its real-life context by using various sources of evidence (Saunders et al. 2019:196). Case studies may provide both qualitative and quantitative data for analysis and interpretation. By following the *grounded theory* research strategy, the researcher intends to develop a theory. For instance, a researcher may want to develop a theory to explain why a particular HR practice better boosts employee wellness. A researcher may decide to adopt an *ethnographic* strategy, which will require that the investigation is undertaken in the real-life environment of the target respondents, whereby the researcher interacts, participates, or observes the real-life activities of the respondents. Ethnographers study people in groups (Saunders et al. 2019:200). *Action research* involves studies designed to provide a tailor-made solution to organisational challenges. The researcher begins with a problem already identified and gathers relevant data aimed at effecting planned changes and a solution to the problem (Sekaran and Bougie 2015:99).

4.5.1 Deciding on a research strategy

This study has adopted the survey research strategy. Through this, the researcher collected extensive empirical or primary data from many respondents selected randomly from members of PMAG. A structured questionnaire and an interview guide were designed to collect quantitative and qualitative data based on a pre-determined

procedure. The survey strategy allowed the researcher to gain broad knowledge by examining the relationship between the constructs in the research model, which made it possible to generalise the outcomes of the research to the pharmaceutical manufacturing industry in Ghana.

4.6 The sampling process

Sampling is essential in collecting data from which conclusions can be drawn about a target population. The sampling process includes defining the target population, selecting the sampling frame, choosing the sampling method, determining the sample size, and implementing the sampling plan (Hair, Page, and Brunsveld 2020:181; Taherdoost 2016:19; Sekaran and Bougie 2016:239).

4.6.1 Research population

The population refers to the complete set of elements from which a sample can be selected (Saunders et al. 2016: 274). A research population is the entire set of cases from which a research sample is drawn for investigation (Taherdoost 2016:17; Sekaran and Bougie 2016:239). The population for this study comprised employees of 40 firms registered with the Pharmaceutical Manufacturers Association of Ghana (PMAG). Pharmaceutical companies wholly owned by Ghanaians and located within the Greater Accra Region of Ghana constituted the target population. These firms have an estimated 2000 employees.

4.6.2 Sample Size

In research with a large population, a researcher cannot include all the elements in the study population. The researcher, therefore, selects some members of the population for the study. The chosen sample should represent the population so that inferences can be made about the population, or generalisations made about existing theory (Taherdoost 2016:20). Thus, a sample refers to cases selected from a population and from which the inferences represent the population.

Generalisations about target populations, based on data generated from a sampling, using any probability samples, are based on statistical probability (Saunders et al. 2019:299). However, this raises the question of how large a sample should be to

represent a specific population (Hair et al. 2020:180). Taherdoost (2017) explained that a random sample should be adequate to facilitate generalisation and avoid sampling errors or biases. According to Hair et al. (2020:201) and Saunders et al. (2019:299), determining a sample size depends on the degree of confidence necessary in the data to estimate the true value and the precision of the estimate (the accuracy required for any estimates made from the sample). This also includes the amount of true variability present in the data, the types of analyses to be undertaken, and the size of the target population from which the sample is being drawn.

There are many formulae for estimating sample size. This study follows the conventional formula which Saunders et al. (2019:302) and Gill, Johnson, and Clark (2010) used, as cited in Taherdoost (2017:237), which stipulated that 322 out of the target population of 2000 employees were sampled to participate in the study. The chosen sample was based on a 95% confidence level and a 5% margin of error (Saunders et al. 2019:302). This implies that 306 respondents out of 322 samples would reflect the true population value within the margin of error specified (Taherdoost 2017:237; Saunders et al. 2019:302). This is consistent with the 95% confidence level usually used in management research (Taherdoost 2017:237). The profile distribution of the sample is presented in Table 5.1 in Chapter Five of this research.

In the case of the qualitative approach, six HR managers and six employees were sampled to take in the study. Following the suggestion of Guest, Namey, and Chen (2020:13), six-to-seven respondents are adequate and sufficient to capture most themes in a homogenous sample. However, O'Reilly and Parker (2013:195) emphasised that the adequacy of a sample is determined by the appropriateness of the data and not necessarily by the number of respondents. Hence, a sample of 12 participants was determined based on the principle of data saturation, which is the point in where new data collection and analysis no longer yield significant additional insights or themes related to the research question (Mwita 2022; Sims and Cilliers 2023). It indicates that the researchers have gathered enough information to thoroughly explore the phenomenon under investigation, and further data collection is unlikely to yield substantially new findings.

As noted earlier, this study aimed to understand the how High-Performance Work Systems, employee resilience, employee ambidexterity, and organizational resilience interact to shape employee well-being during crises within the pharmaceutical industry in Ghana. The decision to include 12 participants was arrived at after the data analysis adequately captured the key themes and perspectives related to the research topic. As stated in section 4.7.2, it took four days to complete the interview. The data collected each day was transcribed and systematically analyzed examined the emerging themes and insights. After day that no new themes or significant information were emerging from the data. Therefore, the research concluded that the 12 participants were enough and data saturation saturation has been reached.

By arriving at a sample size of 12 participants, the researchers demonstrated a commitment to collecting high-quality and in-depth data, allowing for a comprehensive exploration of the relationships between HPWS, employee resilience, employee ambidexterity, organizational resilience, and employee well-being within the specific context of the pharmaceutical industry in Ghana. The focus on data saturation enhances the credibility and rigor of the qualitative findings, as it ensures that the study's conclusions are well-grounded and supported by the participants' perspectives and experiences. Overall, sampling the number of managerial and non-managerial participants, based on data saturation, exceeds those Guest, Namey, and Chen (2020:13), captured a diverse range of viewpoints, strengthened the validity of the qualitative research and contributed to the overall robustness of the study's findings.

4.6.3 Sampling technique

A sampling technique refers to the tool or method a researcher uses to select members of a sample for specific research. In other words, it refers to what the researcher did, or how the researcher chose the sample size. There are various techniques for selecting a sample. These techniques have been categorised into probability and non-probability sampling techniques (Wiśniowski, Sakshaug, Perez Ruiz, and Blom 2020; Saunders et al. 2019; Taherdoost 2016). In probability sampling, every element in the population has a known and equal chance of being selected as a respondent. In non-probability sampling, the members are chosen based on pre-determined chance (Wiśniowski et al. 2020:121). Examples of probability and non-probability sampling techniques are shown in Table 4.2. The power of probability sampling lies in its theoretical

underpinning and in its design, which allows an unbiased population mean to be estimated with sufficient sampling error. It needs a large sample for robust estimation (Wiśniowski et al. 2020:121). On the other hand, data from non-probability sampling can be readily used when a researcher is willing to assume homogeneity (Kohler 2019:13).

Table 4.2 Sampling techniques

Probability	Non-probability sampling
Simple random	Convenient sampling
Systematic random	Judgment sampling
Stratified random	Snowball sampling
Cluster sampling	Quota sampling
Multi-stage sampling	Dimensional sampling

Source: Taherdoost (2016:20)

A simple random probability sampling technique was used to select respondents for the quantitative study. Since the target respondents were on the WhatsApp platforms of their respective organizations, the assumption was that the researcher had access to the entire sample frame. Hence, once the questionnaire web link was shared on the respective platforms, each member had an equal chance to participate in the survey. The simple random technique was preferred because selecting the same size was simple, less expensive, and facilitated the generalizability of the findings attributed to the PMAG. Moreover, a simple random technique is associated with a survey strategy and quantitative design.

The respondents for the qualitative design were chosen using a purposive sampling technique. Purposive sampling refers to where the researcher includes participants in the sample because of the belief that the participants warrant inclusion (Taherdoost 2016:23). In this study, the interview participants were chosen after the collection of the quantitative data. Hence, using purposive sampling, the respondents who had shown much interest in the research during the first phase of the data collection could also provide rich information on the subject being studied. However, what constituted 'showing of much interest' was subjectively determined by the researcher.

4.7 Research instruments

A research instrument is the mechanism a researcher uses to directly quantify or qualify a phenomenon in a real-life situation (Verschurem and Doorewaard 2010:227). In other words, it describes the tool or tools a researcher intends to use to collect data for the research. Examples of most basic forms of instruments research used to collect data from individuals include questionnaires; interviews; observation; content analysis; and unobstructed mechanisms.

4.7.1 Questionnaire

A questionnaire is a preformulated, written set of questions to which respondents record their answers, usually within closely defined alternatives (Sekaran and Bougie 2016:142). Questionnaires source data by asking people to respond to a precisely defined set of questions (Saunders et al. 2019:505, 549). The items in a questionnaire can be open-ended, closed-ended, or forced (Saunders et al. 2019:519). Questionnaires usually facilitate data collection from a large sample of respondents. Questionnaires can be administered personally, or distributed electronically, or mailed to the respondents (Sekaran and Bougie 2015:143). A questionnaire can be self-administered (weblink, mail, or delivery and collection questionnaires), or researcher-completed (telephonic and face-to-face questionnaire) (Saunders et al. 2019:505). Questionnaires are mostly used in quantitative research design and the research survey strategy (Saunders et al. 2019; Sekaran and Bougie 2016; Taherdoost 2016).

4.7.2 Interviews

One of the most commonly used instruments in qualitative research is an interview, a guided and purposeful interaction between two or more people during which the interviewer asks short and unambiguous questions and listens attentively to the interviewee talking (Saunders et al. 2019:434; Sekaran and Bougie 2016:139). Interviews require that the researcher speaks directly with the research participants or groups of respondents. Interviews are categorised into structured, semi-structured or and unstructured, and are conducted face-to-face, by telephone, or online (Saunders et al. 2019:437; Sekaran and Bougie 2015:139; Verschurem and Doorewaard 2010:227). In structured interviews, the researcher uses an interview sequence with pre-determined questions for each session and follows the same sequence in each interview to minimise bias that may result from varying interviewing techniques, and to ensure that responses

are comparable between interviews (Hair et al. 2019:210). However, in an unstructured interview, the researcher elicits information by engaging the interviewee in open discussion to gain a deeper insight into a phenomenon without following a particular sequence (Hair et al. 2019:214). Semi-structured interviews have an overall structure and direction but allow more flexibility to include unstructured questioning. Interviews, in general, enable the researcher to obtain definite ideas about what is, and is not, essential and relevant to specific problem situations and provide in- depth information about specific variables of interest (Sekaran and Bougie 2015:123).

4.7.3 Observations

One of the valuable instruments for collecting data for HR research, but which is seldom used, is observation. Observation involves systematically watching the actions and behaviours of a set of people in a given setting and recording, describing, analysing, and interpreting what one has seen (Saunders et al. 2019:378; Hair et al. 2019:205; Sekaran and Bougie 2015:123). There are three main dimensions to observation: participant observation, structured observation, and internet-mediated observation (Saunders et al. 2019; Hair et al. 2019; Sekaran and Bougie 2015). According to Sauders et al. (2019:379,380), participant observation is qualitative and stresses discovering the meanings people attach to their actions and social interactions. However, structured observation is quantitative and emphasises the frequency of actions; while internet-mediated observation involves collecting data from online communities. Observational data may result in narrative, image, videos, and numerical data (Hair et al. 2019:214). An advantage of the observational instrument is that the participants are unaware of their involvement in the research work and, hence, cannot influence the activities related to the data collection.

4.7.4 Content analysis

Content analysis relies on pre-existing text, images, or video as a data source generated from documents, the media and the literature (Hair et al. 2019:208; Verschurem and Doorewaard 2010:228). Hair et al. (2019:208) listed annual reports; contracts; advertisements; letters; blogs; open-ended questions on surveys; in-depth interviews; and social media conversations, as examples of analysis units for content analysis. In content analysis, the researcher systematically codes words, categories and themes from the units of analysis (Hair et al. 2019:208). Furthermore, depending on the research

questions' nature, the research purpose, and the research strategy, the outcome may be used as either the primary or secondary data (Saunders et al. 2019:574). The outcome may or may not be evaluated quantitatively (Hair et al. 2019:208).

4.7.5 Design of research instruments

The choice of specific, or multiple, research instruments is often contingent on the research objective, the research questions, the design, and the strategy. For example, this study was designed using an explanatory, sequential mixed method approach, and the data was collected using the survey strategy. For the quantitative phase, self-administered questionnaires were used, while semi-structured interviews were used for collecting the qualitative data.

4.7.5.1 Questionnaire design

Consistent with the objectives and design of this research, a structured and closed-ended questionnaire was used to elicit the quantitative data. Specifically, the data was collected using a structured online questionnaire developed using Google Forms. Many studies have previously been conducted using digital technologies like Google Forms (Hanu, Amegbe, Yawson, and Mensah 2022; Dzandu, Hanu, and Amegbe 2022). The online questionnaire was used as a part of the Covid-19 preventative protocols. Additionally, the online structured questionnaire facilitated the collection of a large amount of data, faster, with ease, and at a very low cost, compared to the more traditional method of a paper questionnaire (Hair et al. 2019:204; Ball 2019:4). Using a questionnaire to collect data for this study was suitable, since questionnaires are also most useful in an explanatory approach (Saunders et al. 2019:505). Using the weblink questionnaire also made data collection and entry easy.

Two online questionnaires were designed. This was because the quantitative data were collected in two phases. Both questionnaires elicited the biographical profiles of the respondents, which were requested in the last section of the questions. As well as demographic profiles, the first questionnaire contained items on employee well-being; resilience; exploratory ambidexterity; and ability-enhancing practices. The second questionnaire included items on organisational resilience; opportunity-enhancing practices; exploitation ambidexterity; and motivation-enhancing practices. Ordering the items in this manner was necessary to prevent common method bias (see Section 4.9

for details). All the items were validated items drawn from the extant literature. The items measuring each construct have been used in measuring the variables in the research model in varying research contexts and were found to be valid. The specific number of items for each construct and their sources are described below. Examples of the contexts in which the items were used have also been stated. The details are also provided in Appendix A-1 of the thesis.

4.7.5.1.1 Measurements of high-performance work systems

The employees' perceptions of HPWS in their organisations were assessed, based on the dimensions of the AMO framework. This is consistent with the literature on which the concept of HPWS was grounded. Twenty-two items from Bhatti et al. (2020) were used to measure HPWS. They consisted of ability-enhancing practices (seven items), motivation-enhancing practices (six items), and opportunity-enhancing practices (nine items). Out of 22 items to assess HPWS, seven items were modified, and the rest remained as they were. The items were measured using a Likert scale, ranging from 'strongly disagree (1) to strongly agree (5)', where respondents were asked to indicate the extent of their agreement or disagreement. The summative Cronbach's alpha for the HPWS was 0.90. Researchers like Mat et al. (2021), Bhatti et al. (2020), Miao et al. (2021), and Shahzad et al. (2019) have also measured HPWS based on the dimensions of the AMO model.

4.7.5.1.2 Measurements of employee resilience

The measurements for employee resilience were sourced from Näswall et al. (2019:357). There were nine. The items were used as they had been constructed in the original version. None of the items were modified. Respondents were asked to indicate the extent to which they agreed or disagreed with the nine items measuring employee resilience on a five-point Likert scale, ranging from 'strongly agree (5) to strongly disagree (1)'. An example of an item is: "I effectively collaborate with others to handle challenges at work". The internal consistency was 0.905 (see Table 5.1). These items were also used in other studies (Cooke et al. 2019; Tonkin, Malinen, Näswall, and Kuntz 2018; Nguyen, Kuntz, Näswall, and Malinen 2016; Kuntz et al. 2016; Näswall et al. 2015).

4.7.5.1.3 Measurements of organisational resilience

Thirteen items, sourced from Lee et al. (2013:37), were used to measure organisational resilience. These items have also been used to measure organisational resilience in other contexts, such as SMEs (Heinze, 2022); high-tech industries (Liang and Cao 2021); tourism (Prayag, Spector, Orchiston, and Chowdhury 2020); and the critical infrastructure services sector (Brown, Seville, and Vargo 2017). In addition, five out of 13 items in the original version were modified to make them more meaningful and to achieve validity of the items. Finally, employees were asked to report their level of agreement or disagreement about their perception of the resilience of their organisations, which was rated on a five-point Likert scale ranging from 'strongly agree (5) to strongly disagree (1)'. The internal consistency (alpha) was 0.863. A sample item is: "My company builds strong and trusting relationships with other organisations we might have to work with when there is a crisis".

4.7.5.1.4 Measurements of employee ambidexterity

Employee ambidexterity has two dimensions: exploration activities and exploitation activities. Research has shown that both dimensions are distinct and measured separately (Mom et al. 2009:919, 922; Karani, Jayswal, Panda, and Trivedi 2021:841). The items on exploration and exploitative ambidexterity were adapted from Mom et al. (2007:38). The adaption was essential because the original items were designed to elicit data on managers' ambidexterity. The original items were also measured on a seven-point Likert scale ranging 'to a very large extent (7), to a very small extent (1)'. However, a five-point Likert scale of agreement was used in this study, ranging from 'strongly agree (5) to strongly disagree (1)'. The phrasing of questions about exploration and exploitation activities was modified to facilitate the use of 'level of agreement' on the Likert scale. For example, the original preamble to exploitation activities was: "*To what extent did you, last year, engage in work-related activities that can be characterised as follows …"* This has been modified to: "*Since last year, I have engaged in work-related activities that …".*

Data on employee exploitation ambidexterity was elicited using five (5) items. A sample item is: "Since last year, I have engaged in work-related activities that you can properly conduct by using your present knowledge"; and the Cronbach's alpha was 0.911. A further, six items were used to elicit data on exploratory ambidexterity. The

internal consistency was 0.904, and an example is: “Since last year, I have engaged in work-related activities that required that you adapt to changing situations”. These items have been used to measure individual ambidexterity in other research contexts.

4.7.5.1.5 Measurements of employee well-being

Diener, Wirtz, Tov, Kim-Prieto, Choi, Oishi, and Biswas-Diener’s (2010:154) eight-item measurement of employee well-being was modified and used to collect data on overall employee well-being for this study. The Diener et al. (2010) scale is broad and “includes items relevant to basic human needs for competence, relatedness, self-acceptance, purpose, and optimism” (Fisher 2014:16). The Diener scale of overall well-being also integrates elements of core self-evaluations, psychological capital, and engagement, social wellbeing and prosocial impact (Fisher 2014:16; 2010:154). Only one out of the eight items modified in Fisher’s version (2014:16) was modified further. Thus, the initial version: “I am *competent and capable* in the work activities that are important to me”, was revised to read: “I am *competent* in the work activities that are important to me.” All other items remained the same as in the original version. The respondents were asked to indicate the extent to which they agreed or disagreed with the items on a five-point Likert scale, ranging from ‘strongly agree (5) to strongly disagree (1)’. Cronbach’s alpha was 0.924 and a sample item is: “My work life is purposeful and meaningful.” These items have also been used to measure employee well-being in other contexts.

It is important to indicate that, even though the items used in this study to measure the constructs were developed and used mostly in the Western contexts, they are adaptable and universally applicable in other contexts. In this particular study, the items were modified and adapted to fit the context of the pharmaceutical industry in an emerging economy, Ghana, and were therefore posed to measure the variables in the research framework.

4.7.5.2 Piloting the questionnaire

Scholars have advised that questionnaires should be pilot tested with respondents who are similar to the actual, intended respondents (Saunders et al. 2019:540). Although validated items were used for the study, the items were pre-tested and some of the items modified. The pre-test was conducted using a sample of 12 respondents from a

petrochemical organisation in Takoradi, the capital city of the Western Region of Ghana. The 12 participants were randomly selected from a targeted sample frame of 32 who had obtained a Higher National Diploma certificate.

While the products and specific processes in the petrochemical and pharmaceutical industries differ significantly, they share common characteristics and challenges related to regulation, technology, safety, human resources, and economic impact. Hence, given these similarities and the fact that the constructs being measured (HPWS, employee resilience, and organizational resilience) are generic and applicable across different industries, the researcher assumed that employees' understanding and interpretation of the questionnaire items would not significantly differ between the petrochemical and pharmaceutical industries. Additionally, researcher had established a good working relationship with the petrochemical organization, and they were willing to cooperate in the research process. Accessing and engaging with employees in this organization was more convenient, ensuring smoother logistics and data collection.

During the first phase of the pre-test, a hard copy of the questionnaire was personally administered to the respondents. They were asked to read the items without answering them, but also to put an asterisk against any item they did not understand. These items were then discussed in focus-group discussions and modified accordingly. For example, an initial validated item read: “When new employees are hired, it is a must that they go through an extensive hiring process”. This was modified to: “When new employees are being hired, they must go through an extensive hiring process”. Similarly, the initial item: “The results of the performance appraisals are used to determine my training needs”, was modified to: “The results of performance appraisals are used to determine my training needs”. The corrections were implemented on the Google form and the web link shared with the respondents on their WhatsApp pages. It took an average of 15 minutes for the respondents to completely answer the questionnaire.

It is important to note that the modifications were minor and did not significantly affect the intended meaning of the items. Also, the pilot study ensured that the adapted validated items from previous seminal studies were understandable and devoid of ambiguity and errors (de Leeuw, Hox, and Dillman 2008:176). The aim was to ensure that the instrument’s content was valid so that the intended respondents would not

experience challenges in responding to the questionnaire (Saunders et al. 2019:540). In addition, the pilot test assessed the probable reliability of the data for each construct, based on the pre-test generated data (Saunders et al. 2019:540). Hence, while the pilot test was performed on employees in a petrochemical organization, the adaptations and modifications made to the questionnaire items aimed to ensure clarity and understandability, which are relevant considerations regardless of the industry. The findings and insights gained from the pilot test were extrapolated to the pharmaceutical industry with reasonable confidence, assuming that the constructs being measured are relevant and applicable across both sectors (Rothgeb, Willis, and Forsyth 2007:7). Finally, the result of the pre-test was excluded from the main dataset.

4.7.5.3 Choice and design of the qualitative instrument

In following an explanatory sequential mixed method, an in-depth interview guide was used to generate qualitative data, which sought to explain the relationships in the quantitative data. The interview questions were based on items measuring the exogenous and endogenous variables in the research model. The interview guide was designed to elucidate the differential predictive power of HPWS, employee resilience, and employee ambidexterity, on organisational resilience; and the predictive role of organisational resilience on employee well-being. The interview guide for the sampled HR managers and the operative employees involved 14 questions based on employee resilience, individual ambidexterity, and employee well-being (see Appendix A-2). The three items used for assessing HPWS were adapted from Bhatti et al. (2020). The items covered ability-motivation-opportunity-enhancing practices. Employee resilience was also assessed with three items adapted from Näswall et al. (2019:357), while organisational resilience was evaluated with four items adapted from Lee et al. (2013:37). Both employee exploitation and exploration ambidexterity were assessed with two items sourced from Mom et al. (2007:38). Finally, employee well-being was evaluated with three items adapted from Diener et al. (2010:154).

4.7.5.4 Piloting the interview guide

The employee interview guide was pre-tested with two respondents who took part in the initial quantitative survey. In addition, pre-test interviews were also conducted with two HR managers. The interview protocols were sent to the respondents a day prior to conducting the interview. The first pre-test interview was conducted with the employee,

while the interview with the HR managers was conducted the next day. The pre-test interview focused on ensuring that the items were concise and meaningful in explaining the statistical outcome of the quantitative survey. The outcomes of the pre-test were excluded from the main interview.

4.8 Procedure for data collection

Eliciting data from the target population or the sample is critical in conducting research. Data collection describes the process of gathering data from units of analysis for the research. Generally, data is gathered from primary sources and/or secondary sources. Sekaran and Bougie (2016:37, 38) described primary data as data that the researcher gathers firsthand for the specific purpose of the study. Secondary data comprises data that others have collected for a purpose other than the purpose of the current study. Primary data are generated using instruments such as experiments; interviews; questionnaires; and observation; while secondary data are obtained from sources like bulletins; government publications; published or unpublished information available from either within or outside the organisation' company websites; and the Internet (Sekaran and Bougie 2016:37). Drawing on the objectives and design of this research, only primary data, obtained through questionnaires and interviews, was used.

4.8.1 Method of quantitative data collection

As indicated under Section 4.6.5.1, the survey was conducted by administering two questionnaires to the respondents. The first questionnaire concerned demographic profiles; employee well-being; employee resilience; exploratory ambidexterity; and ability-enhancing practices. The second questionnaire was concerned with biographical variables and items on organisational resilience; opportunity-enhancing practices; exploitation ambidexterity; and motivation-enhancing practices.

Before administering the first questionnaire in the survey, gatekeeper's permission was obtained from the Pharmaceutical Manufacturers Association of Ghana (see Appendix D-1). The gatekeeper permission confirmed that the researcher had been granted permission to collect primary data from the members of PMAG. Having obtained the gatekeeper's permission, the researcher, courtesy of the Secretary to the PMAG, contacted the HR managers to discuss the instrument and the constructs to be measured. Since the questionnaire was an online questionnaire, permission was sought to use the

official WhatsApp platforms of the respective companies to administer the questionnaire. In each firm, the hyperlink for the questionnaire was given to an HR officer, who was purposively assigned to administer the web link on the company's official WhatsApp platform for the respondents to access. Thus, the respondents could access the web questionnaire on their smartphones or tablets. As discussed with the HR managers, the HR officers were selected based on their history of undertaking dissertations in an institution of higher learning.

In order to take an indirect, yet active part in the administration of the questionnaire, the researcher also took the phone numbers of the HR officers who were responsible for sharing the web link and periodically reminded them, in phone calls and WhatsApp messages, to encourage their colleagues to participate in the survey. The researcher kept on updating the HR managers about the number of completed questionnaires received on weekly basis in order to encourage the HR officers to keep on pushing for the data. The first round of data collection took four weeks and the weblink was closed to receiving responses after monitoring to ensure that the data received statisfied the minimum sample anticipated. The web link for the second round of data collection was sent four weeks after the closure of phase one. The data collection of the second phase followed the same sampling process as the first phase. The responses to the second set of questions rather took longer. At a point, and since the response rate was slow, the researcher suggested to the HR officers that they administer the questionnaire on the personal WhatsApp pages of their colleagues. After monitoring and reporting to the HR officer, the second phase closed after six weeks.

When administering both surveys, the introduction page of the questionnaire requested respondents to generate and enter a five-digit code to indicate that they had read and agreed to take part in the survey. The respondents were also duly informed to keep the code since they would use it in the second round of data collection. Thus, the five-digit code was a requirement to access the rest of the items. This meant that a potential respondent could not access the questionnaire without a digital consent code. The purpose of the digital consent code was to facilitate the merging of both datasets. There are numerous examples in the literature of scholars using the same, or a similar, approach in collecting data (Greenbaum, Mawritz, and Eissa 2012:1192; Lai, Lin, Lu, and Chen 2021:434). For instance, Greenbaum et al. (2012) used similar approach to

gather multisource empirical data from myriad organizations situated in the. United States to test their theoretical model. Similarly, Furthermore, Lai et al. (2021) used a similar technique to elict data in examing the role of the role of team–member exchange in proactive personality in two types of proactive behaviours. Finally, the cover note also clearly explained the project's purpose and invited the participants to participate in the survey.

4.8.2 Method of qualitative data collection

After collecting and analysing the quantitative data, personal interviews were conducted with six HR managers. All interviews were conducted face-to-face. During the first phase of quantitative data collection, the researcher booked appointments for interviews with six HR managers. The interview protocol was sent to the sampled HR managers through their emails five days prior to the interview being conducted.

The data collection sessions began with a brief interaction with the participants on general issues, primarily about Takoradi Technical University, and the Ph.D. journey with the Durban University of Technology. The purpose was to get the researcher and the interviewees 'settled' before commencing the interview. The participants were briefed about the purpose of the research and were free to withdraw from the interview at any time. They were also assured of anonymity and confidentiality of the information they provided. In Section 4.9 ethical issues are discussed and details of the ethical processes the researcher followed are provided. The data explaining the causal relationship between the related variables were systematically explored and collected by following the interview guide. With the respondents' agreement, the interviews were recorded using the researcher's mobile phone recorder. As well as the recording, notes were also taken during the interviews. The interviews with the HR managers were conducted in their offices. Four of the interviews with the employees were conducted in the conference rooms of their respective organisations; while two were conducted in the offices of their immediate supervisors. In all cases, there were no other persons present during the interviews and no disruptions occurred during the interview process.

Three interviews were conducted a day. Each interview lasted for about one hour and 15 minutes, on average. The data collected for each day were transcribed immediately after completion of the interviews for the day. The transcriptions of each day's

interviews took several hours. Hence, the remaining interviews were conducted every other day. Thus, it took four days to complete the interviews. Since there were only a few respondents, their transcribed notes were sent to them via WhatsApp to check that their responses were recorded correctly.

4.8.3 Controlling common method bias

Scholars have universally accepted that CMB is a phenomenon that can affect the rigour and integrity of research (Kock, Berbekova, and Assaf 2021; Jordan and Troth 2020; Spector, Rosen, Richardson, Williams, and Johnson. 2019; Fuller, Simmering, Atinc, Atinc, and Babin 2016). Common method bias (CMB) refers to the situation in survey responses where the respondent's answers to the independent and dependent variables are correlated. (Hair, Page, and Brunsveld 2020:293). When specific data shows the presence of CMB, the estimated relationship between a variable (e.g. HPWS) and another variable (e.g. employee resilience) might be overstated or might lead to measurement error (Podsakoff, MacKenzie, and Podsakoff 2012:540; Podsakoff, MacKenzie, Lee, and Podsakoff 2003:879). Hence, the outcome of the relationships between the constructs and other important indicators might result in either wrong estimates of the reliability and validity of the constructs in the research model, or incorrect parameter estimates about the magnitude and the significance of the relationships between variables (Spector et al. 2019:856; Malhotra, Schaller, and Patil 2017:195; Podsakoff MacKenzie, and Podsakoff 2012:540).

The literature on research methodology has identified the main causes of CMB (e.g., Kock, Berbekova Assaf, 2021; Schwarz, Rizzuto, Carraher-Wolverton, Roldán and Barrera-Barrera, 2017; Podsakoff et al., 2012; MacKenzie and Podsakoff, 2012). In a survey, CMB usually arises when all data on both exogenous and endogenous variables are collected from a single source using a common scaling approach or response method (Kock et al., 2021:1; Jordan and Troth, 2020:4; Fuller et al., 2016:2). Schwarz et al. (2017:94) explained that using "the same format for every question makes it easier for a respondent to fill out the survey and also enables respondents to focus upon the scale consistency rather than the individual items themselves". In addition, CMB occurs when respondents cannot provide correct answers and are unwilling to provide accurate responses (MacKenzie and Podsakoff 2012:544). A possible reason could be the wording of the items. When the wording of the items is either ambiguous or complex,

it can potentially undermine the accuracy of responses by causing respondents to edit and present their responses as socially acceptable, irrespective of their true feelings about an item or the topic (Kock et al. 2021:3; Schwarz et al. 2017:94; Podsakoff et al. 2012:552; Podsakoff et al. 2003:881).

This research was based on a self-reported cross-sectional survey. Thus, it was a single study, and the constructs were measured using a questionnaire with a standard and consistent scale. With this approach, there was the possibility that the relationships between the constructs that were tested could be distorted by the effects of common method variance (Spector et al. 2019:855). In this study, steps were taken to avoid the possibility of CMB (Jordan and Troth 2020; Fuller et al. 2016; MacKenzie and Podsakoff 2012; Podsakoff et al. 2003). The literature on CMB categorises the approaches to handling CMB into: ex-ante and post-hoc (Podsakoff et al. 2012; Viswanathan and Kayande 2012; Podsakoff et al. 2003). The ex-ante approach requires that the researcher take steps to prevent any potential for CMB when designing the research (Kock et al. 2021:3; Podsakoff et al. 2012:548). Success in applying the ex-ante steps would enable respondents to willingly and truthfully respond to the questionnaire (Rodríguez-Ardura and Meseguer-Artola 2020:1). The post-hoc approach uses statistical methods to detect and control method bias after using the procedural methods of control (Podsakoff et al. 2012:553). Researchers have provided diverse statistical tools for assessing CMB in the data generated from respondents. Examples of such statistical techniques (post-hoc approaches) and their features have been summarised and presented in Table 4. 3

Following the ex-ante approach, the questionnaire was pre-tested to ensure the items were concise, easy to understand, and that the items' wording reflected the respondents' context. This was done to eliminate or reduce ambiguity or misinterpretation of the items for each construct. The preamble for the items on ambidexterity was also shortened to make reading the items easy and meaningful for the respondents. The modified items have been specified in Section 4.6.5.2, while discussing the piloting of the questionnaire. In addition, the quantitative survey was conducted in two phases (refer to 4.7.1 for the details). In each phase, the items were arranged to separate the predictor variables from the measuring constructs. The items were also mixed across the constructs in each phase. This arrangement of the items was necessary to reduce the

time respondents spent in answering the questionnaire. Thus, the shorter the items, the more likely that respondents would respond to all items in the questionnaire. In addition, collecting data in phases made it difficult for respondents to predict any relationship between, or among, the constructs. Importantly, the respondents were assured of total anonymity and confidentiality of their responses. No item in the questionnaire could be attributed to any individual respondent. The respondents were also encouraged to provide their candid opinions, since no response was deemed right or wrong. This research is industry-specific. Hence, the respondents were informed that the results from the research would be shared with the PMAG. As Jordan and Troth (2020:7) noted, promising to provide respondent feedback about the research may motivate greater accuracy.

Table 4.3: Post-hoc statistical techniques to test for CMV

Techniques for testing CMV	Do they detect CMV?	Do they require knowing the potential sources of CMV?	Do they measure CMV and eliminate its effects?
Harman's single-factor test	Yes	No	No
Correlation matrix procedure	Yes	No	No
Directly measured latent factor method	Yes	Yes	Yes
Measured response style technique	Yes	Yes	Yes
Correlation-based marker technique	Yes	No	Yes
General factor covariate technique	Yes	No	Yes
CFA marker technique	Yes	No	Yes
Unmeasured latent method factor technique	Yes	No	Yes

Source: Rodríguez-Ardura1 and Antoni Meseguer-Artola (2020:4).

In following the post-hoc approach, Harman's single factor test (Harman, 1976) was used to assess the presence or absence of common method bias in this study. This approach was consistent with previous studies that have also used Harman's single factor test in determining the possibility of CMB in the data generated (Jabeen, Kaur, Talwar, Malodia, and Dhir 2022; Malik and Garg 2020; Shahzad et al. 2019; De Clercq and Pereira 2019; Escribá-Carda, Balbastre-Benavent, and Teresa Canet-Giner 2017).

4.9 Data analysis procedure

Both quantitative and qualitative data were collected for this study, according to the explanatory sequential mixed method. The procedure for converting the data into meaningful knowledge or information is discussed in this section. The procedure for quantitative analysis is first discussed, and this is followed by a description of how the qualitative data is analysed.

4.9.1 Quantitative data analysis procedure

There are two approaches to analyzing quantitative data: (1) using descriptive statistics to obtain an understanding of the data; or (2) testing hypotheses using statistical tests. There are various techniques or software available for analysing empirical data statistically. Examples of such tools are the Statistical Package for Social Science (SPSS); ADANCO; WarpPLS; and SmartPLS, among others. The tools employed in this dissertation were SPSS (version 27) and partial least squares structural equation modeling (Version 3.0), herein referred to as PLS-SEM. As indicated in Section 4.7.1, the quantitative data were collected in two ways from the same respondents. The first set, which involved demographic profiles; employee well-being; employee resilience; exploratory ambidexterity; and ability-enhancing practices, yielded 371 responses. The second set, which comprised biographical variables and items on organisational resilience; opportunity-enhancing practices; exploitation ambidexterity; and motivation-enhancing practices, yielded 342 responses. The digital consent codes were then used to match the responses in both waves. About 47 responses were initially removed from the dataset during the initial pre-data processing because of missing digital codes. It was observed that 38 respondents who took part in the first phase of the survey did not take part in the second phase. Similarly, nine respondents who took part in the second phase had not participated in the first phase of the survey. Given this background, 333 took part in both surveys, which represented the total responses received.

In a survey, some respondents may not respond to all the items in a questionnaire. In that case, the researcher needs to account for the missing data and check for validity, completeness, and consistency of the data (Hair et al. 2020:327). Hair, Hult, Ringle, and Sarstedt (2017:56) suggested that, if the percentage of missing data in a survey is more than 15% of the items in the questionnaire, those data must be excluded. To

achieve this objective, the preprocessing was done in the excel file to clean and account for the missing data. At the end of the accounting process, nine (9) incomplete responses were expunged from the data set. Thus, 324 valid responses constituted the dataset for the study, representing a 97.2% response rate. It is important to note that the final dataset exceeded the targeted sample size of 322 respondents. It is also important to note that the proposed sample size of 322 indicates the minimum number of responses required, and that the larger the sample size, the better the data is representative of the target population. The data for this study was generated through an online survey, hence is was possible for the responses to exceed the proposed sample size.

As indicated in Section 4.7.5.1, the responses to the items on the model constructs were precoded and anchored on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Hence, only the demographic data were coded during the data preprocessing, before exporting it to SPSS. In addition, SPSS (version 27) was also used for a descriptive analysis of the demographic profiles of the respondents. This was because the demographic data elicited in this research represented categorical data. Hence, descriptive statistics were deemed appropriate for the demographic data analysis, and the outcomes were presented in tables showing the frequencies and percentages.

The rest of the dataset was analysed using PLS-SEM. In recent decades, most business and social science scholars have used PLS-SEM to analyse multivariate data (Memon, Ramayah, Cheah, Ting, Chuah, and Cham 2021:1; Ringle, Sarstedt, Mitchell, and Gudergan 2020:1617) and complex inter-relationships between observed and latent variables (Sarstedt, Ringle, Cheah, Ting, Moisescu, and Radomir 2020:531). PLS-SEM was used because it is suitable for dealing with research questions with multiple latent and observed variables, emphasising the mediated effects of variables influencing dependent variables and meshed with data analysis for inferential purposes (Hair et al. 2018:5; Byrne, 2010). Using PLS-SEM also facilitates linking the theoretical model with the data collected to validate it (Dash and Paul 2021:2). The use of PLS-SEM for this study is also appropriate since the constructs in the study are many, the sample size is relatively small, and the intention of the study was to explore and predict the target constructs (Sarstedt et al. 2017; Sarstedt et al. 2020:531). The measurement model was

first analysed, and then the structural model was assessed by following the guidelines provided by Hair et al. (2018:4) and Hair et al. (2020:104, 106).

4.9.1.1 Assessment of measurement model

Measurement models show the relationships between constructs and their corresponding indicator variables (Hair et al. 2018). The essence is to ensure that the evaluation supports the quality of the measurement (Sarstedt, Ringle, and Hair 2021). In other words, the measurement model provides a means of assessing the quality of all variables in term of their reliability and validity (Hair et al. 2020:462). It is important to note that the items used to measure the constructs are reflective of the constructs, rather than being formative. This is critical, since it informed the criteria used to evaluate this study's measurement and structural models. According to Sarstedt et al. (2016), a measurement model is reflective when it is presumed that a latent variable will influence or affect the composite latent constructs. Thus, a change in the latent construct will be reflected in all of its indicators (Hair, Howard, and Nitzl 2020:104). The following steps were followed to establish the quality of the data.

Table 4.4 Quality criteria for reflective measurement models

Quality measures	Types	Threshold	Source
Indicator reliability		greater than 0.708	Sarstedt et al. 2021; Hair et al. 2018; Hair et al. 2020.
Internal consistency reliability	Cronbach's alpha (α)	0.708 ≥ 0.90	Sarstedt et al. 2021; Hair et al. 2018; Hair et al. 2020
	Composite reliability	equal to or greater than 0.70.	Hair et al. 2022; Hair et al. 2017b.
	Dijkstras' Rho_A	greater than .70	Dijkstra and Henseler 2015b.
Convergent validity		AVE ≥ 0.50	Sarstedt et al. 2021; Hair et al. 2020; Hair et al. 2017a.
Discriminant validity	cross-loadings	greater than 0.70	Hair et al. 2017b; Hamakhan and Taha 2020.
	Fornell and Larcker criterion	greater than 0.5	Fornell and Larcker 1981.
	HTMT criterion	less than 0.85 for distinct constructs	Henseler, Ringle, and Sarstedt 2015.
		less than 0.90 for similar constructs	
		less than 1.00	Henseler et al. 2015; Gaskin, Godfrey, and Vance 2018

Indicator reliability

The first step in evaluating the measurement model was to assess the indicator loadings of the items (Sarstedt et al. 2021: Hair et al. 2022:77) to test the inner validity and reliability of the model used in this study (Hamakhan and Taha 2020:15). The outer loadings show how each item contributes to measuring the latent variable. Each item measuring a construct was to meet a minimum outer-loading threshold of 0.708 (Hair, Risher, Sarstedt, and Ringle 2019a). In assessing the indicator values, the item loadings were tested repeatedly, based on a PLS algorithm run. The item loadings with the lowest indicators were deleted, and the item loadings were re-run. The process was repeated to assess the impact of the deleted items on the average variance extracted (AVE) and the composite reliability. At the completion of the process, the items that satisfied the conservative threshold of 0.708 were retained (Hair et al. 2019a). Table 4.1 shows the total items for each construct and the number of items removed from the loadings.

Section 5.1.2.1 in Chapter Five discusses the items that were retained, together with their loadings.

Table 4.5 Indicator loading

Construct	Total items	Number of items removed	Numbers of items retained
HPWS	22	16	6
Employee resilience	9	5	4
Organisational resilience	13	9	4
Exploitation ambidexterity	5	2	3
Exploration ambidexterity	6	2	4
Employee well-being	8	2	6

Source: Author (2022)

Internal consistency reliability

Reliability is the extent to which the repeated measurement of an object with the same instrument leads to the same result. Reliability describes "the consistency, stability, and repeatability of results" (Mohajan 2017:10) from the same research instrument. The reliability of the constructs was estimated by checking their internal consistency using Cronbach's alpha (α), Dijkstra and Henseler's (2015) proposed r A, and composite reliability (see Table 5.8 in Chapter 5) (Hair et al. 2020:104; Sarstedt et al. 2021:17-18). Testing the consistency of the results across items helped to determine whether the values of the items used to measure the constructs had similar scores and whether the correlations between them were large (Hair et al. 2020:104; Ghasemy, Teeroovengadum, Becker and Ringle 2020:1133).

Cronbach's alpha

Cronbach's alpha assumes equal indicator loadings and estimates reliability by considering how the observed items and associated construct intercorrelate (Hair et al. 2017). Since the items used to measure the constructs were validated from previous studies, the rule of thumb is that the reliability of the constructs based on Cronbach's

alpha should be at least 0.708 (Hair et al. 2018:8; Hair et al. 2020:104). The implication is that "loadings above 0.708 indicate the construct explains more than 50% of the indicator's variance, demonstrating that the indicator exhibits a satisfactory degree of item reliability" (Sarstedt et al. 2021:17). However, Cronbach's alpha values over 0.90 indicate that the individual items are measuring the same concept and are therefore redundant or undesirable (Hair et al. 2020:104).

Composite reliability

In addition to Cronbach's alpha, composite reliability was also used to assess the internal consistency reliability of the constructs. Composite reliability is another way of measuring internal consistency reliability, which, "unlike Cronbach's alpha, does not assume equal indicator loadings" (Hair et al. 2021:183). Researchers have suggested that, unlike Cronbach's alpha, which is unweighted, the composite reliability is weighted and a more precise way of assessing the construct reliability (Sarstedt et al. 2020:293; Hair et al. 2021:183). Like Cronbach's alpha, the composite reliability should also be equal to or greater than 0.70 to meet the reliability criteria. Since validated items were used to measure the constructs, higher values between 0.70 and 0.95 demonstrate satisfactory-to-good reliability levels (Hair et al. 2022:77; Hair et al. 2017b:112).

Dijkstras' rho_A

As well as using Cronbach's alpha and composite reliability in assessing construct reliability, Dijkstras' Rho_A was also used in evaluating the quality of the constructs. Although Cronbach's alpha is universally used to assess internal consistency reliability, it assumes that all indicator loadings are reliable. Also, in a reflective measurement using PLS-SEM, Cronbach's alpha is deemed the lower boundary, and composite reliability is considered the upper boundary of internal consistency reliability (Sarstedt, Ringle, and Hair 2020:17; Ghasemy et al. 2020:1133). Therefore, the exact construct reliability is somewhere between Cronbach's alpha and the composite reliability (Sarstedt et al. 2021:17). Hence, Rho_A is deemed a superior alternative to assessing internal consistency reliability (Dijkstra and Henseler 2015b). The rule of thumb is that the Rho_A should be equal to or greater than the recommended 0.70 threshold.

Convergent validity

Convergent validity determines the degree to which a measurement correlates with the scores of another construct representing the same concept (Cheah, Sarstedt, Ringle, Ramayah, and Ting 2018). In other words, convergent validity explains the extent to which each construct meets to explain the difference of its items (Hair et al. 2018:9). The implication is that an item may meet the reliability criteria but may fail to validly measure what it is intended to measure. Thus, that item, though reliable, is invalid. Hence, convergent validity is conducted to evaluate the validity of all items for each construct. This was established by calculating the average variance extracted (AVE) scores of the items measuring each construct, which is the extent to which a latent variable describes the variance of its indicators (Sarstedt, Ringle, and Hair 2021:18; Hair et al. 2018:9; Bryne 2010: 274). The convergent validity was assessed to ensure that the items, in reality, correlate (Bryne 2010:274). To calculate the AVE, the square root of the loading of each item on a construct and the mean values for each construct were computed (Sarstedt et al. 2021:18; Hair et al. 2018:9). The rule of thumb is that each construct should account for at least 50% of the assigned indicator's variance (AVE $\geq$ 0.50), which means that an AVE of 0.50 or higher indicates that, on average, the construct explains (more than) 50% of the variance of its items (Sarstedt et al. 2021:17; Hair et al. 2020:104; Hair et al. 2017a:138).

Discriminant validity

Discriminant validity indicates the degree to which measurements of different traits are unrelated (Alarcón, Sánchez, and De Olavide 2015:3), or "whether the two variables are distinct from each other" (Hu and Liden 2015:1110). Thus, discriminant validity explains the degree to which a construct is empirically and statistically separate, distinct, and does not highly correlate with constructs from which it is supposed to differ (Hair et al. 2018); or how distinctly the indicators represent only this single construct (Sarstedt et al. 2021:18). For example, discriminant validity is assessed to ensure that the variables in the model, such as employee resilience and organisational resilience, are distinct and do not correlate. Likewise, discriminant validity will confirm whether exploitation and exploration activities are separate. Discriminant validity assessment is a generally accepted criterion for evaluating relationships between latent variables (Henseler, Ringle, and Sarstedt 2015:115) to ensure that the latent variables which measure the causal relationships in the research model are distinct (Ab Hamid, Sami,

and Sidek 2017). As a variance-based structural equation model, partial least squares was the tool for the quantitative analysis, the cross loading, the Fornell-Larcker criterion, and the heterotrait-monotrait ratio (HTMT), to assess the discriminant validity of the constructs in this study.

The Fornell-Larcker criterion

The Fornell-Larcker criterion is one of the ways of assessing discriminant validity. The Fornell-Larcker criterion was evaluated by comparing the square root of the AVE value of each construct in the research framework with other latent variable correlations (Fornell and Larcker 1981). This means that the items in the model "share more variance with their intended underlying construct than the construct shares with another construct" (Franke and Sarstedt 2019:434). Assessing the Fornell–Larcker criterion enables a researcher to evaluate the extent to which the constructs are empirically distinct by ascertaining how each indicator loads highest on the construct it was associated with (Henseler et al. 2015: 115). The implication is that the AVE square root of each construct should exceed the correlation value with other constructs (Henseler et al. 2015: 115). Although some scholars have questioned the strength and universal application of the Fornell-Larcker criterion in determining discriminant validity (Henseler et al. 2015:129), some recent studies have applied it as a test of discriminant validity (Wongleedee 2020; Donate, Ruiz-Monterrubio, Sánchez de Pablo, and Peña 2020; Alatailat et al., 2019). Fornell and Larcker (1981) recommended that the square root of the AVE for each construct should be greater than 0.5 in its correlations with other constructs. The results from the Fornell-Larcker criterion analysis for this study are presented in Table 5.10 in Chapter 5.

Heterotrait-monotrait ratio

Henseler et al. (2015:115) argued that the heterotrait-monotrait ratio (HTMT), which is "the mean value of the item correlations across constructs relative to the (geometric) mean of the average correlations for the items measuring the same construct" (Sarstedt et al. 2021:17; Hair et al. 2018:9), is a more robust and superior measurement of discriminant validity. Hence, in addition to Fornell and Larcker criterion, HTMT was used to assess the discriminant validity by following the procedure and guidelines of Henseler et al. (2015:129,130). The most widely-used conservative rule is that the HTMT value should be less than 0.85 for conceptually distinct constructs and less than

0.90 for conceptually similar constructs (Henseler et al. 2015:123). Thus, discriminant validity is not present when an HTMT value exceeds 0.90. Nonetheless, when constructs are conceptually more divergent, a lower and more conservative threshold value of 0.85 is suggested (Henseler et al. 2015). In addition, Henseler et al. (2015:121) and Gaskin et al. (2018:68) indicate that the HTMT ratio must be less than 1.00.

Cross-loadings

Cross-loading is another means of verifying whether constructs in the research model are statistically separate and distinct and validly measure what they are expected to measure. In evaluating the cross-loadings, the factor loading indicators of items of a construct are assessed to ensure that they are greater than all loadings of other constructs and also satisfy the minimum threshold hold of 0.70 (Hamakhan and Taha 2020:15).

Goodness-of-fit indices

A significant element of structural equation modeling (SEM) is the evaluation of the fit of the estimated model to the data (Corrêa Ferraz, Maydeu-Olivares, and Shi 2022:1). 'Fit' refers to a model's capacity to replicate the data (Kenny 2015). Assessing model fit is a preliminary phase and a prerequisite for interpreting the causal paths of the structural model of PLS-SEM (Henseler et al. 2016; Kenny 2015). If the model fails to fit the data, it implies that the data contain more information than the model conveys and the estimates obtained may be meaningless (Henseler 2017:368). The goodness-of-fit test is used to evaluate whether sample data are consistent with the data and hypotheses distribution (Kenny 2015). The SEM literature has recorded many indices for evaluating the size of a model's misfit (Shi and Maydeu-Olivares 2020; Alavi et al. 2020; Hu and Bentler 1999; Bentler and Bonett 1980). Fit indices can be assessed, based on conventional thresholds or using hypothesis testing to determine acceptable model fit (Costa and Sarmento, 2019). The default model fit measurements offered in SmartPLS were used to evaluate the model's fitness for the study (Ringle et al., 2015). The default model fit indices are: a standardized root mean squared residual (SRMR); an unweighted least squares discrepancy (d_ULS); a geodesic discrepancy (d_G); Chi-Square; and normed fit index (NFI). The fit measurements are explained below and their level of acceptance is summarised in Table 4.6. However, researchers should be cautious with the interpretations of fit indices outcomes based on PLS-SEM, since some

researchers have questioned their use as a criterion for determining goodness-of-fit (Ringle et al. 2015; Hair et al. 2017:194).

Standardised root mean square residual

The standardised root mean square residual (SRMR) has been defined as the difference between the observed correlation and the model-implied correlation matrix. The SRMR is computed by dividing the fitted residuals by the residual standard error. The fit values range from 0 to 1 (Shi and Maydeu-Olivares 2020; Hu and Bentler 1999). According to Hu and Bentler (1999), an SMRS value lower than 0.10 or 0.08 is considered a good fit. Alternatively, a threshold value of 0.05 or less is acceptable (Shi and Maydeu-Olivares 2020). Recent literature suggests that SRMR is an absolute measurement of a model fit and a value of zero indicates perfect fit (Jony and Serradell-López 2020:15). An advantage of using SRMR over RMSEA is that its value can be substantively interpreted (Shi, Maydeu-Olivares, and DiStefano 2018:671).

Exact model fit

The exact fit measures the statistical inference of the difference between the empirical covariance matrix and the covariance matrix implied by the composite factor model. The two ways to test the exact model fit or to compute the discrepancy are the squared Euclidean distance (d_ULS) and the geodesic distance (d_G) (Dijkstra and Henseler 2015:20). Thus, the discrepancy is expressed in terms of distances (Jony and Serradell-López 2020:16). d_ULS and d_G were tested by following the Bollen-Stine bootstrapping procedure to run a complete bootstrap with 4999 subsamples at 95 (HI95) and 99 (HI99) percentiles, which is the most-accepted standard and provided the confidence intervals of these discrepancy values (Benitez-Amado, Henseler, and Castillo 2017:6; Henseler et al. 2016). The original value of the exact d_ULS and d_G fit criteria is then compared with the confidence interval created from the sampling distribution. Hence, the upper boundary (95% or 99%) of the confidence interval should be larger than the original value of the exact d_ULS and d_G fit criteria to indicate that the model has a good fit. In other words, the research model is acceptable or accurate if the discrepancies are below the 95%-quantile (HI95) or 99%-quantile (HI99) of the bootstrap discrepancies (HI95) (Benitez-Amado, Henseler, and Castillo 2017:6; Henseler et al. 2016). The outcomes of the exact fit analysis are shown in Section 5.1.3.5 in Chapter Five.

Normed fit index

The normed fit index (NFI) is defined as one minus (1-) the proposed model's chi-square value divided by the null model's chi-square values (Bentler and Bonett, 1980; Jony and Serradell-López 2020:15). Thus, the NFI assessed the model fit by comparing the chi-square value of the model and the same null model (Bentler and Bonett 1980). NFI values range between 0 and 1. The closer NFI values are to 1, the better the model the fit (Jony and Serradell-López 2020:15). NFI values above 0.9 usually indicate an acceptable fit, and those closer to 1 indicate a better model fit (Jony and Serradell-López 2020:15; Bentler and Bonett 1980). Lohmöller (1989) provides detailed information on the NFI computation of PLS path models.

Chi-square

Chi-square is used to assess the entire model fit (Dash and Paul 2021:2). Chi-square is used to evaluate the discrepancy between the sample and the matrices of covariance fitted in the model (Dash and Paul 2021:2) It is usually considered as the badness-of-fit measurement, with a not-so-significant value of 0.05 (Kline, 2015). The main problem is that the value increases with the sample size and the number of indicators. Hence, other fit indices must be considered before deciding (Shi and Maydeu-Olivares, 2020; Mueller and Hancock, 2018). Chi-square upon the degree of freedom gives a clear picture. A CMIN/df value of 3 (in some cases, even up to 5), or less, is considered a good model-fit measurement.

The root mean square residual covariance

The root mean square residual covariance (RMS_theta) is a measurement of the degree to which the outer model residual correlates (Lohmöller 1989; Ringle, Wende, and Becker 2022). It represents the variances between predicted indicator values and the observed indicator values (Ringle et al. 2022). For RMS_theta to represent a good fit, Ringle et al. (2022) suggested that the value should close to zero. More specifically, Henseler et al. (2014:203) recommend that the RMS_theta estimates lie between 0.12 and 0.14; or they should be below 0.14.

Table 4.6 Model fit indices thresholds

Model fit indices		Rule of thumb	Source
Standardized root mean squared residual		0.00 < SRMR < 0.10	Hu and Bentler, 1995; Hu and Bentler, 1998; Hu and Bentler, 1999; Jony and Serradell-López 2020:15
Normed fit index		0 ≥ 0.10	Ringle et al. 2015; Henseler et al. 2014; Bentler and Bonett 1980
Exact fit	d-ULS	below HI95 or HI99	Dijkstra and Henseler 2015; Benitez-Amado et al. 2017:6; Henseler et al. 2016
	d-G		
RMS_theta		RMS_theta < 0.14	Henseler et al. 2014; Ringle et al., 2015

4.9.1.2 Evaluation of the structural model

After analysing the measurement model to establish the quality of the constructs, the next phase assessed the structural model. The structural model assessment dealt with the relationships between the latent variables (Sarstedt et al. 2021). At this stage, the proposed hypotheses were tested to ascertain the standardised path coefficients and statistical significance. The structural model evaluation was done following the new procedure suggested by Hair et al. (2020), as shown in Table 4.7 below:

Table 4.7 Steps in structural model assessment

1.	**Evaluate structural model collinearity**
2.	Examine size and significance of path coefficients
3.	R^2 of endogenous variables (in-sample prediction)
4.	f^2 effect size (in-sample prediction)
5.	predictive relevance Q^2 (primarily in-sample prediction)

Adapted from Hair et al. (2020:106)

Collinearity

The first structural assessment was to test for potential collinearity. Collinearity is said to occur when the correlations between variables are high. Hence, the multi-collinearity assessment was necessary to ensure that collinearity was not a problem in this study. In assessing collinearity, the variance inflation factor (VIF) values were assessed to determine the collinearity issues in the predictor constructs, or the exogenous constructs

(cf. HPWS, employee resilience, and individual ambidexterity). If the VIF values are less than five (5), it would mean that collinearity was not a matter of concern for this study (Hair et al. 2019a).

Significance and relevance of the path coefficients

Since multi-collinearity was not a challenge in the initial assessment, the strength and significance of the path coefficients were evaluated to examine the relationships between the hypothesised constructs (Sarstedt et al., 2021:22). Computing the path coefficients would indicate, for example, how HPWS relates to individual ambidexterity, or if the relationship between HPWS and employee resilience is positive and significant. To determine whether the relationships between the constructs are significant or not, the bootstrapping procedure was applied. This is a resampling approach that draws random samples from the data to calculate the sample mean, the standard deviation, T-statistics, and p-values of path coefficients (Sarstedt et al. 2021:22; Taha and Hamakhan 2020:20). Thus, "bootstrapping consists of drawing repeated samples with replacements from the parent sample; the parameter of interest is then estimated for each bootstrap sample and the empirical distribution of each parameter's bootstrap estimates may be used for statistical inference" (Corrêa Ferraz et al. 2022:3). As a rule of thumb, the path coefficients are standardised values that may range from +1 to −1, demonstrating a strong positive or negative relationship that is statistically significant (Sarstedt et al. 2021:22; Hair et al. 2020:107). Again, the T-statistics, measured at 5% PLS confidence level, must be above 1.96 for empirical t-value (Sarstedt et al., 2021:22; Hamakhan and Taha, 2020:20; Hair et al. 2020:107).

Coefficient of determination

The R^2, which is also referred to as the coefficient of determination, or as in-sample prediction, was used to measure the predictive power of the research model. The R^2 measures in-sample prediction of all endogenous constructs (Hair et al. 2020:107) and represents the combined effects of all the linked exogenous constructs on the endogenous construct (Jony and Serradell-López 2020:13). For example, the coefficient of determination was used to ascertain the extent to which HPWS, employee resilience, and employee ambidexterity predict organisational resilience. The R^2 is calculated as the squared correlation between a specific endogenous construct's actual and predicted values (Hair et al. 2017a:209; Ghasemy et al. 2020:1137). Explained

differently, R^2 shows the amount of variance in the endogenous constructs explained by all the exogenous constructs directly and indirectly linked to it (Ghasemy et al. 2020:1137). The conservative rule of thumb is that the R^2 value must be between 0 and 1, with the larger values reflecting higher levels of predictive accuracy (Hair et al. 2021:118; Ghasemy et al. 2020:1137). R^2 values of 0.75, 0.50, and 0.25 are, respectively, interpreted as substantial, moderate, and weak (Hair et al. 2021:118; Hamakhan and Taha 2020:17). However, R^2 values of 0.90 and higher indicate overfit (Hair et al. 2019b:15).

Evaluating the f^2 effect sizes

In addition to the R^2, the effect size of the structural model was also ascertained. The effect size determines the predictive ability of each independent construct in the model (Hair et al. 2020:107). The f^2 was calculated by following the procedure Hair et al. (2020:107) proposed. Thus:

a. Each predictor construct was systematically removed from the model.
b. A new R^2 was calculated without the predictor.
c. The R^2 with the predictor in the model was compared to the R^2 without the predictor in the model.
d. The difference in the two R^2 values indicates whether the omitted construct is a meaningful predictor of the dependent construct.

In interpreting the outcomes, f^2 values of 0.02, 0.15, and 0.35 represent small, medium, and large effects, respectively, of an independent variable (Hamakhan and Taha 2020:17). Thus, an effect size value of less than 0.02 means that there is no effect (Sarstedt et al. 2021:24). An alternative is to adopt Kenny's (2015) standard, with recommended f^2 values of 0.005, 0.01, and 0.025. This study followed the procedure suggested by Kenny since it uses more realistic standards for small, medium, and large effect sizes in these evaluations (Hair et al. 2018).

Predictive relevance Q^2 (primarily in-sample prediction)

Another approach which assessed the predictive relevance of the model was through blindfolding, or the Q^2 value (Hair et al. 2017b). The Q^2 value was computed by following the blindfolding procedure and function using the endogenous constructs (Hair et al. 2017a:212). The blindfolding procedure was used to examine the Q^2 value

which Stone (1974) and Geisser (1974) proposed as a criterion of predictive relevance. As a rule of thumb, Q^2 values should exceed zero to confirm the predictive relevance of the model (Ghasemy et al. 2020:1137). For example, Q^2 values greater than 0.25 and 0.50 represent the PLS-SEM model's medium and large predictive relevance (Hair et al. 2020:107).

4.9.2 Qualitative data analysis procedure

As indicated in Section 4.3.3, the purpose of the qualitative data in an explanatory sequential mixed-method design is to explain the results from the quantitative data. Thus, this second phase explains how the qualitative data was analyzed, as a follow-up, to explain the statistical results of the study. The essence of the qualitative phase is to understand why HPWS relates significantly to employee resilience, organizational resilience, and employee exploitation ambidexterity; and why organizational resilience relates positively with employee well-being. The qualitative analysis will also explain HPWS and employee exploration ambidexterity outcomes within the Pharmaceutical Manufacturers Association of Ghana. In general, qualitative data analysis involves "a systematic process of coding, categorizing, and interpreting data to provide an explanation of a single phenomenon of interest" (McMillan and Schumacher 2010:367). Thus, qualitative data analysis follows the following steps: compiling; disassembling; reassembling; interpreting; and concluding (Alam 2021; Austin and Sutton 2014).

The literature provides alternative ways of analyzing qualitative data. These include grounded theory; thematic analysis; content analysis; and data matrices (Urquhart 2022; Braun and Clarke 2020; Selvi 2019). This study used thematic analysis, which emphasises the importance of researcher subjectivity as an analytic resource, and the researcher's corresponding engagement with theory, data and interpretation (Braun and Clarke 2020:334; Braun and Clarke 2019a). Contextually, a theme is "an abstract entity that brings meaning and identity to a recurrent experience and its various manifestations, and captures and unifies the nature or basis of the experience into a meaningful whole" (DeSantis and Ugarriza 2000:363). Thematic analysis, therefore, describes the process of identifying, analysing and reporting patterns within data" (Braun and Clarke 2006:79). Thematic analysis is "an umbrella term, designating

sometimes quite different approaches aimed at identifying patterns across qualitative datasets" (Braun, Clarke, Hayfield, and Terry 2019:845).

Thematic analysis was used for the analysis because it facilitates analysis of the data within specific themes based on the meanings attributed to the themes (Danquah, Acheampong, and Adjei-Kumi 2021:1026; Braun et al. 2019:845) and enables analysis of words and statements in a precise, comprehensive manner while allowing flexibility to precisely identify patterns within word-based data (Mansor and Sheau-Ting 2020:6). Thematic analysis is used within the positivist/quantitative and qualitative paradigms (Braun and Clarke, 2020:330). Using thematic analysis is a good fit for this study since the purpose of the analysis is to provide explanatory insight and understanding of the quantitative outcomes of this study.

One of the quality criteria for evaluating thematic analysis is to determine whether the theoretical underpinnings for using thematic analysis have been clearly specified (Braun and Clarke 2020:332, 346; Braun et al. 2019:845). The literature revealed two main theoretical underpinning of thematic analysis: the deductive approach and the inductive approach. For example, a researcher who uses a deductive approach seeks to produce codes relating to a pre-specified conceptual framework, theoretical constructs or codebook (Byrne 2021:1397; Braun and Clarke 2020:332, 334). By contrast, a researcher who adopts an inductive approach wants to generate codes that reflect data content, devoid of any pre-conceived theory or conceptual framework (Byrne 2021:1397; Braun and Clarke 2020:334). In this study, the deductive approach to thematic analysis was used to interpret the data, which means that the data would be explored for evidence of themes relating to the quantitative outcomes of the study (Braun and Clarke 2020:333).

Another important decision to make is whether the researcher should identify the themes at the semantic level or at the latent level during the coding process. Coding at the semantic level means that the researcher just codes explicitly what the participant says, without exploring its implied meaning. Thus, the researcher presents the content of the information as communicated and does not look beyond what a participant has said or written (Byrne 2021:1397). However, with latent coding, the researcher tries to explore implicit "meanings or underlying assumptions, ideas, or ideologies that may

shape or inform the descriptive or semantic content of the data" (Byrne 2021:1397). Latent coding is mostly interpretive. The current study employs both semantic and latent coding to interpret semantic codes and interpret latent codes, where necessary.

Braun and Clarke (2020:332, 2006:84) have proposed a six-phase process for data engagement, coding, and developing themes. It is worth noting that the six-phase approach is not intended to be followed rigidly, since some phases can merge as the analytic process becomes increasingly recursive (Braun and Clarke 2020:332). The thematic data analysis process involves:

i. Data familiarization and writing familiarization notes: This step involves reading the complete dataset, over and over again, to gain a very good grasp of its content. To achieve this objective, the recorded information for each day was first listened to. This step allowed the researcher to refresh his memory about the interview sessions, be conversant with the content of the data, and obtain a general idea of the explanation, accuracy, data depths, and the actual meaning of the responses (Alam 2021:12). Thereafter, the recordings were played again and manually transcribed, verbatim, into word documents under each construct, which resulted in about 28 pages. Each transcript was read through at least three times, along with listening to the interview recordings, to ensure that the transcripts reflected the recording, which further facilitated a deeper contextual understanding of the data (Byrne 2021:1390).

ii. Systematic coding of data: The next step was to create codes by labeling and generating categories for sections of data in the dataset. Researchers such as Basit (2003:152) have observed that qualitative data are textual, non-numerical, and unstructured, and coding helps to organize and make them meaningful. A code is "a meaningful word or phrase which represents and conveys the messages and meanings of participant words" (Allsop, Chelladurai, Kimball, Marks, and Hendricks 2022:143). Thus, coding refers to the process by which the researcher analyses the interview data and turns it into usable form by identifying words, concepts, ideas, or sentences that have some link with one other to facilitate the explanation of the data outcomes (Austin and Sutton 2014:437). Coding facilitates data reduction, condensation, distillation, grouping and classification" (Basit 2003:152; Morgan and Nica 2020:1).

The coding, in other words the thematic analysis, was done using a conventional computer-assisted qualitative data analysis software known as NUD*IST Vivo (Nvivo 14 Pro for Windows provided by DUT). Many researchers have used Nvivo for data analysis in qualitative research (Malik, Budhwar and Kazmi 2022; Soeswoyo and Dewantara 2022; Dalkin, Forster, Hodgson, Lhussier, and Carr 2021; Lee 2021). Nvivo makes the categorization of data flexible. It saves time and effort, and also improves the quality and reliability of the data outcomes compared to manual data analysis (Alam 2021:14). Using Nvivo makes the data analysis more methodical and thorough, and it also helps to guarantee rigour in the analysis process (Jackson and Bazeley 2019:3). The software also facilitates effective coding and addresses threats of validity (Siccama and Penna 2008:91).

To create the codes, the interview transcripts, which were in Word format, were first imported into Nvivo. Each set of transcripts (HPWS; employee resilience; employee ambidexterity; organizational resilience; and employee well-being) was imported separately. Nodes were then created, based on the constructs in the research model (parent nodes) and the dimensions of HPWS and employee ambidexterity (child nodes). Thus, the nodes were pre-determined and deductively created. The datasets from the interviews were placed under their respective nodes. Then the thematic text segments were highlighted, right-clicked, and coded at an existing node or a new node (Swygart-Hobaugh 2019:4), where text segments that were related were categorized, which facilitated the tracking patterns and ideas that developed into themes. Thus, text segments that were relevant in addressing each research question were identified and coded (Byrne 2021:1390). For example, double-clicking on a node, such as ability or motivation, allowed the researcher to access the imported transcripts on ability or motivation. Then the corresponding text segments in the transcripts were coded from the respective data file for each nodes.

iii. Generating initial themes from coded and collated data: After the coding was created, the text segments that were identical were grouped and categorized based on the research questions. Thus, this stage facilitated organizing the codes into categories and themes. Subsequently, queries were run in Nvivo to determine the

frequency of relevant words that emerged throughout the interview under each node. The results of the word frequency count helped to ascertain possible concept-indicator connections (Swygart-Hobaugh 2019:6). The codes and key words provide information for identifying the codes that are revealed in common patterns in each dataset, or are relevant to developing themes and sub-themes (Byrne 2021:1403; Alam 2021:13; Braun and Clarke 2020:330). Examples of the word clouds are shown in Figures 5.8 and 5.9.

iv. Developing and reviewing themes: After establishing the initial pattern and how the codes meaningfully explain the research questions, the themes were assessed, based on how well they provided the most suitable explanation of the data in relation to the research questions or the statistical outcomes (Byrne 2021:1403). Each theme was reviewed by reassessing how the data items related and provided information for developing each theme, to form the basis for explaining the quantitative outcomes from the first phase of the study.

v. Refining, defining and naming themes: The themes were again reviewed at this stage. Going through the process of refining the themes ensured that the codes were appropriately allocated to relevant themes, after which the themes were generated and given appropriate names.

vi. Writing the report: After developing meaningful themes from the data, the researcher needed to communicate the results of the analysis. Following the suggestions of Braun and Clarke (2006:93), the results were concisely and logically reported and supported with sufficient evidence or extracts from the interview data to validate the essence of the themes. Since the interview guide was also structured, the research considered it appropriate to base the analysis on quantified responses to understand the number of participants who followed a particular thematic pattern, and from which extracts can be drawn as evidence. The interpretation of the results was reported to correspond with the research objectives.

4.9.3 Qualitative data trustworthiness

The trustworthiness of the qualitative data in this study is ensured through various strategies, ultimately enhancing the credibility, dependability, transferability, and confirmability of the findings (Korstjens and Moser 2018: 122; Lincoln and Guba 1985: 290). Firstly, the use of thematic analysis as the analytical method enhanced the credibility of the findings by systematically organizing and interpreting the data to identify meaningful patterns and themes (Braun and Clarke 2020). The six-phase process for data engagement, coding, and theme development, along with the use of Nvivo software, provided a methodical and rigorous approach to the analysis, minimizing researcher bias and enhancing the dependability of the results (Jackson and Bazeley, 2019).

To further enhance credibility and dependability of the qualitative data, the researcher engaged in data familiarization and transcribed the recorded interviews verbatim, ensuring a comprehensive grasp of the data content and context (Alam, 2021; Cope 2014: 89). Additionally, the interviews were conducted face-to-face, allowing for richer data collection through nonverbal cues and ensuring the accuracy of the transcribed notes (Basit, 2003). The use of word frequency queries and the presentation of evidence through extracts from the interview data provided transparency and support for the identified themes, contributing to the confirmability of the findings (Byrne, 2021).

The transferability of the qualitative data is also strengthened through the detailed description of the research context, sampling process, and data collection procedures. The selection of participants from different HR managerial and non-managerial roles adds to the diverse perspectives captured in the study, allowing for potential transferability to similar contexts (Riazi, Rezvani, and Ghanbar 2023: 4; Lincoln and Guba, 1985).

To address confirmability, the researcher employed both semantic and latent coding to interpret the data, providing insights into both explicit and implicit meanings within the responses (Byrne, 2021; Olmos-Vega, Stalmeijer, Varpio, and Kahlke 2022: 6). The deductive approach to thematic analysis aligns with the research questions, allowing for the exploration of themes related to the quantitative outcomes (Braun and Clarke, 2020).

4.10 Ethical consideration

Ethical conduct in research is a fundamental element in undertaking quality research. Therefore, ethical considerations are essential in research and all researchers must cultivate and maintain high ethical standards from the design stage to the completion phase. “Ethics refer to the standards of behaviour that guide the conduct of researchers concerning the rights of those who become the subject of their work or are affected by it” (Saunders et al. 2016: 239).

Some procedures were followed to comply with ethical standards in conducting this study. Firstly, prior to the collection of data, a gatekeeper’s letter and permission were obtained from the Pharmaceutical Manufacturers Association of Ghana (see Appendices C-1 and C-2, respectively). Obtaining the gatekeeper's permission was an assurance that the researcher had been granted permission to elicit empirical data from the PMAG and that the data would be used for the intended purpose. In addition, this study received full ethical clearance from the Institutional Research Ethics Committee (IREC) of the Durban University of Technology. The full ethics clearance ensured that the ethical requirements in conducting the research were up to the standard and followed.

Secondly, the respondents’ consent was sought before they took part in the survey. The information on the title page of the questionnaire also requested the respondents to enter a self-generated digital code as a form of their consent to access the questionnaire. In addition, the research participants were informed that participating in the research was voluntary and that they should respond to the questionnaire only if they so desired. Respondents were adequately informed in the cover note that the information they would provide will be treated with the utmost confidentiality and anonymity. Thus, the questionnaire excluded any item that would reveal the identity of the target organisations and the respondents. The respondents were also informed that they could leave at any stage of the survey if they so desired. Furthermore, the respondents were also informed that no benefit would be accrued to them personally for taking part in the research; that the only benefit from their participation would be to add to knowledge; and that the conclusions drawn from the study would be submitted to the PMAG. To make it possible for the respondents to express any reservation they might have had about the survey, the contact number of the researcher and IREC was provided to the

participants. They were encouraged to feel free to contact the researcher if they wanted to seek further information and more details about the questionnaire, or to contact IREC if they wanted to file any complaints about the conduct of the researcher.

Thirdly, data protection is a vital ethical concern. Data protection, in this context, relates to how the data generated would be secured, stored, and disposed of. To protect the quantitative data, the hyperlink to the Google Form resides in the Google account of the researcher, protected with a password, and is only accessible to the researcher. The web link was closed at the end of each survey, meaning no respondent could access the link. Subsequently, the electronically generated data was stored on the laptop of the researcher and was password protected. The data would remain on the researcher's laptop and be deleted only after five years, as per the requirement of the Durban University of Technology. The qualitative data, which was gathered through interviews and was recorded on the researcher's mobile, was stored on the researcher's laptop and was password-protected. The data on the mobile phone were deleted after they had been stored on the researcher's laptop. The data on the laptop will only be deleted after five years.

Fourthly, the quantitative and qualitative data generated were processed and reported honestly and truthfully, to the best of the researcher's knowledge and ability. Thus, as reported, the study's outcomes represented an accurate and honest view of the data. Furthermore, any limitation the researcher is aware of has also been reported. Finally, all literature used in the study has been properly cited and listed in the references section.

4.11 Conclusion

The study was grounded on the pragmatism research paradigm in order to examine the role of high-performance work systems and resilience in employee well-being within the pharmaceutical industry in Ghana. The research was designed, based on the explanatory sequential mixed-method approach. Thus, a quantitative study was first conducted, followed by a qualitative study, to explain the causal relationships in the quantitative data. The survey strategy was used to generate both quantitative and qualitative data. A simple random probability technique was used to select 324 respondents for the quantitative data and 12 respondents were purposively sampled for

the qualitative data. The quantitative data was generated through an online questionnaire, while the qualitative data was gathered through in-depth interviews. The items measuring each construct were based on validated items from the literature.
Firstly, all measurements to assess the data quality were conducted. This was followed by testing the hypotheses, based on structural model assessment using PLS-SEM, which helped to determine the existence of the relationships between and among the variables; to assess the direction of the relationships; and to determine the strength of the relationships. The qualitative data was analysis based on thematic analysis and the use of NVivo, a computerized software for analyzing qualitative data, in order to develop and generate themes that provide deeper insight in explaining the statistical outcomes of the study. The chapter also details how the potential for common method biases was managed, and the ethical processes followed in conducting the research.

The next chapter presents the findings from the empirical data analyses. Following the explanatory sequential mixed methods, the quantitative outcomes will first be presented, which will examine how the constructs relate, based on the given data; after which the outcomes of the qualitative data will be presented.

CHAPTER FIVE

DATA ANALYSIS AND PRESENTATION

5.1 Introduction

This chapter presents the outcomes and interpretation of the empirical data elicited from the respondents. Following the explanatory sequential mixed methods, the quantitative outcomes are presented first. The quantitative data was analysed using SPSS and PLS-SEM software packages. SPSS was used in the pre-data processing to guarantee the accuracy and authenticity of the data. The SPSS (version 27) was also used to determine the descriptive statistics. PLS-SEM was used to conduct the model assessment and examine how the constructs relate, based on the given data. Ten hypotheses were examined, based on the structural path analysis. This was followed by the outcomes of the qualitative data to complement the quantitative outcomes to explain the results from the statistical data. The qualitative data was analysed using Nvivo (14 Pro for Windows).

5.2 Quantitative data analysis

5.2.1 Biographical profiles of the respondents

Apart from the items on the constructs in the research framework, some respondent demographic information was sought. The demographic variables include sex (gender); age group; the highest level of education attained; length of service; and employment status of the respondents. The data on the demographic variables are shown below.

Table 5.1 Demographic distribution of respondents

Variable	Items	Frequency (n=324)	Percentages (%)
Gender	Male	189	58.34
	Female	135	41.66
Age groups	21-30	73	22.53
	31-40	192	59.25
	41-50	45	13.88
	51-60	14	4.32
Educational qualification	Diploma/HND	36	11.11
	First degree	155	47.83
	Postgraduate degree	108	33.33
	Others	25	7.72
Length of service	1-3years	64	19.75
	4-6 years	109	33.64
	7-10 years and more	103	31.79
	11 years and more	48	14.81
Status	Managerial position	257	79.32
	Non-managerial position	67	20.67

Source: Field data, 2022

Table 5.1 shows the results of the demographic data analysis. Regarding gender, the data shows that out of the total sample of 324 respondents, 189 are males, constituting 58.34% of the respondents. Also, 135 of the respondents are females, which represents 41.66% of the respondents. Therefore, males constitute most of the respondents. Alternatively, it could mean that males were more disposed to participate in the survey than were females.

Regarding the age category, 73 (22.53%) of the respondents were 21 to 30 years old, while 192 (59.25%) were between 31 and 40 years. Again, 45 (13.88%) of the respondents were aged 41 to 50, and 10 (4.32%) were between 51 and 60 years old. Thus, the data revealed that the majority of respondents in this study were aged between

31 and 40 years, followed by respondents between 21 and 30 years. This data indicates that the industry has relatively youthful employees.

In the case of the highest level of education, 36 of the respondents, representing 11.11%, had obtained a diploma or Higher National Diploma (HND); while 155 of them, constituting 47.83%, had obtained Bachelor's degrees. The data also shows that 108 of the respondents, representing 33.33%, had obtained postgraduate degrees. Finally, 21 respondents, presenting 7.72%, had obtained other academic qualifications. Therefore, based on the data, most respondent had obtained a Bachelor's or postgraduate degree. It is, therefore, safe to infer that the pharmaceutical industry in Ghana relies on employees with higher education.

In response to employment tenure, 19.75% (n=64) had worked at their firm for 1-to-3 years, followed by 33.64% (n=109) who had worked for 4-to-6 years; 31.79% (n=103) had worked at their firms for 7-to-10 years, while only 14.81% (n=48) had worked for their firms for 11 years and more. The data revealed that most of the respondents had spent relatively few years with their organisation, and they had obtained enormous experience, for which they were very grateful, which they communicated in the survey.

Finally, in response to the item on their employment status, 79.32% (N=257) were non-managerial employees, while 20.67% (n-67) were in management. This means that the majority of the respondents were non-managerial employees.

5.2.2 Non-response and common method variance

As indicated under Section 4.7.3, Harman's single factor test (Harman, 1976), which is a post-hoc technique, was used to assess the presence or absence of common method bias in this study, which was consistent with previous studies (Jabeen et al. 2022; Malik and Garg 2020; Shahzad et al. 2019; De Clercq and Pereira 2019). An exploratory factor analysis of all the items in the constructs accounted for 23.17% variance. What this means is that CMB is not an issue in this study.

Subsequently, the results for the non-response rate for the two phases of the data revealed insignificant differences between the first 25% and the last 25% of the data responses (Armstrong and Overton, 1977). Furthermore, the analysis for each phase

shows no substantial difference ($p>0.05$) between each phase of the constructs measured. Thus, the outcomes demonstrate that non-response bias for the two phases of data is not an issue in this study.

5.2.3 Measurement evaluation

This section assesses the measurement model, which provided a means of evaluating the quality of all variables used in the study, regarding their reliability and validity (Hair et al. 2020:462). The statistical measurements include indicator reliability, internal consistency, convergent validity, and discriminant validity. The outcomes for these data quality assessments are presented below.

5.2.3.1 Indicator reliability

The outer loadings show how reliably each item contributes to measuring the latent constructs of the study. For an item to qualify to measure a construct, the item must meet a minimum outer-loading threshold of 0.70 (Hair et al. 2019a). Thus, the items that did not meet the threshold must be removed (see Section 4.8.1.1 in Chapter Four for details). After running, and repeating several reruns of, the PLS algorithm, the outcomes for each construct were calculated, and are provided below.

Table 5.2 Outer loading for HPWS

Constructs	Dimension	Indicators	Loading
HPWS	Ability	AB3	0.814
		AB4	0.808
	Motivation	MO4	0.795
		MO6	0.721
	Opportunity	OP2	0.787
		OP3	0.719

Source: field data, 2022

HPWS was rated with 22 items based on dimensions of ability-motivation-opportunity. Table 5.2 presents the items retained to measure HPWS. Two of the seven ability-enhancing practices loaded satisfactorily and were retained. Likewise, two of the six motivation-enhancing practices also loaded satisfactorily and were retained. Two of the

nine opportunity-enhancing practices satisfied the loading requirement and were retained. The values range from 0.721 (minimum) to 0.814 (maximum). The implication is that the six items are reliable and adequate to measure the HPWS of firms in the pharmaceutical manufacturing sector in Ghana.

Table 5.3 Outer loadings for employee resilience

Construct	Indicators	Loading
Employee resilience	EmR1	0.813
	EmR5	0.859
	EmR8	0.901
	EmR9	0.781

Source: field data, 2022

Employee resilience was measured with nine items. As shown in Table 5.3, four of the nine items were loaded appropriately. The item with the lowest load had 0.781, and the item with the highest load had 0.901. This means that the four items meet the quality criteria and are adequate to measure the resilience of employees in the pharmaceutical manufacturing sector in Ghana.

Table 5.4 Outer loadings for organizational resilience

Constructs	Indicators	Loading
Organizational resilience	OR3	0.861
	OR10	0.779
	OR11	0.706
	OR12	0.777

Source: field data, 2022

Organisational resilience was rated with 13 items. Four of the 13 items loaded adequately have been shown in Table 5.4. The item with the lowest load scored 0.706, and the item with the highest load scored 0.861. This means that the four items meet the quality criteria and are reliable for measuring the organisational resilience of firms in the pharmaceutical manufacturing industry in Ghana.

Table 5.5 Outer loadings for employee ambidexterity

Construct	Dimension	Code	Loading
Employee ambidexterity	Exploitation	ExpL1	0.890
		ExpL2	0.938
		ExpL4	0.805
	Exploration	ExpR1	0.909
		ExpR3	0.915
		ExpR4	0.780
		ExpR5	0.736

Source: field data, 2022

Table 5.5 shows the loading for the items assessing both exploitation and exploration ambidexterity. Individual exploitation was assessed with five items, but only three met the quality criteria. Similarly, employee exploration was rated with six items and four loaded appropriately or met the quality criteria. The loadings ranged from a value of 0.739 to 0.938. The loadings demonstrate that the items are suitable and meet the criteria to measure both the exploitation and exploration of ambidextrous activities of employees within the pharmaceutical manufacturing sector of Ghana.

Table 5.6 Factor loading of employee wellbeing

Construct	Item Code	Loading
Employee well-being	EWB1	0.905
	EWB2	0.796
	EWB3	0.863
	EWB6	0.705
	EWB7	0.878
	EWB	0.748

Source: field data, 2022

Employee resilience was assessed with eight items. As shown in Table 5.6, six of the eight loaded appropriately. The minimum loading recorded was 0.705, almost the same as the criterion of 0.7. The outer loadings imply that these items are acceptable and

reliable for measuring the well-being of employees in the pharmaceutical manufacturing sector in Ghana.

5.2.3.2 Internal consistency

Internal consistency evaluates the reliability of measurement scales for the constructs: HPWS; employee resilience; organisational resilience; individual ambidexterity; and employee well-being. As shown in Table 5.8, the reliability of the individual constructs was tested using three indicators: Cronbach's alpha, composite reliability, and Dijkstras' Rho_A. The interpretation of the data is presented in Table 5.8, below.

Table 5.7 Internal reliability

Variables	Cronbach's Alpha	rho_A	Composite Reliability
Employee Resilience	0.860	0.863	0.905
Employee Well-being	0.902	0.927	0.924
Exploitation Ambidexterity	0.852	0.888	0.911
Exploration Ambidexterity	0.859	0.890	0.904
HPWS	0.867	0.873	0.900
Organisational Resilience	0.787	0.788	0.863

Source: field data, 2022

5.2.3.2.1 Cronbach's alpha

Cronbach's alpha assumes equal indicator loadings and estimates reliability by considering how the observed items and associated construct intercorrelate (Hair et al. 2017). As shown in Table 5.8, the outcomes provide Cronbach alpha values for the constructs. Cronbach's alpha for HPWS in this study is 0.867. Cronbach's alphas for employee and organisational resilience are 0.860 and 0.787, respectively. Furthermore, exploitation and exploration ambidexterity recorded Cronbach's alpha values of 0.852 and 859, respectively. Finally, employee well-being recorded a Cronbach's alpha value of 0.902. As shown in Fig. 5.1, the data shows that all the variables meet the acceptable threshold for Cronbach's alpha (0.708) for a validated construct. Cronbach's alpha for all the variables exceeds the minimum criterion. Hence, using Cronbach's alpha, the outcome means that reliability is not a challenge for the study.

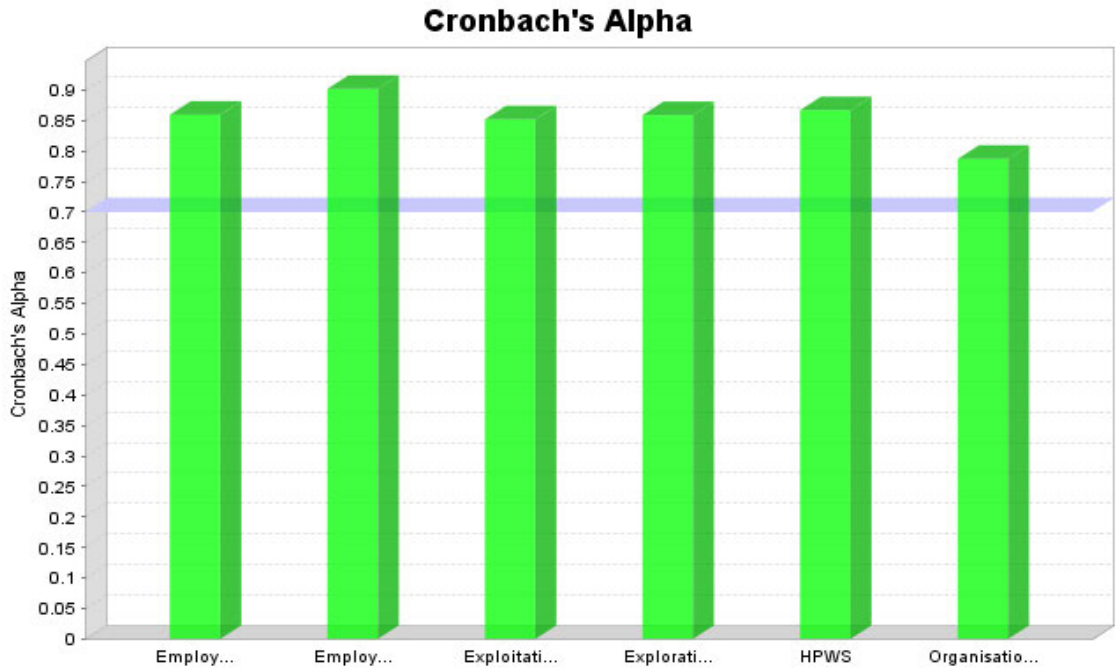


Fig. 5.1 Cronbach's Alpha

5.2.3.2.2 Composite reliability

Another approach used to test the constructs' reliability is composite reliability. The data presented in Table 5.8 shows that the composite reliability for HPWS is 0.900, while that for employee resilience is 0.905. Organisational resilience and employee well-being have a composite reliability of 0.863 and 0.924, respectively. Finally, individual exploitation and exploration ambidexterity recorded composite reliability of 0.911 and 0.904, respectively. Figure 5.2 provides a pictorial perspective of the composite reliability. The minimum estimate recorded is 0.863, while the highest estimate is 0.911. The outcomes demonstrate that all the constructs have values higher than the 0.70 reliability requirement.

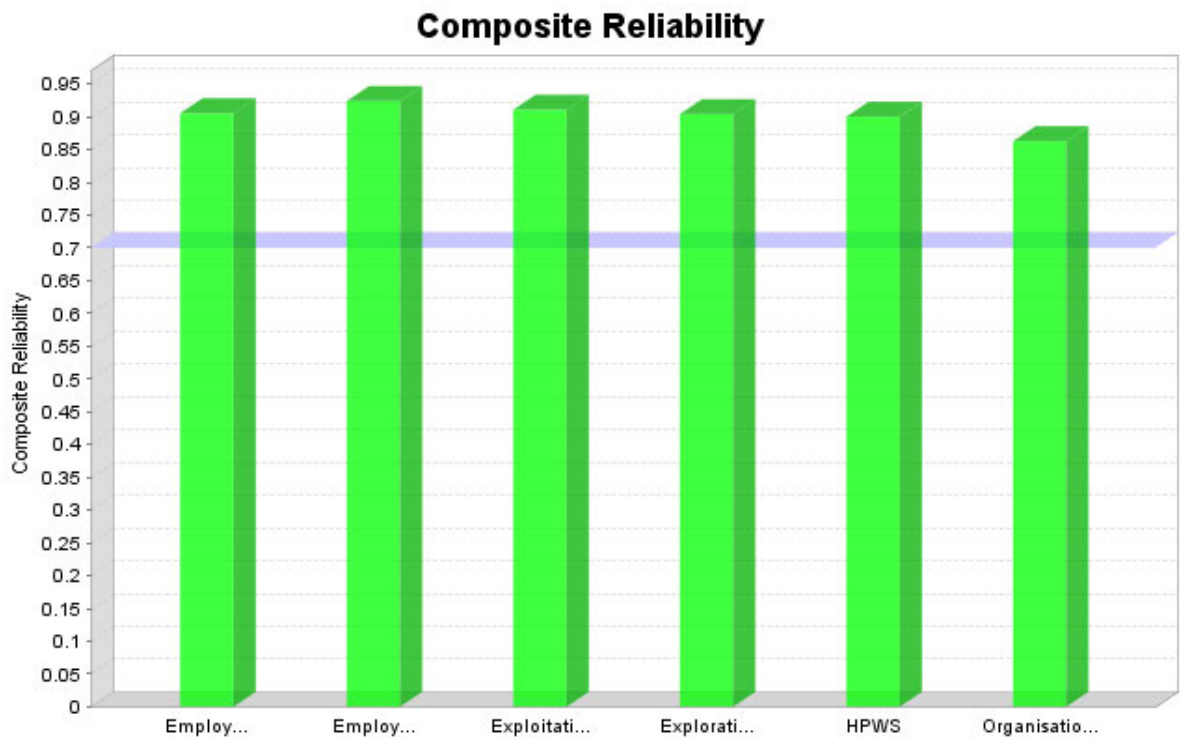


Fig. 5.2 Composite reliability

5.2.3.2.3 Dijkstras' rho_A

The third statistical approach used in this study to examine the quality of the data reliability was the Dijkstras' rho_A. As shown in Table 5.2 and Figure 5.3, the Dijkstras' rho_A value for employee resilience is 0.863, while that for employee well-being is 0.924. Organisational resilience scored a rho_A of 0.788, while HPWS recorded a rho_A of 0.873. Finally, exploitation and exploration ambidexterity recorded rho_A values of 0.888 and 890, respectively. The rule is that the rho_A should be equal to, or greater than, the recommended 0.70 threshold. As shown in Figure 5.3, the rho_A values for all the constructs are greater than the minimum threshold, further confirming the reliability of the data.

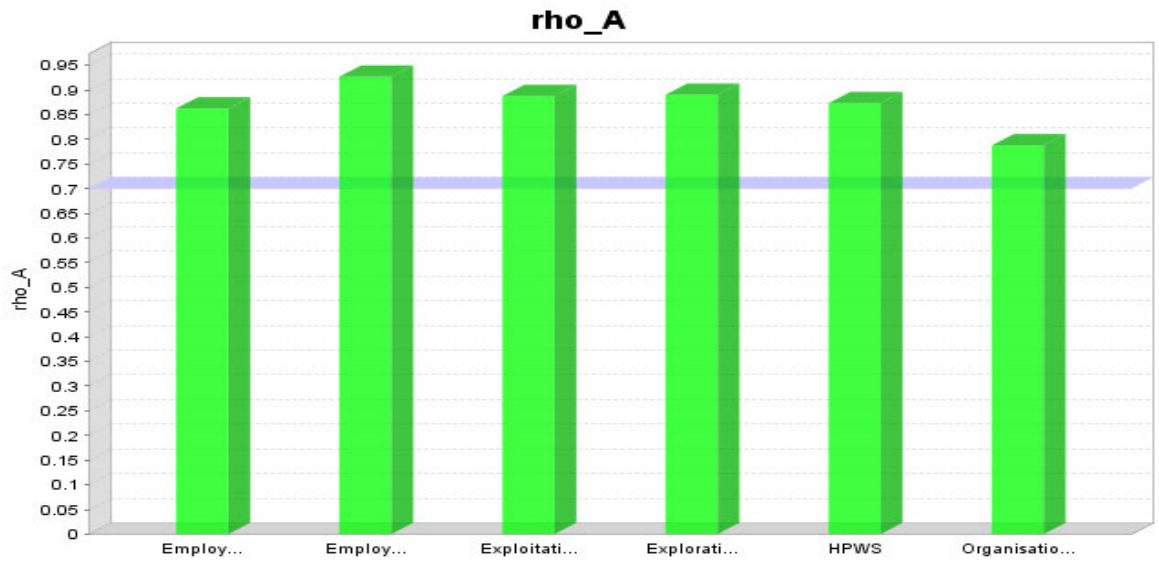


Fig. 5.3 The Dijkstras' rho_A value

5.2.3.3 Convergent validity

The estimates in internal consistency assess the reliability of the constructs. In this section, convergent validity, measured as average variance extracted (AVE), assesses whether those reliable constructs are valid. The outcome of the analysis is shown in Figure 5.4, below.

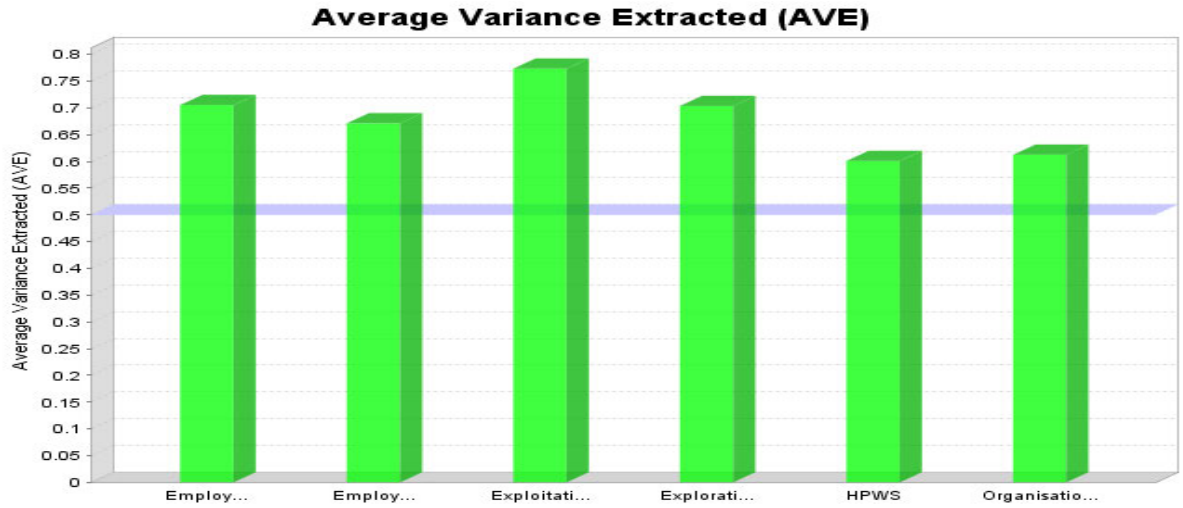


Fig. 5.4 Convergent validity of the constructs

The data in Figure 5.4 revealed the following AVE for each construct: employee resilience (0.705); employee well-being (0.671); exploitation ambidexterity (0.773); exploration ambidexterity (0.703); HPWS (0.601); and organisational resilience

(0.612). To satisfy convergent validity, the value for each construct must be equal to or greater than 0.50 (Sarstedt et al. 2021:17; Hair et al. 2020:104; Hair et al. 2017a:138). As shown in Figure 5.4, the estimate for each construct is greater than 0.50. Thus, the outcomes confirm that each construct meets the convergent validity criterion, which implies that convergent validity is not a problem for this study.

5.2.3.4 Discriminant validity

Discriminant validity was assessed to determine the extent to which a variable is statistically different from other variables. Like internal consistency, discriminant validity was tested using three statistical approaches: cross-loadings, the Fornell-Larcker criterion, and the heterotrait-monotrait ratio (HTMT). These tests confirm that all the constructs are distinct from one another. The detailed outcome for each indicative measure is presented below.

5.2.3.4.1 Cross-loadings

The first approach to determining if the constructs are different was through cross-loadings. Cross-loadings require that each item loads highest on the associated construct it measures. The cross-loadings of each construct, together with its associated items, are shown in Table 5.8

Table 5.8 Cross-loading

Constructs	Code	1	2	3	4	5	6
Employee well-being (EWB [1])	EWB1	**0.905**	0.669	0.279	0.559	0.606	0.584
	EWB2	**0.796**	0.357	0.423	0.470	0.596	0.539
	EWB3	**0.863**	0.602	0.359	0.629	0.608	0.413
	EWB6	**0.705**	0.730	0.142	0.306	0.489	0.353
	EWB7	**0.878**	0.596	0.429	0.450	0.626	0.580
	EWB8	**0.748**	0.671	0.141	0.388	0.406	0.336
Employee resilience (EmRes [2])	EmRes1	0.653	**0.813**	0.378	0.383	0.498	0.388
	EmRes5	0.592	**0.859**	0.317	0.432	0.539	0.467
	EmRes8	0.682	**0.901**	0.267	0.481	0.635	0.381
	EmRes9	0.478	**0.781**	0.319	0.370	0.414	0.604
Exploitation ambidexterity (ExpLAmb [3])	ExpLAmb1	0.325	0.301	**0.890**	0.543	0.344	0.401
	ExpLAmb2	0.302	0.327	**0.938**	0.598	0.490	0.606
	ExpLAmb4	0.389	0.373	**0.805**	0.605	0.355	0.501
Exploration ambidexterity (ExpRAmb [4])	ExpRAmb1	0.575	0.499	0.653	**0.909**	0.547	0.401
	ExpRAmb3	0.538	0.480	0.652	**0.915**	0.507	0.425
	ExpRAmb4	0.353	0.264	0.579	**0.780**	0.260	0.230
	ExpRAmb5	0.409	0.357	0.341	**0.736**	0.449	0.361
HPWS (5)	AB3	0.620	0.495	0.542	0.465	**0.814**	0.626
	AB4	0.585	0.583	0.229	0.435	**0.808**	0.558
	MO4	0.491	0.546	0.416	0.508	**0.795**	0.456
	MO6	0.402	0.319	0.204	0.210	**0.721**	0.626
	OP2	0.492	0.455	0.326	0.387	**0.787**	0.576
	OP3	0.580	0.464	0.371	0.508	**0.719**	0.424
Organizational resilience (OrgRes [6])	OrgRes10	0.536	0.602	0.353	0.415	0.485	**0.779**
	OrgRes11	0.618	0.510	0.480	0.267	0.509	**0.706**
	OrgRes12	0.289	0.272	0.414	0.289	0.583	**0.777**
	OrgRes3	0.360	0.291	0.572	0.390	0.615	**0.861**

NB: AB = ability-enhancing practice; MO =motivation-enhancing practice; OP = opportunity-enhancing practice.

Table 5.8 shows the cross-loading for each item. The rule is that the cross-loading must exceed 0.70. The loadings on Table 5.8 show that the cross-loading values for this study are appropriate since they satisfy or exceed the minimum requirement.

5.2.3.4.2 The Fornell-Larcker criterion

The second statistical tool used to assess the discriminant validity of constructs is the Fornell-Larcker criterion. This was used in addition to cross-loading because the Fornell-Larcker criterion determines whether the constructs "share more variance with their intended underlying construct than the construct shares with another construct" (Franke and Sarstedt 2019:434). The outcome of the analysis is shown in Table 5.9.

Table 5.9 Fornell-Larcker Criterion

	1	**2**	**3**	**4**	**5**	
Employee Resilience (1)	**0.840**					
Employee Well-being (2)	0.715	**0.819**				
Exploitation Ambidexterity (3)	0.379	0.381	**0.879**			
Exploration Ambidexterity (4)	0.497	0.576	0.663	**0.839**		
HPWS (5)	0.623	0.688	0.461	0.550	**0.775**	
Organisational Resilience (6)	0.550	0.592	0.585	0.439	0.699	**0.782**

Source: field data, 2022

The results in Table 5.9 show that the values for the Fornell-Lacker values for the constructs ranged from 0.775 to 0.879. Thus, exploitation ambidexterity recorded the highest value of 0.879, and HPWS scored the lowest value of 0.775. Thus, the values for all the constructs exceed the minimum threshold of 0.5 (Fornell and Larcker 1981; Henseler et al. 2015). Therefore, based on the Fornell-Larcker criterion, the outcomes confirm acceptable levels of discriminant validity. Thus, the outcome of this analysis meant that the constructs are separate and distinct from one another.

5.2.3.4.3 Heterotrait-monotrait ratio (HTMT)

Another approach used in this study to assess the discriminant validity of the constructs is the HTMT, which is considered a better determinant of discriminant validity. The results of the analysis using the HTMT are shown in Table 5.10

Table 5.10 Heterotrait-monotrait ratio

	1	**2**	**3**	**4**	**5**	**6**
Employee Resilience (1)						
Employee Well-being (2)	**0.841**					
Exploitation Ambidexterity (3)	0.447	**0.417**				
Exploration Ambidexterity (4)	0.554	0.627	**0.776**			
HPWS (5)	0.712	0.760	0.511	**0.603**		
Organisational Resilience (6)	0.650	0.666	0.695	0.511	**0.853**	

Source: field data, 2022

The HTMT values for each construct are shown in Table 5.10. The values are the bold figures shown diagonally. As noted earlier, the most commonly-used criterion is that the HTMT ratios between paired constructs need to be lower than 0.85 to satisfy the requirement of discriminant validity. As shown in the table, all except one of HTMT ratio have a value below 0.85. However, the ratio of 0.853 is extremely close to the 0.85 cut-off, which indicates that discriminate validity is not a challenge in this study. Moreover, beyond the 'less than 0.85 criterion', evidence in the literature has recommended an HTMT ratio of less than 0.90 (Henseler et al. 2015:123), or even less than 1.00 (Henseler et al. 2015:121; Gaskin et al. 2018:68). Thus, based on these criteria, the constructs in this study are different, distinct, and separate from one another.

5.2.3.5 Goodness-of-fit indices

Overall model-fit is conducted to determine whether the model fits the data. The model fit was tested using the following default indices in PLS-SEM: standardised root mean squared residual (SRMR); unweighted least squares discrepancy (d_ULS); geodesic

discrepancy (d_G); normed fit index (NFI); Chi-square; and RMS_theta. Both the saturated and estimated model-fit outcomes are presented in Table 5.11.

Table 5.11 Test of model-fit for reflective measurement model

Model-fit indices	Saturated Model	Estimated Model
SRMR	0.061	0.082
d_ULS	0.816	2.309
d_G	0.532	0.535
Chi-Square	2,301.379	2,454.480
NFI	0.463	0.427
RMS_theta	0.079	

NB: SRMR = standardized root mean squared residual; d_ULS = unweighted least squares discrepancy; d_G = geodesic discrepancy; HI95 = bootstrap-based 95% percentile; HI99 = bootstrap-based 99% percentile

Table 5.11 shows that the SRMR value for the saturated model is 0. 0.061. The SRMR literature recommended an SRMR below 0.1 for a good fit. The saturated value of SRMR recorded in this study is marginally below the criterion of 0.1 (Hu and Bentler, 1999; Jony and Serradell-López 2020:15), which is an acceptable fit for the theoretical model. Furthermore, the NFI had a value of 0.463, which is within the recommended range between 0 and 1 for a good model-fit (Jony and Serradell-López 2020:15; Bentler and Bonett 1980). In addition, the RMS_theta had a value of 0.079 (Henseler et al. 2014; Ringle et al. 2015).

Based on the SRMR; the NFI; the rms_theta; the d_ULS; and d_G, the study model has an acceptable fit and cannot be rejected. However, as noted in Section 4.8.1.1 in Chapter Four, the literature on the goodness-of-fit based on the PLS-SEM analysis is still in its infancy, and researchers should be cautious in reporting and interpreting estimates from PLS-SEM regarding model fit or misspecifications (Ringle et al. 2015; Hair et al. 2017:194).

5.2.4 Structural model assessment

The steps involved in the structural model assessment include examining the model collinearity; the significance of path coefficients; the coefficient of determination;

effect size; predictive relevance; and the out-of-sample prediction. The detailed outcomes for each are explained in the subsequent subsections.

5.2.4.1 Structural model collinearity

When performing a structural model assessment, it is vital to ensure that the correlations between the variables being evaluated are not high. This was achieved by examining the variance inflation factor (VIF) values to determine the collinearity issues in the predictor constructs. The rule is that the VIF values should be less than five (5) (Hair et al. 2019a). Table 5.12, below, presents the outcomes of the analysis.

Table 5.12 Collinearity estimates of structural model VIF

Construct	Item code	VIF
Employee well-being	EW1	3.979
	EW2	2.511
	EW3	3.087
	EW6	2.326
	EW7	3.199
	EW8	2.966
Employee resilience	EmR1	2.754
	EmR5	2.216
	EmR8	3.550
	EmR9	1.809
Exploitation ambidexterity	ExpL1	3.345
	ExpL2	3.740
	ExpL4	1.574
Exploration ambidexterity	ExpR1	3.433
	ExpR3	3.507
	ExpR4	1.989
	ExpR5	1.417
HPWS	AB3	2.496
	AB4	2.203
	MO4	2.716
	MO6	2.086
	OP2	3.357
	OP3	2.568
Organizational resilience	OR10	1.611
	OR11	1.265
	OR12	2.357
	OR3	2.943

The results in Table 5.12 show that the highest VIF value is 3.979, and the lowest is 1.265. This means that all the VIF estimates are below the threshold of 5. This means that issues of multicollinearity pose no serious challenges in this study, since there would not be any bias in the path coefficients of the structural model. Thus, the correlations between the variables are not high, which allows for assessing the relationship between the predictor and criterion constructs.

5.2.4.2 Significance of Path Coefficients

This study proposed testing ten hypotheses and assessing the predictive role of the exogenous constructs. In order to achieve this goal, the path coefficient estimates of the structural model were ascertained after the outcomes of the VIF. For each case, t-statistics were used to assess the statistical significance of the relationships. As noted earlier in Chapter Four, the rule of thumb is that the path coefficients must be above 1.96 for an empirical t-value (Sarstedt et al. 2021:22; Hair et al. 2020:107). Thus, based on the results of the t-statistics, the proposed relationships between the variables are accepted (supported) or rejected (not supported). The first four hypotheses focus on examining the effects of a high-performance work system on employee resilience, employee ambidexterity, and organisational resilience within the pharmaceutical industry in Ghana. For clarity and convenience, the hypotheses are restated below:

H1a: HPWS is significantly and positively related to employee resilience within the pharmaceutical industry of Ghana.

H1b: HPWS has a significant and positive effect on organisational resilience within the pharmaceutical industry of Ghana.

H1c: HPWS has a significant and positive effect on employee explorative ambidexterity within the pharmaceutical industry of Ghana.

H1d: HPWS has a significant and positive effect on exploitative employee ambidexterity within the pharmaceutical industry of Ghana.

The results from the analysis for hypotheses H1a to H1d, are shown in Table 5.13, with the path coefficients together with their significance levels.

Table 5.13 Summary of model path for H1a-H1d

		β	**M**	**STDEV**	**T**	***p***	**Decision**
HPWS	->						**H1=**
Employee Resilience		0.718	0.722	0.065	10.955	0.000	**Accepted**
HPWS	->						**H2=**
Organisational Resilience		0.687	0.692	0.115	5.977	0.000	**Accepted**
HPWS	->						**H3=**
Exploitation Ambidexterity		0.524	0.517	0.105	4.993	0.000	**Accepted**
HPWS	->						**H4=**
Exploration Ambidexterity		0.624	0.622	0.086	7.217	0.000	**Accepted**

NB: Original Sample (β); Sample Mean= (M); Standard Deviation= (STDEV); T-Statistics (T); P Values (p)

Table 5.13 shows that HPWS and employee resilience are positively and significantly related (β = 0.718, t= 10.955, p=0.000), thus supporting H1a. Similarly, HPWS is positively and significantly related to organisational resilience (β = 0.687, t=5.977, p= 0.000). This finding supports H1b. In addition, the results show that HPWS relates positively and significantly to exploitative ambidexterity (β = 0.524, t=4.993, p=0.000) and explorative ambidexterity (β = 0.624, t=7.217, p= 0.000), which confirms H1c and H1d. The results imply that HPWS predicts employee resilience, organisational resilience, exploitative ambidexterity, and explorative ambidexterity.

The second set of hypotheses focuses on establishing the impact of employee resilience and ambidexterity on organisational resilience within the pharmaceutical industry in Ghana. It comprises three hypotheses (H2a, H2b, and H2c), as restated below. The analysis results for hypotheses H2a, H2b, and H2c are shown in Table 5.15.

H2a: Employee resilience has a significant and positive effect on organisational resilience within the pharmaceutical industry of Ghana.

H2b: A positive and significant relationship exists between employee explorative ambidexterity and organisational resilience within the pharmaceutical industry of Ghana.

H2c: A positive and significant relationship exists between employee exploitative ambidexterity and organisational resilience within the pharmaceutical industry of Ghana.

Table 5.14 Summary of model path for H2a-H2c

Constructs	β	**M**	**STDEV**	**T**	***p***	**Decision**
Employee Resilience -> Organisational Resilience	0.168	0.159	0.109	1.541	0.124	**H2a=Not Supported**
Exploitation Ambidexterity -> Organisational Resilience	0.601	0.608	0.119	5.047	0.000	**H2b=Supported**
Exploration Ambidexterity -> Organisational Resilience	-0.449	-0.443	0.154	2.916	0.004	**H2c=Supported**

NB: Original Sample (β); Sample Mean= (M); Standard Deviation= (STDEV); T-Statistics (T); P Values (p)

Table 5.15 shows no positive and significant relationship between employee and organisational resilience (β = 0.168, t = 1.541, p = 0.124). Thus, H2a was not accepted. However, the relationship between exploitative ambidexterity and organisational resilience is positive and significant (β = 0.601, t-value = 5.047, p= 0.000), confirming H2b. Similarly, the link between explorative ambidexterity and organisational resilience is also found to be significant, but negative (β = -0.449, t-value =2.916, and p= 0.004). Thus, the result confirms H2c. Therefore, drawing on the results of the data

analysis, presented in Table 5.15, hypothesis 2a has not been accepted, while hypotheses 2b and 2c have been confirmed. This indicates that employee explorative and exploitative ambidexterity positively and significantly predicts organisational resilience, whereas employee resilience does not.

The third set of hypotheses seeks to determine the role of organisational resilience in the relationship between employee resilience, HPWS, employee ambidexterity, and employee well-being within the pharmaceutical industry in Ghana. Five corresponding hypotheses, as restated below, are examined to achieve this objective. The results of the data analysis are shown in Table 5.16.

H3a: Organisational resilience positively and significantly relates directly to employee well-being within the pharmaceutical industry of Ghana.

H3b: Organisational resilience mediates the relationship between employee resilience and employee well-being within the pharmaceutical industry of Ghana.

H3c: Organisational resilience mediates the relationship between HPWS and employee well-being within the pharmaceutical industry of Ghana.

H3d: Organisational resilience mediates the relationship between employee exploitation ambidexterity and employee well-being within the pharmaceutical industry of Ghana.

H3e: Organisational resilience mediates the relationship between employee exploration ambidexterity and employee well-being within the pharmaceutical industry of Ghana.

Table 5.15 Summary of model path for H3a-H3c

Direct effect	β	**M**	**STDEV**	**T**	***P***	**Decision**
OrgRes -> EWB	0.693	0.696	0.056	12.360	0.000	H3a= Supported
Indirect effect						
EmRes-> OrgRes-> EWB	0.117	0.111	0.076	1.530	0.127	H3b = Not supported
HPWS -> OrgRes-> EWB	0.476	0.483	0.096	4.985	0.000	H3c = Supported
ExpLAmbi-> OrgRese -> EWB	0.417	0.423	0.088	4.730	0.000	H3d = Supported
ExpRAmbi-> OrgRes-> EWB	-0.311	-0.309	0.114	2.728	0.007	H3e = Supported

NB: Original Sample (β); Sample Mean= (M); Standard Deviation= (STDEV); T-Statistics (T); P Values (p, EmRes = Employee resilience; OrgRes = Organizational resilience; EWB = Employee well-being; ExpLAmbi = Exploitation ambidexterity; ExpRAmbi = Exploration ambidexterity.

Table 5.15 is divided into two parts. The first part tests the direct relationship between organisational resilience and employee well-being. The results indicate a positive and significant relationship between organisational resilience and employee well-being (β = 0.693, t-value = 12.360, p= 0.000), thus confirming H3a.

The second part tests the mediating effect of organisational resilience. The analysis of the direct effect shows that organisational resilience does not mediate the relationship between employee resilience and employee well-being (β= 0.117, t-value = 1.530, p= 0.127) within the pharmaceutical industry of Ghana. This result rejects H3b. In addition, organisational resilience is seen to positively and significantly mediate the relationship between HPWS and employee well-being (β = 0.476, t-value = 4.985, p= 0.000) within the pharmaceutical industry of Ghana. This finding confirms H3c. Also, the result indicates that organisational resilience mediates the relationship between employee exploitation ambidexterity and employee well-being (β= 0.417, t-value = 4.730, p= 0.000) within the pharmaceutical industry of Ghana, which supports H3d.

Finally, the mediating role of organisational resilience in the relationship between employee exploration ambidexterity and employee well-being is negative but significant (β = -0.311, t-value = 2.728, p= 0.007) within the pharmaceutical industry of Ghana. This finding thus rejects H3e. Thus, the results show that organisational resilience only mediates how HPWS and exploitation ambidexterity relate to employee well-being.

Figure 5.5, below, presents a diagrammatical view of the structural model in PLS-SEM. The figure depicts the paths between the study's exogenous and endogenous constructs. It also shows the factor loadings for each item which measured the primary constructs used in the research.

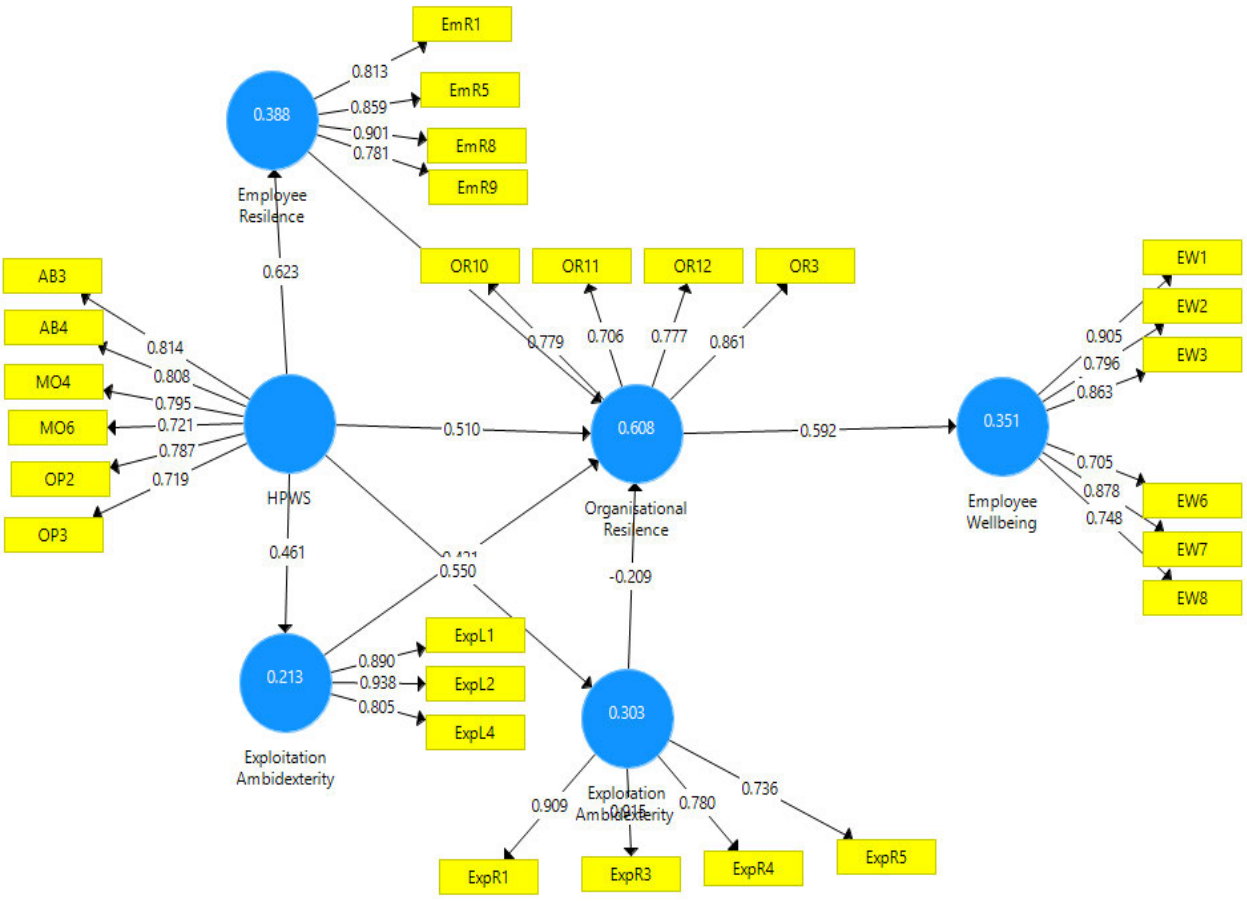


Fig. 5.5 A path model of the relationship between the main constructs of the study

5.2.4.3 Coefficient of determination

The R^2, also known as the coefficient of determination, measured the in-sample prediction of all endogenous constructs (Hair et al. 2020:107) and represented the combined effects of all the linked exogenous constructs on the endogenous construct (Jony and Serradell-López 2020:13). The R^2 value must be between 0 and 1. R^2 values of 0.75, 0.50, and 0.25 are interpreted as substantial, moderate, and weak, respectively (Hair et al. 2021:118; Hamakhan and Taha 2020:17). The results of the PLS-SEM analysis of the coefficient of determination is presented on Table 5.16.

Table 5.16 Coefficient of determination (R^2)

Constructs	R Square	R Square Adjusted
Employee Resilience	0.388	0.383
Employee Well-being	0.351	0.346
Exploitation Ambidexterity	0.213	0.206
Exploration Ambidexterity	0.303	0.297
Organisational Resilience	0.608	0.595

Source: field data, 2022

The data in Table 5.16 shows that the R^2 value for employee resilience is 0.388, for employee well-being it is 0.351, and for organisational resilience it is 0.608. Employee exploitation and exploration ambidexterity have R^2 values of 0.213 and 0.303, respectively. These results are also shown graphically in Figure 5.6. Both Table 5.17 and Figure 5.6 show that HPWS explains 21.3% of exploitation ambidexterity; 30.3% of exploration ambidexterity; 38.8% of employee resilience; and 60.0% of organisational resilience. They also show that organisational resilience explains 35.1% of employee well-being. Altogether, the values range from 0.213 to 0.608. Hence, the results show that the explanatory power of the model is acceptable, since it demonstrates the relative and moderate influence of HPWS on employee resilience and ambidexterity, as well as organisational resilience within the pharmaceutical industry of Ghana. The moderate acceptance also reveals the explanatory influence of employee resilience and ambidexterity on organisational resilience and the influence of organisational resilience on employee well-being within the pharmaceutical industry of Ghana.

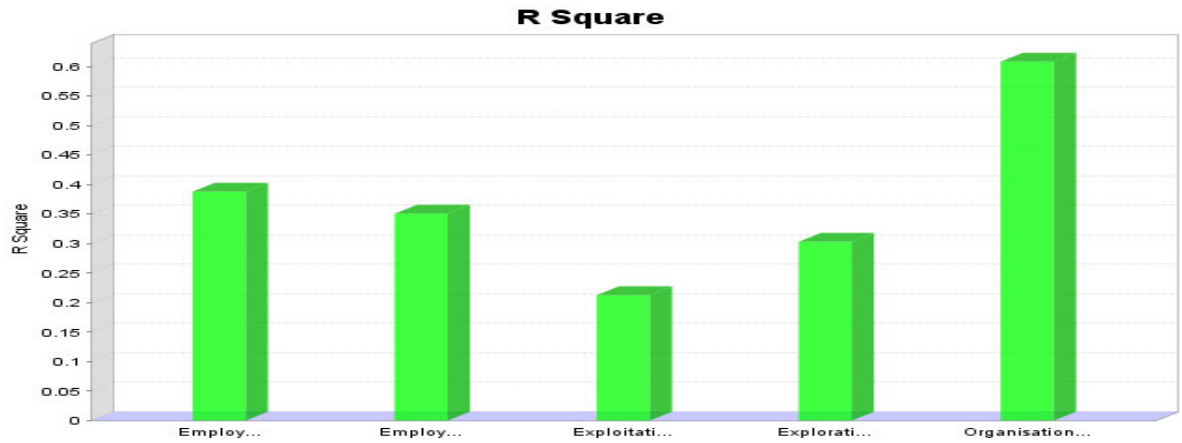


Fig. 5.6 Measurements of in-sample prediction of all endogenous constructs

Figure 5.7, below, illustrates the adjusted R^2 values. The adjusted R^2 is used because of the inherent bias in research models when relying on only the R^2. Hair et al. (2017:203) advocated that researcher use the adjusted coefficient of determination to avoid the inherent bias. The adjusted R^2 values range from 0.206 to 0.595. Hence, the R2 and R2 adjusted values are considered in this research study to evaluate the predictive power of the model.

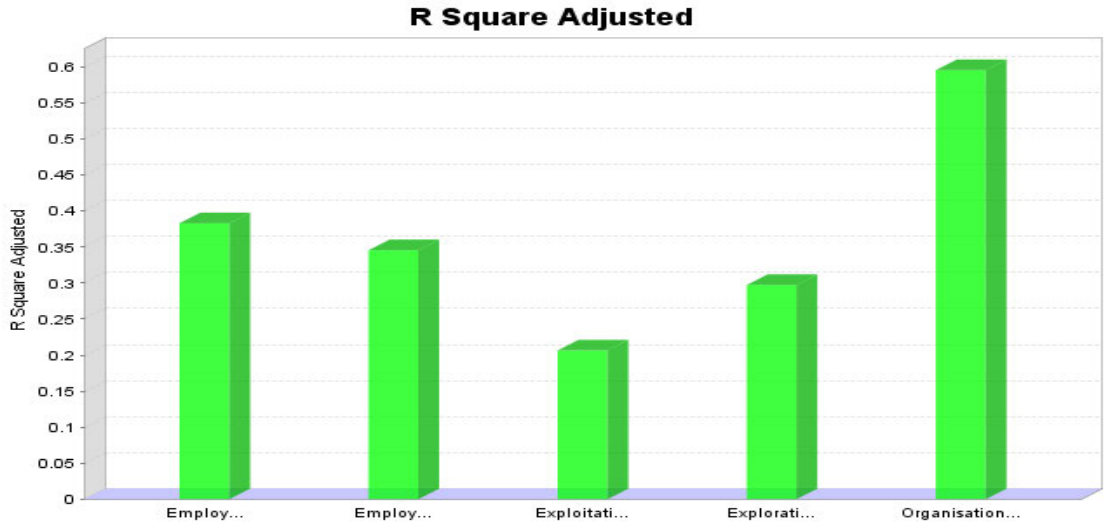


Fig. 5.7 Adjusted R^2.

5.2.4.4 f^2 Effect Size

As well as the R^2, the predictive ability of each independent construct in the model was determined (Hair et al. 2020:107). The f^2 values of 0.02, 0.15, and 0.35, respectively, represent small, medium, and large effects of an independent variable on specific dependent variables (Hamakhan and Taha 2020:17). The results of the analysis, as shown in Figure 5.8, indicate that HPWS had a significant and large effect on employee resilience (0.634) and exploration ambidexterity (0.435). Further, HPWS records a significant and moderate effect size on organisation resilience (0.349) and exploitation ambidexterity (0.270). Similarly, exploitation ambidexterity also moderately affects organisational resilience (0.248). In addition, the effect size of organisational resilience on employee well-being is significant and large (0.540). However, employee resilience has a weak effect on organisational resilience (0.046). Likewise, exploration ambidexterity (0.052) also records weak effect size on organisational resilience.

The effect sizes are illustrated in Figure 5.8, below. The figure shows that the effect of HPWS on employee resilience and exploration ambidexterity is large and significant, since the f^2 values are higher than 0.35. The effect of HPWS on employee resilience and exploration ambidexterity is moderate because the f^2 values range from 0.15 and 0.35. The f^2 value of organisational resilience on employee well-being is also greater than 0.35. However, the f^2 values of employee resilience and exploration ambidexterity on organisational resilience are lower than the threshold criterion of 0.02.

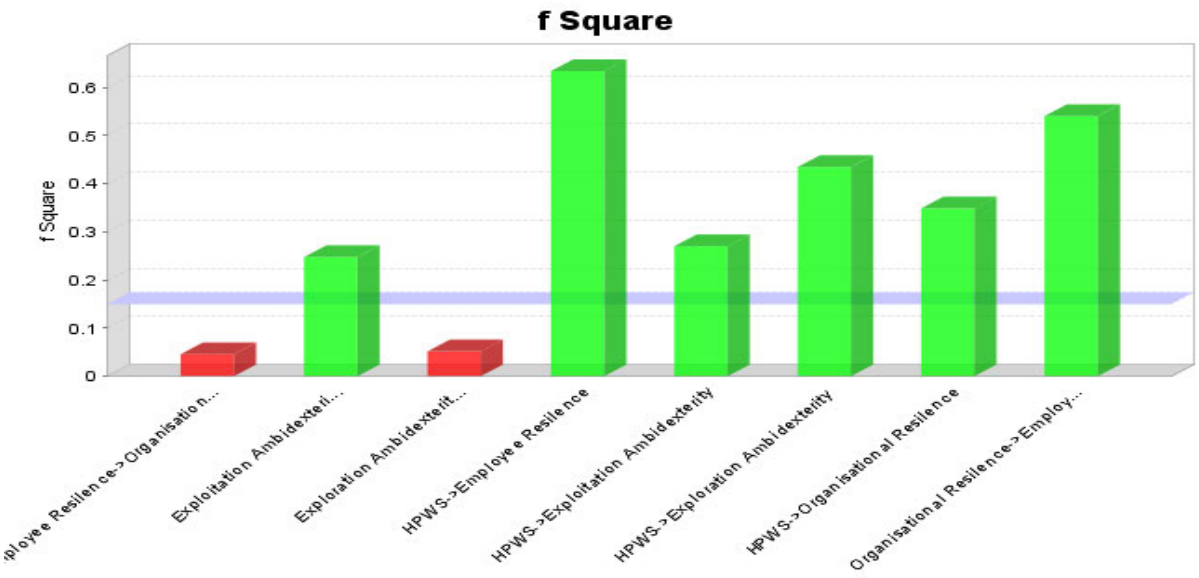


Fig. 5.8 The f^2 effect sizes

Note: Effect size and interpretation: $f2 \geq 0.35$ strong effect, $0.15 \leq f2 < 0.35$ moderate effect, $0.02 \leq f2 < 0.15$ weak effect, $f2 < 0.02$ unsubstantial effect

5.2.4.5 Predictive Relevance Q^2

Note that, while the value of R^2 reflects or deals with the predictive accuracy, the Q^2 value represents the predictive relevance of the model. To satisfy the criterion for predictive relevance of the model, Q^2 values must be greater than zero. Q^2 values greater than zero indicate predictive relevance of the model, and Q^2 values exceeding 0.25 and 0.50, for example, represent the PLS-SEM model's medium and large predictive relevance (Ghasemy et al. 2020:1137; Hair et al. 2020:107). The predictive relevance of the endogenous constructs for this study is shown in Table 5.17.

Table 5.17 Predictive Relevance Q^2

Endogenous variables	Q^2 Values	Decision
Employee resilience	0.031	Predictive relevance
Exploitation ambidexterity	0.034	Predictive relevance
Exploration ambidexterity	0.023	Predictive relevance
Organisational resilience	0.295	Predictive relevance
Employee well-being	0.037	Predictive relevance

Source: field data, 2022

Table 5.17 shows that the Q^2 values obtained were 0.031 for employee resilience; 0.034 for exploitation ambidexterity; 0.023 for exploration ambidexterity; 0.295 for organisational resilience; and 0.037 for employee well-being. Thus, the results support the predictive relevance of the research framework, since all the Q^2 are greater than the zero threshold for the endogenous variables (Geisser 1975; Hair et al. 2017:202.). Hence, the values for the endogenous variables in the study's research model are satisfactory and adequate.

5.3 Qualitative data analysis

This section presents the findings from the qualitative data analysis. The first part considers the data presented on the biographical characteristics of the interview participants. The rest of the qualitative findings are presented in themes. A thematic approach was used to help identify, analyse, and report patterns within the data (Braun and Clarke 2006). In all, the data reflects 15 sub-teams; the purpose of which is to enhance and offer an explanation for the quantitative outcomes.

5.3.1 Demographic profile of participants

Table 5.18 presents data on the position, department, length of service, and qualifications of the respondents. The actual identities of the participants have been coded as PH to guarantee the anonymity and confidentiality of their personal information.

Table 5.18 Characteristics of participants

Number	Identity	Position	Department	Length of service	Qualification
1	PH1	HR manager	Human Resource	11 years	Postgraduate
2	PH2	HR manager	Human Resource	9 years	Postgraduate
3	PH3	HR manager	Human Resource	6 years	Postgraduate
4	PH4	HR manager	Human Resource	7 years	Postgraduate
5	PH5	HR manager	Human Resource	9 years	Postgraduate
6	PH6	HR manager	Human Resource	7 years	Postgraduate
7	PH7	Factory Supervisor	Operations	6 years	Graduate
8	PH8	Operations Supervisor	Operations	7 years	Graduate
9	PH9	Procurement officer	Procurement and Logistics	5 years	Postgraduate
10	PH10	Sales officer	Marketing	4 years	Postgraduate
11	PH11	Accounts officer	Accounting	5 years	Postgraduate
12	PH12	Front Desk Executive	Public Relations	3 years	Graduate

Source: field data, 2022

Table 5.18 shows that six participants (50%) are HR managers, while the other six participants (50%) are employees from various functional areas such as accounting; marketing; logistics; public relations; and operations. In addition, most participants, (75%) hold postgraduate degrees. Likewise, 84% of the interviewees have spent five or more years with their respective organisations, while only 16% have spent less than five years with their organisations.

5.3.2 Findings on high-performance work systems

HPWS, in this study, suggests that an employee's performance in any role depends on the individual's abilities and motivation, and the opportunity to perform in the specific context (Boxall and Purcell 2011:190). Thus, this study is examining the role of pharmaceutical firms in enhancing ability, motivation, and opportunity practices. The

outcomes of the interview responses on HPWS have been summarised and are presented in Table 5.20

Table 5.19 High-performance work systems

Themes	**Supporting cases**	**Total number of supporting cases (%)**
Identify skills to improve performance	PH1-PH12	12/12 (100%)
Pay reflects industry offers	PH1-PH12	12/12 (100%)
Staff have opportunities to make decisions	PH1-PH12	12/12 (100%)

Source: field data, 2022

The thematic information in Table 5.19 confirms the existence of HPWS within pharmaceutical manufacturing firms as a central theme. Based on the AMO theory of HPWS, all participants revealed their experience of ability-motivation-opportunity-enhancing practices within the research context. This outcome demonstrates that HPWS influences work practices that enhance employee ability to perform well; offer pay levels that motivate; and make available opportunities for decision-making. As shown in the word cloud in Figure 5.9, below, the most important concern for the participants regarding using performance appraisal is identifying their skill sets to improve performance. Thus, in Figure 5.9, the larger the words are shown, the more they have been used by the respondents. One of the key emerging themes of HPWS within the PMAG is ensuring that employees have the required skills, knowledge, and ability to continually perform. The following comments from some of the participants are of evidential value. From a managerial perspective, one participant indicated:

"*The ultimate goal is to improve employee performance. Hence, we engage in PA to identify the strength and weaknesses of employees. So doing PA enables the line managers to identify employee training needs and the kind of task to assign employees. However, beyond these, PA also helps us to equitable reward performance"* (PH5).

The perspectives of the non-managerial participants also corroborated the managerial perspective. For instance, PH 7 indicated:

"Well, my perception is that PA is all about performance. The PA is largely for evaluating current performance. They ask questions about future goals and performance. The other, let's say, an important thing in there is that they ask about the skills or knowledge one needs to improve your performance. It is just on a few occasions they provide rewards or do promotion out of annual PA but mostly is achieving about performance."

Fig. 5.9 Word cloud of responses on high-performance work systems

Motivation is key to retaining competent employees and achieving and maintaining continual work performance. As indicated earlier, motivation-enhancing practices constitute a key dimension of HPWS. In other words, pharmaceutical manufacturing firms will not succeed if the work system is not motivating. One item for measuring employee motivation is the pay level. When asked how comparable their pay levels were in relation to competitors, each managerial participant mentioned that their company pays above the industry average. As noted:

"… our compensation policy is very competitive. We pay well compared to our competitors, and as a matter of policy, we try to stay about the industry average" (PH2).

However, the non-managerial participants perceived that their pay levels were no different to what their competitors offered. As an illustration, PH10 commented:
"I don't think there is much difference between what my company offers and what its competitors are paying. At least, I have a fair of idea what some two supposed competitors are paying."

Reconciling the two perspectives shows that the participants experience HPWS within the PMAG. Taking a cue from the word cloud in Fig. 5.9, the most dominant words about motivation-enhancing practices are pay, level, industry, and competitors.

The literature on HPWS reports that, even if employees have the required abilities and motivation, the work environment must inspire employees to participate in decision-making, sharing ideas, setting goals, and completing expected tasks (Bhatti et al. 2021:436; Boxall and Purcell 2011:5; Zhang et al. 2020:912; de Reuver et al. 2021:2889). The responses from the respondents also reveal that employees within the PMAG have opportunities to make critical work-related decisions. All the participants stated this position. According to PH7:
"Yes, I think that employees here are empowered to make work-related decisions they deem fit and appropriate to achieve their goals. We have made several work-related decisions individually or collectively depending on the task."

PH8 echoed a similar sentiment: *"Yes, we do. It is not everything that employees need to consult. There are many times when an employee has to make work-related decisions."*

From Fig. 5.9, the dominant words about opportunity-enhancing practices include 'make, work, decisions, and opportunities'. Based on the preceding outcomes, these findings suggest the prevalence of HPWS within the Pharmaceutical Manufacturers Association of Ghana.

5.3.3 Outcomes on employee resilience

Employee resilience refers to "employee capability, facilitated and supported by the organisation, to utilise resources to continually adapt and flourish at work, even if/when

faced with challenging circumstances" (Nguyen, 2016:3). Table 5.20 presents three themes that emerged from the responses of the interview participants, based on their perception of the resilience of their colleagues in their respective organisations. All-in-all, the participants confirm the resilience of the employees (see word cloud in Figure 5.10).

Table 5.20 Outcomes on employee resilience

Themes	**Supporting cases**	**Total number of supporting cases (%)**
Accept and learn from change process	PH1-PH12	12/12 (100%)
Effectively respond to feedback and criticism	PH1-PH12	12/12 (100%)
Collaborate through teamwork and knowledge sharing.	PH1-PH12	12/12 (100%)

Source: field data, 2022

The participants were asked how they use change at work as an opportunity for growth. All the participants indicated that they accept and adapt to change and use the change processes to learn to improve their work and careers. The two statements below provide evidence:

"I think my colleagues have a positive attitude to accepting change as it happens. We adjust and learn from the process as long as the change makes us better" (PH7).

"I think we are receptive to change and seize the opportunities to learn from the change situations. The lessons, the stress, and the knowledge are all opportunities that prepare us for progress" (PH10).

Concerning the participants' perspectives on how effectively employees respond to feedback and criticism, all the participants indicated that their colleagues respond very effectively to feedback and constructive criticism. It is essential to highlight that, although the question did not use the word 'constructive' criticism, nine out of the 12 respondents emphasised the word 'constructive'. As an illustration, PH 11 stated:

"*I believe we all respond effectively to feedback. In fact, everyone does. The same is true for criticisms made constructively and respectively."*

Likewise, PH10 stated that: *"We respond to feedback very effectively. We need it to improve our work. The thing about criticism is that when it is constructive, people are receptive to it. So, yes, we respond very effectively."*

Fig. 5.10 Word cloud of responses on employee resilience

Furthermore, all the participants noted that they collaborate effectively with others to handle challenges at work, mainly through teamwork and knowledge-sharing. Some of the participants shared the following:

"If the challenge is within our unit, we handle it as a team by sharing various perspectives on the problem until it is resolved. We ask for help from other departments if it is beyond us. They are always happy to come on board and help. That is how we do it here. Unless it is beyond us, they will bring people from outside to help" (PH6).

"I think that members in my unit collaborate very effectively, and I believe other teams do the same. We have respect for one another, and we also value the contribution of every member. We tolerate mistakes, share ideas, and provide feedback. It's a good team and the collaboration is good" (PH7).

5.3.4 Findings on employee ambidexterity

Individual ambidexterity refers to the ability of employees in pharmaceutical manufacturing firms to simultaneously exploit present knowledge capabilities while

exploring new ideas and opportunities to perform successfully (Mu et al. 2020:53; Caniëls and Veld 2019:567). Thus, the extent to which employees combine exploitation and exploration of work-related activities in the pharmaceutical sector was examined. The results show that employees within pharmaceutical firms engage more in exploitation work activities than exploration activities. The detailed outcomes are shown in Table 5.22.

Table 5.21 Employee ambidexterity

Sub-themes	**Supporting cases**	**Total number of supporting cases (%)**
Always accumulate experience	PH1- PH12	12/12 (100%)
Always use present knowledge	PH1- PH12	12/12 (100%)
Learn and use new skills and knowledge	PH2, PH3, PH4, PH7, PH8, PH9, PH10	7/12 (58.33%)
Often searched for new possibilities	PH1- PH12, PH6, PH7, PH8, PH9, PH10	10/12 (83.33%)

Source: field data 2022

Table 5.21 presents the themes that emerged from the interview data. In order to collect data on individual exploitation activities, the researcher first asked the participants about the extent to which they had gained experience from the work-related activities they had engaged in over the last year. To a large extent, all 12 participants had accumulated much experience. For example, PH6 opined:
"Yes, I can say I have accumulated a lot of experience to a very large extent." In a related response, PH7 also stated a similar view: "*I think to a very a large extent. The challenge last year was a lot and came with lots of experience."*

Secondly, when asked about the extent to which they had engaged in work-related activities using their present knowledge, it emerged from the interview data that all the participants (PH1- PH12) always used their knowledge to properly fulfil their work-related duties. PH4, for example, shared:

"Of course, you won't come and meet me here if I cannot perform my duties properly. My current skill sets are invaluable to the duties I perform here and why I am still in employment. So I always use my present skills and knowledge. It's a must I do, if not, I am not an employee."

Other participants shared similar sentiments. For example, according to PH11, *"I have served five years with this firm but have been in this role of the past three years. My job assignments have not changed yet. So I always use my present knowledge and skills. I have control over my work and always do so because of my current knowledge and skills."*

In assessing individual exploration ambidexterity, two sub-themes emerged. Firstly, a few participants indicated that they participated in work-related tasks that involve learning new skills or knowledge. As evidenced in Table 5.22, PH2, PH3, PH4, PH7, PH8, PH9 and PH10 hinted that, over the last year, they had been engaged in activities that required the use of new skill sets and knowledge. For example, PH8 responded that:
"I will say 60/40. 60 in favour of new skills or knowledge requirements." Another responding employee indicated that *"If we are only looking at it from last, then I will say to a great extent. This is a new role for me, and that involves some appreciable level of new skills and knowledge"* (PH9).

A similar view emerged when the participants were asked how often they had searched for new possibilities concerning the processes they engaged in at work; or their companies' products. The data shows that most participants (PH1- PH12, PH6, PH7, PH8, PH9 and PH10) pointed out that they often searched for new possibilities in relation to the work-related processes they engaged in and for the products of the company. In responding to their exploration activities, some participants expressed the following sentiments:
"We do that very often. At least, I do and finding a new way of doing this, is a big thing for my colleagues and me. We always desire a better way of how we do things. There is always the pressure to be efficient, and we keep searching for new ways to improve" (PH7).

*"I do that all the time. We can't be doing the same things all the time to delight the customer or achieve customer success. You know, competition these days is though. So we try to search new ways to get around it and be competitive" (*PH10).

5.3.5 Findings on organizational resilience

For a pharmaceutical manufacturing firm to be described as resilient, it should have the tenacity to expect, prepare for, and respond and adapt to, incremental change and unexpected disruptions in order to survive (Denyer 2017:3). Four themes emerged from the responses of the participants about the perceived resilience of the pharmaceutical manufacturing firms. The sub-theme are presented in Table 5.22.

Table 5.22 Organizational resilience

Sub-themes	**Supporting cases**	**Total number of supporting cases (%)**
Analysis and report industry changes	PH1- PH6, PH7, PH8, PH9, PH11	10/12 (83%)
Promote mindset for the unexpected.	PH1, PH4, PH6, PH7, PH8, PH9, PH10, PH11, and PH12	9/12 (75%)
The plan depends on the crisis	PH1-PH12	12/12 (100%)
There are talents available to fill key roles	PH1-PH12	12/12 (100%)

Source: field data 2022

As shown in Table 5.22, the interviews revealed what the pharmaceutical manufacturing firms do to proactively monitor their industry to be warned early about emerging issues. The data shows that all the participants (PH1-PH12) believe that their firms regularly scan the industry environment to detect the early warning signs of factors that can impact the fundamental structure of the industry. As PH3 mentioned:

"*… if your question is whether we have a department or unit that monitors that, then no we don't. But it is an integral part of the work of supervisors, team leaders, and managers. You see, the template for submitting regular reports includes issues that may*

affect their activities now or in the immediate future. So at management meetings, we collate these issues to have a bigger picture of the industry outlook."

In addition, PH11 also shared how the firms pick up signals from the industry environment:

"*We mostly do so, at least, at my unit. Any time we submit weekly reports, we include issues in the industry and how we have positioned ourselves to deal with those issues."*

The participants were also asked if their firms actively promoted a mindset that it is important to prepare for the unexpected. The responses from most of the participants (PH1, PH4, PH6, PH7, PH8, PH8 PH10, PH11 and PH12) indicate that the pharmaceutical manufacturing firms do actively promote a mindset that it is important for employees to always prepare for the unexpected. The following statements from the participants provide support for this:

"Well, from my end, we do that periodically, depending on what is happening in the industry. Because we need to be careful not to scare anyone, we focus on enhancing their soft skills so they can deal with unexpected events as and when they occur" (PH4).

"… Yeah, that wasn't the case until Covid started. I guess they have learned some lessons from that. Moreover, with these economic challenges, it is all about preparing for the unexpected. They keep talking about it. So we are prepared for anything" (PH12).

When asked about the plans their firms have to continue delivering their core functions during crises, all the interviewees suggested that their firms do not have any written plan to continue performing their core functions during a crisis. However, the participants pointed out that activating a particular plan to maintain core function is contingent on a specific crisis. From the managerial perspective, for example, PH1 indicated that:

"*… if we see the crisis coming, why not, we will have the plan to deal with it so that we can still deliver on our mandate. However, when we don't see the problem, and it occurs, we still create plans to handle it successfully. So the question of what plans, it depends; but as for our mandate, no matter the crisis, we will still achieve it."*

All the non-managerial participants confirmed this position. PH8 reported that:
"I don't think there is such a prepared plan. If there is, then I don't know. But my people are like fire service. When the problem comes, they will quench it. We've gone through Covid-19. No one was expecting Covid, and there was no plan. In the same way, we were not expecting the economic situation in Ghana to be this bad. Nevertheless, we are going through it."

The participants indicated that pharmaceutical manufacturers always have other employees to occupy key roles if key people are unavailable at any time. Participants noted the following:
"Yes, there are always others who can fill their roles. We have purposefully developed others to fill those roles when they occur" (PH4).

"Yes, there are. Here, to be in a key position means you have gone through the company mill. Those positions are always filled from within. So there are always people to queue to occupy those positions" (PH12).

5.3.6 Employee well-being

The participants (PH1-PH12) also provided data about the well-being of employees at work by providing their perceptions on the nature of social relationships at work. In addition they shared how they contribute to the happiness and well-being of others at work and why they are optimistic about the future at work. The dominant themes that emerged from the data on employee well-being are captured in Table 5.24.

Table 5. 23 Employee well-being

Themes	**Supporting cases**	**Total number of supporting cases (%)**
Supportive and rewarding social relationships	PH1-PH12	12/12 (100%)
Friendly and supportive work relationship	PH1-PH12	12/12 (100%)
A good workplace with career opportunities	PH1-PH12	12/12 (100%)

Source: field data 2022

Table 5.23 shows that three themes emerged from the data on employee well-being: very supportive and rewarding social relationships; friendly and supportive work relationships; and a good environment for work and future opportunities. In response to questions about how supportive and rewarding their social relationships at work are, all the participants confirmed that their social relationships at work were supportive and rewarding. For instance, PH7 noted that:

"We have a very good social relationship at work. Everyone is supportive, and I strongly believe our social relationship is worth it. I mean both at work and outside work."

PH8 agreed with PH7:

"I think our social relationship at work is very good. We socialise very well and are ready to support one another. So I will say it is very good and rewarding."

The participants also expressed their opinion on how they contribute to the happiness and well-being of others through their work. The following interviewee statement provides evidence of employee well-being within the pharmaceutical manufacturing companies:

"Well, the work environment is already friendly. My contribution is to treat all staff fairly and respectfully, relate well, and support them. I take pride in my colleagues' successes and show interest in the challenges. That sense or feeling that my colleagues are there for me makes people happy too. Therefore, I try to be there. I will say I try to maintain a pleasant and friendly relationship with my colleagues and others" (PH7).

"*Well, I try to do what people like. I try to support my colleagues when I can. I try to nurture good work and social relationships. I try to pay attention to colleagues when they need it. I share the little knowledge I have to improve their work. I believe in work and happiness, so I tend to be playful at work"* (PH12).

All the participants were also optimistic about their futures with their respective organisations. When asked why this was so, PH9 explained:

"I think it is a good workplace. I feel I have a career, and not just a job, and evidently, there is an opportunity to grow. I learn and grow each day on the job. I like what I do here, and I feel my contribution is recognised."

In a similar statement, PH6 noted:

"*Well, I think I have a future and career. I started from a low level, and I am happy about my progress so far. I like the opportunities to learn and develop. My current assignments are very challenging and giving the opportunity to build a career. The future is good if we remain competitive."*

5.4 Conclusion

This chapter presents the results from the empirical data. The chapter began by providing the descriptive results of the biographical data: gender, age category, the highest level of education, length of service, and employment status. Thereafter, the chapter focused on the measurement model's evaluation to ascertain the data's quality, and indicator reliability, internal consistency, and convergent and discriminant validities were assessed. The items and the constructs were found to be reliable and valid. The chapter then evaluated the goodness of model-fit, which has been confirmed. The structural model evaluation was then conducted using PLS-SEM to test the ten hypotheses developed, based on the model. For each case, t-statistics were used to assess the statistical significance of the relationships. The outcomes confirmed nine hypotheses.

The qualitative results followed the results from the quantitative analysis. The qualitative analysis was done with the aid of Nvivo, by following the thematic approach of qualitative data analysis. Thus, the qualitative results were organised into themes that were developed, based on codes and dominant key words. The outcomes of the qualitative data reflect or provide support for the quantitative results.

The next chapter focuses on discussing the outcomes of both the quantitative and qualitative outcomes of the study. This is where the outcomes of both quantitative and qualitative data converge. The discussion will begin with the quantitative outcomes, followed by the qualitative results for each relationship in the research model. The discussions are presented based, on the study's objectives and in relation to the existing literature on the related concepts. The chapter also presents the study's possible theoretical, methodological, and managerial implications.

CHAPTER SIX

DISCUSSION OF RESULTS AND CONTRIBUTIONS OF THE STUDY

6.1 Introduction

Both quantitative and qualitative data were presented in Chapter Five, after conducting explanatory, sequential mixed research. In the quantitative phase of the study, twelve hypotheses were tested, based on the structural model evaluation. The outcomes show that nine hypotheses were accepted, while three were not confirmed. The qualitative data outcomes were presented after the quantitative results. The qualitative findings were organised in themes to help explain the quantitative outcomes. Most of the qualitative results confirmed the quantitative outcomes. The quantitative and qualitative results are now integrated and discussed, as presented in Chapter Six. The discussions are based on the research objectives, research questions, and the developed hypotheses. Firstly, the results on the impact of HPWS on employee resilience, ambidexterity, and organisational resilience is discussed. Then, the discussion focuses on the effect of employee resilience and individual ambidexterity on organisational resilience. Finally, the mediating role of organisational resilience will be discussed. Empirical evidence from previous studies and relevant theories have also been used to support the discussions.

6.2 Discussions

The role of human resource activities in enhancing employee well-being continues to receive increasing attention from scholars and practitioners, especially since organisations continually face adversity and disruptions. The initial focus of HPWS is to improve employee performance (Appelbaum et al. 2000; Boxall and Purcell 2003). In recent decades, researchers have been investigating the role of HPWS in promoting employees and organisations. This study provides further insight into the direct predictive role of HPWS on employee resilience, individual ambidexterity, and organisational resilience. It also examines the effect of employee resilience and individual ambidexterity on organisational resilience. Finally, it investigates the mediating role of organisational resilience on the relationship between HPWS, employee resilience, individual ambidexterity and employee well-being. On this basis,

the study developed and tested ten hypotheses, the outcomes of which are discussed below.

6.2.1 HPWS on employee resilience, ambidexterity, and organisational resilience

The first objective of this research was to examine the effects of a high-performance work system on employee resilience, employee ambidexterity, and organisational resilience within the pharmaceutical industry in Ghana. Consistent with these objectives, four hypotheses (H1a, H1b, H1c, and H1d) were developed and tested. The outcomes of the data analysis confirmed the four hypotheses. The results revealed that HPWS, significantly and positively, relates to employee resilience within the pharmaceutical industry of Ghana, confirming H1a. This outcome is consistent with previous studies that examined the relationship between HPWS and employee resilience (Rehman et al. 2021; Cooke et al. 2019; Nadeem et al. 2019; Bustinza et al. 2016; Wang et al. 2014). The qualitative outcomes support the relationship between HPWS and employee resilience within the research context. Thus, ability-enhancing practices (such as identifying skills to improve performance), motivation-enhancing practices (such as paying employees wages that reflect, or are above, the industry norm), and opportunity-enhancing practices (such as providing employees opportunities to make work-related decisions) lead to employee resilience. The quantitative results indicate that HPWS positively affects employee resilience. To corroborate this, the qualitative results show that employees in the pharmaceutical manufacturing sector of Ghana demonstrate resilience, such as adapting to crises by accepting and learning from change processes, effectively responding to feedback and constructive criticism, and collaborating through teamwork and knowledge-sharing. These outcomes also align with the existing literature on HPWS and employee resilience. For example, Abugre and Nasere (2022), Wang et al. (2021; 2014) and Rehman et al. (2021) established that resilience is a skill that can be cultivated through a bundle of human resource activities.

Secondly, the results from the quantitative data show that HPWS has a significant and positive effect on organisational resilience within Ghana's pharmaceutical manufacturing firms. Thus, this outcome accepts H1b. The finding shows that adopting ability-motivation-opportunity-enhancing practices leads to resilience in pharmaceutical manufacturing firms. In other words, the findings suggest that high-

performance work systems in the pharmaceutical manufacturing firms in Ghana make these organisations resilient. The findings from the qualitative data also confirmed this assertion. All the participants reported that the pharmaceutical manufacturing firms are resilient. Of importance is the fact that the pharmaceutical manufacturing firms analyse and report on changes in the pharmaceutical industry, which enables the firms to prepare to respond accordingly to changing situations. In addition, the pharmaceutical manufacturing firms in Ghana have developed a pool of talent ready to fill key staff roles in the event of their unavailability over time. This outcome reflects previous studies that investigated the effect of HPWS on organisational resilience (Al-Taweel 2021; Kim et al. 2021; Teng-Calleja 2020; Meddour et al. 2020; Zhou et al. 2019; Ali et al. 2019; Obeidat et al. 2016). The essence is that, when pharmaceutical firms focus on ability-motivation-opportunity-enhancing HR practices, it positions the organisations to adapt or survive during a crisis and eventually bounce back, even if a crisis should limit their ability to maintain their core functions.

Thirdly, regarding the relationship between HPWS and employee exploration ambidexterity, the quantitative analysis confirms that HPWS also has a significant and positive effect on employee exploration ambidexterity within the pharmaceutical industry of Ghana, thereby accepting H1c. The qualitative result also provides support for the quantitative outcomes. The qualitative result shows that, since last year, the participants working in the pharmaceutical manufacturing firms have been engaging in exploration activities, such as learning and using new skills and knowledge and often searching for new possibilities concerning their work-related activities. Both the quantitative and qualitative outcomes are consistent with the outcomes of related empirical studies (Úbeda- García et al. 2022; Gürlek 2021; Úbeda-García et al. 2018; Chang 2016; Prieto-Pastor and Martin-Perez 2015; Garaus et al. 2015; Fu et al. 2015; Patel et al. 2013; Flickinger et al. 2013). These researchers have also found that ability-motivation-opportunity-enhancing practices enable employees to explore new ideas and opportunities when faced with challenges.

Fourthly, the other dimension of individual ambidexterity is in exploitation activities. The study posits a significant and positive relationship between HPWS and employee exploitative ambidexterity within the pharmaceutical industry of Ghana (H1d). The statistical outcomes accept H1d. The qualitative data further supports the relationship

between HPWS and employee exploitative ambidexterity. The participants confirmed engaging in exploitation activities in the pharmaceutical industry of Ghana. In addition, the participants reported engaging in work-related activities that required them always to use their existing knowledge, with the result that they have gained much experience in their current roles. These outcomes are consistent with the findings in previous studies (Úbeda- García et al. 2022; Gürlek 2021; Úbeda-García et al. 2018; Chang 2016; Prieto-Pastor and Martin-Perez 2015; Garaus et al. 2015; Fu et al. 2015; Patel et al. 2013). These scholars have confirmed the predicted role of a high-performance work system on employee exploitation ambidexterity.

6.2.2 Employee resilience and ambidexterity on organisational resilience

The study's second objective was to establish the impact of employee resilience, exploitation, and exploration ambidexterity on organisational resilience within the pharmaceutical industry in Ghana. Under this objective, three hypotheses (H2a, H2b, and H2c) were tested. The first hypothesis in this section examined the effect of employee resilience on organisational resilience within the pharmaceutical industry of Ghana. The findings do not support the proposition that there is a positive and significant relationship between employee resilience and organisational resilience, thus, rejecting H2a. This outcome is consistent with a recent survey of 312 employees at the Bureau of Land Management in the US, where the employees perceived themselves as resilient but had no confidence in the resilience of their organisation (Nyaupane, Prayag, Godwyll, and White 2020:658). Thus, the quantitative outcome suggests that, although employees of the pharmaceutical manufacturing firms in Ghana believe they are resilient, it does not translate into the resilience of their organisations. The qualitative outcome, however, does not support this statistical result in this research context. The qualitative study identified characteristics or indicators of organisational resilience. The findings from the responses point to the pharmaceutical firms' capacity to adapt to challenges. For example, resilient organisations regularly monitor, analyse, and report industry changes, promote an employee mindset for the unexpected, and have a pool of talent available to fill critical roles at any time (Seville 2017:21). These indicators reflect the resilient character of the pharmaceutical manufacturing firms in Ghana. It also echoes previous empirical studies in other contexts, which have established that, when employees are resilient, it can lead to a resilient organisation (Liang and Cao 2021; Hillmann and Guenther 2021; Prayag et al. 2020; Kim 2020;

Seville 2018; Nilakant et al. 2016). The contradictions in the quantitative and qualitative findings allow pharmaceutical firms to engage in tailored-made employee-led resilient organisational building strategies.

The second hypothesis in this section, H2b, sought to assess the effect of exploitation ambidexterity on organisational resilience. Exploitation ambidexterity describes the ability of employees to use their existing knowledge and skills to improve efficiency (Caniëls and Monique Veld 2019:567). The quantitative outcomes of this study established a positive and significant relationship between exploitative employee ambidexterity and organisational resilience within the pharmaceutical industry of Ghana. Thus, the data confirms H2b. The evidence from the qualitative data is congruent with the quantitative outcomes, and the participants confirmed that employees within the pharmaceutical manufacturing sector of Ghana demonstrate exploitative activities by depending on previous or current experience and methods to perform their tasks effectively (Rosing and Zacher 2017:696). By so doing, employees within the research context gain much experience by relying on their previous skills, knowledge, and experience. Exploitation ambidexterity emphasises activities that can enhance the ability of employees to achieve and maintain constantly efficient performance in the short-term, through the use of available resources (Mu et al. 2020:347). Thus, the resilience of the pharmaceutical manufacturing firms can also be attributed to the exploitation activities of the employees. The findings from both the quantitative and qualitative perspectives of this study are similar to those of previous studies that have established the effect of the exploitative activities of employees on organisational resilience (Heinze 2022; Wang et al. 2021; Bechthold et al. 2021; Iborra et al. 2020; Mu et al. 2020; Aslam 2020; Caniëls and Veld 2019).

The third hypothesis ascertained the relationship between employee exploration ambidexterity and organisational resilience within the pharmaceutical industry of Ghana. Exploration activities reflect employee behaviours linked to searching for new opportunities or discovering, creating, and experimenting with new opportunities to perform and accomplish tasks successfully (Rosing and Zacher 2017:695–696; Mom et al. 2007:910). The statistical results indicate a significant, but negative, relationship between employee exploration ambidexterity and organisational resilience within the pharmaceutical industry of Ghana. Thus, this finding suggests a reducing, or inverse,

relationship between exploration activities and organisational resilience. In other words, exploration ambidexterity reduces organisational resilience by 0.449 for every unit change any time employees engage in exploration activities. This is possible when employees do not often engage in exploration activities and therefore do not perceive them as enhancing their capability to adapt or explore new opportunities during a crisis. This finding is inconsistent with the outcomes of similar empirical results in other research contexts which established that a positive and significant relationship exists between exploration ambidexterity and organisational resilience (Heinze 2022; Gayed and Ebrashi 2022; Wang et al. 2021; Bechthold et al. 2021; Iborra et al. 2020; Mu et al. 2020; Aslam 2020; Caniëls and Veld 2019: Amah and Onwughalu 2017). The qualitative outcome provides a clue to explaining the reason for the negative but significant relationship between exploration ambidexterity and organisational resilience within the pharmaceutical industry of Ghana. This study probed the exploration of ambidexterity in searching for new possibilities concerning their company's products or processes and the extent to which participants engage in work-related activities that require them to learn new skills or knowledge (Salas-Vallina, Alegre, and Ferrer-Franco, 2021). Although the outcomes revealed the prevalence of exploration activities, employees seemed to lean towards exploitation rather than exploration activities. Whereas exploitation activities are based on achieving job performance by depending on existing skills and knowledge, exploration activities will require new skill sets and knowledge for taking risks, experimenting, creating, and being innovative (Mom et al. 2007:910; March 1991:71). Engaging in exploration activities will require employees to depart from routine activities, try new things and opportunities, and be innovative (Mu et al. 2020:347; Luu et al. 2018:507). The fact that employees always have a preference for exploitation activities makes engaging in exploration activities significant, but reduces their effect on making pharmaceutical firms resilient. . Given the research context, a possible explanation is that frequent exploration activities may require new competencies, which may take a long time to acquire and can also disrupt organizations' ability to withstand a crisis. Similarly, engaging in exploration activities involves high risk, which may result in high levels of failure and negatively impact their resilience. Further, the desire to explore new opportunities by developing new skills and abilities may lead to the neglect of present capabilities and a lack of focus on present activities, which could reduce or undermine the resilience of firms.

6.2.3 The mediating role of organisational resilience

The third objective of this study was to determine the role of organisational resilience in the relationship between employee resilience, employee ambidexterity, and employee well-being within the pharmaceutical industry in Ghana. To achieve this objective, five hypotheses (comprising one direct and four indirect relationships) were tested to correspond with the objective. The outcomes of these hypotheses are discussed below.

The statistical results from this study revealed that organisational resilience positively, significantly and directly relates to employee well-being within the pharmaceutical industry of Ghana (H3a). Thus, the finding has positive implications for employee well-being within the pharmaceutical manufacturing sector in Ghana. This outcome is in tandem with earlier studies that confirmed a positive and significant relationship between organisational resilience and employee well-being in other contexts (Lamb and Cogan 2016:480; Rasool et al. 2021:2294). Furthermore, the qualitative outcomes provide further insight into the link between organisational resilience and employee well-being in the pharmaceutical manufacturing firms in Ghana. The study examined employee well-being in terms of the supportive and rewarding social relationships employees enjoy at work, how individuals contribute to the happiness and well-being of others through their work, and how optimistic employees are about their future at work. The findings revealed that employees are satisfied with these indicators of employee well-being, thereby mirroring the outcomes of previous studies that organisational resilience leads to employee well-being (Lamb and Cogan 2016:480; Rasool et al. 2021:2294). Both outcomes demonstrate that the well-being of employees within the pharmaceutical firms during crises is a function of the resilience of the pharmaceutical firms. Thus, pharmaceutical firms are resilient inasmuch as employees perceive them to be. In other words, the resilience of pharmaceutical firms is founded on the extent to which employees perceive their environments as resilient-friendly or manifest a willingness to bounce back or survive during crises.

The second hypothesis (H3b) tests the mediating role of organisational resilience in the relationship between employee resilience and employee well-being within the pharmaceutical industry of Ghana. The analysis rejects H3b. Thus, organisational resilience was not found to be a link between employee resilience and employee well-

being within the pharmaceutical industry of Ghana. This outcome contradicts the results of related studies in different contexts where resilience was found to be a link between antecedent variables and employee well-being (Meneghel, Borgogni, et al. 2016; Arasli et al. 2020; Wang and Kong 2020; Malik and Garg 2020; Kong et al. 2021; Aeknarajindawat et al. 2020; Nadeem et al. 2019). However, this outcome is intriguing, since the qualitative findings of a direct relationship between employee resilience and organisational resilience contradict the quantitative results.

A further statistical assessment of the direct effect of employee resilience on employee well-being provides no support (see Appendix B). Therefore, within the context of this study, it is argued that organisational resilience directly affects employee well-being, but does not completely serve as a mechanism between employee resilience and well-being. The way employees perceive the resilience of their firms influences the way they think it will serve to enhance their well-being. The measures managers take when challenges and disruptions occur will lead employees to perceive that their organisations are resilient and seek their wellness.

The third hypothesis (H3c) proposes that organisational resilience mediates the relationship between HPWS and employee well-being within the pharmaceutical industry of Ghana. The outcome of the quantitative analysis confirms this hypothesis. This finding supports previous studies investigating the mediating role of organisational resilience in related research contexts (Meneghel et al. 2016; Dimas et al. 2018; Brykman and King 2021). Furthermore, this finding suggests that HPWS indirectly, but significantly, affects employee well-being through organisational resilience. Thus, although pharmaceutical manufacturing firms implement high-performance work systems, this can only result in employee well-being if employees perceive their firms to be resilient. In other words, the implication is that organisational resilience fully links HPWS and employee well-being in the pharmaceutical manufacturing sector of Ghana. The qualitative outcome echoes the quantitative result and explains the mediating role of organisational resilience. The participants' positive responses to the measures of HPWS and organisational resilience pointed to the fact that both HPWS and organisational resilience serve as invaluable resources for enhancing employee well-being, especially during a crisis.

This study also examined the mediating role of organisational resilience in the relationship between exploitation ambidexterity and employee well-being. The study posits that organisational resilience serves as a mechanism through which employee exploitation ambidexterity relates to employee well-being within the pharmaceutical industry of Ghana. The outcome of the analysis found significant and positive support for H3d, in that employee exploitation activities have both a direct and an indirect effect on employee well-being. This outcome corresponds with previous research that confirmed the mediating role of organisational resilience in the relationship between other constructs and employee well-being (Shain 2020:127; Sánchez et al. 2021:442). This suggests that exploitation activities serve as a significant resource that can contribute to resilient pharmaceutical firms, improving employee well-being. The qualitative outcome provides reliable support and explains the quantitative outcome. In relation to exploitation ambidexterity, all the research participants indicated their full involvement in exploitation activities. Likewise, the participants confirmed the prevalence or existence of organisational resilience and employee well-being in the pharmaceutical industry in Ghana. Therefore, it is safe to conclude that exploitation activities significantly influence employee well-being through organisational resilience within the research context.

Finally, the study investigated the mediating role of organisational resilience in the relationship between exploration ambidexterity and employee well-being within the pharmaceutical industry of Ghana (H3e). The outcome of the analysis found significant, but negative, support for H3e, which implies that organisational resilience does not act as a mediator in the relationship between exploration ambidexterity and employee well-being in the pharmaceutical manufacturing firms in Ghana. This outcome contradicts related studies that have confirmed the mediating effect of firm resilience on the relationship between exploration activities and employee well-being (Shain 2020:127; Sánchez et al. 2021:442). The qualitative data largely confirm the presence of exploration activities in pharmaceutical firms. Although the outcome is positive, not all employees had undertaken extensive exploration activities, which could decrease the resilience of their firms. Exploration activities require a new set of ideas; take a lot of time and resources; can be stressful; and there is no guarantee of achieving the expected outcome, unlike in exploitation activities (Papachroni and Heracleous 2020:6). This

scenario could explain the directly (see Appendix B) or indirectly inverse relationship between exploration ambidexterity and employee well-being.

6.3 Conclusion

This chapter discussed the study's outcomes by integrating the quantitative and qualitative outcomes. The focus of the discussions centred on the main results based on the research objectives and the hypotheses. Sequentially, the qualitative outcomes have been used to explain and provide deeper insight into the quantitative outcomes. Explanations were provided for results that were supported and those that were not. The outcomes that were supported were congruent with related, existing empirical studies.

The next chapter provides the study’s summary, contributions, recommendations, and limitations and makes recommendations for future research. The summary seeks to answer all the research questions. Finally, it provides concluding comments on the entire thesis.

CHAPTER SEVEN

SUMMARY OF FINDINGS, RECOMMENDATION, AND CONCLUSION OF THE STUDY

7.1 Introduction

The findings of both the quantitative and qualitative research were merged and discussed in the previous chapter. This chapter is the final one, and the first section provides a summary of the main findings of the study. In addition, it provides answers to the research questions set out in Chapter One. The second section explains the significant contributions of the study by elucidating the theoretical, managerial, and methodological implications. The third and fourth sections, respectively, dwell on the recommendations of the study and then the limitations and directions for future studies. The final section, the conclusion, provides a summary of each chapter of the study and reflects on the entire thesis.

7.2 Summary of findings

The research aimed at examining the role of high-performance work systems and resilience in employee well-being within the pharmaceutical industry in Ghana. Based on the overall aim, this research sought to achieve four objectives, out of which research questions developed to guide the study. This section provides answers to each of the research questions, which are stated below.

RQ1: *What are the effects of HPWS on employee resilience, employee ambidexterity, and organisational resilience within the pharmaceutical industry in Ghana?*

This research question refers to the first research objective, which sought to examine the effects of a high-performance work system on employee resilience, employee ambidexterity, and organisational resilience within the pharmaceutical industry in Ghana. Four hypotheses were developed and tested, based on this objective. The data supports for the hypotheses: HPWS positively and significantly predicts employee resilience in pharmaceutical manufacturing firms ($\beta = 0.718$, $t= 10.955$, $p=0.000$). The results revealed that HPWS was found to have the most effect on employee resilience, compared to organisational resilience and employee ambidexterity. Secondly, the results show that HPWS also positively and significantly influences organisational

resilience. Organisational resilience is the second most significant predictor of HPWS within the research context (β = 0.687, t=5.977, p= 0.000). Thirdly, the study's outcomes showed that HPWS had a positive and significant effect on exploration (β = 0.624, t=7.217, p= 0.000) and exploitation (β = 0.524, t=4.993, p=0.000) ambidexterity within the research context. Thus, a HPWS facilitates or supports employees' ambidextrous behaviours. However, a HPWS is a better predictor of exploration employee ambidexterity than exploitation ambidexterity. Therefore, the first objective of this study has been achieved, based on the outcomes from the data.

RQ2 *What is the influence of employee resilience and ambidexterity on organisational resilience within Ghana's pharmaceutical industry?*

This research question developed from the second research objective. The objective was to establish the impact of employee resilience, and ambidexterity's impact, on organisational resilience within Ghana's pharmaceutical industry. Three hypotheses were developed to reflect this objective: (1) Employee resilience has a significant and positive effect on organisational resilience within the pharmaceutical industry of Ghana; (2) A positive and significant relationship exists between employee explorative ambidexterity and organisational resilience within the pharmaceutical industry of Ghana; and (3) A positive and significant relationship exists between employee exploitative ambidexterity and organisational resilience within the pharmaceutical industry of Ghana. The results revealed that the relationship between employee resilience and organisational resilience was not significant (β = 0.168, t = 1.541, p = 0.124) within the research context. Thus, the study found that employee resilience does not lead to organisational resilience in pharmaceutical manufacturing firms. Hence, the fact that employees are resilient does not mean that pharmaceutical firms are also resilient. However, the study found that the relationship between exploitation ambidexterity and organisational resilience is positive and significant (β = 0.601, t-value = 5.047, p= 0.000). In other words, the continual use of present experience, existing skills and knowledge, in task performance, leads to resilient pharmaceutical manufacturing organisations. In addition, the study's outcomes revealed that explorative ambidexterity has a significant but negative effect on organisational resilience (β = -0.449, t-value =2.916, and p= 0.004). Thus, the ability of employees to try new things and find new ways of performing tasks has a significant, but decreasing,

effect on organisational resilience. These outcomes suggest that the study's second objective has been achieved.

RQ3: *What is the role of organisational resilience in the relationship between employee resilience, employee ambidexterity, and employee well-being within the pharmaceutical industry in Ghana?*

The study's third objective was to examine the role of organisational resilience in the relationship between employee resilience, employee ambidexterity, and employee well-being within the pharmaceutical industry in Ghana. This objective addresses the third research question. Five hypotheses were developed from this objective for investigation and testing. The first hypothesis examined the direct relationship between organisational resilience and employee well-being. The outcomes revealed a positive and significant relationship between organisational resilience and employee well-being ($\beta = 0.693$, t-value = 12.360, $p = 0.000$). This result is consistent with similar studies that confirm that resilient organisations directly predict employee well-being. The second hypothesis investigated the role of organisational resilience in the link between employee resilience and employee well-being. The results show that employee resilience does not predict well-being through organisational resilience ($\beta = 0.117$, t-value = 1.530, $p = 0.127$) in the pharmaceutical manufacturing firms in Ghana. In other words, the study found no significant effect of employee resilience on organisational resilience and hence could not mediate the relationship between employee resilience and well-being. The third hypothesis assessed the mediating effect of organisational resilience in the relationship between HPWS and employee well-being within the pharmaceutical industry of Ghana. The outcomes show that HPWS relates to employee well-being through organisational resilience ($\beta = 0.476$, t-value = 4.985, $p = 0.000$), which confirms the indirect relationship between HPWS and employee well-being. Finally, the mediating role of organisational resilience in the relationship between employee ambidexterity and employee well-being was examined. The outcomes indicate that organisational resilience mediates the relationship between employee exploitation ambidexterity and employee well-being ($\beta = 0.417$, t-value = 4.730, $p = 0.000$) within the research context. Thus, the study revealed that employees' exploitative activities enhance their well-being. However, the mediating role of organisational resilience in the relationship between employee exploration

ambidexterity and employee well-being within the pharmaceutical industry of Ghana was found to be negative, but significant (β = -0.311, t-value = 2.728, p= 0.007). This means that organisational resilience, though positive, has a decreasing effect on employee well-being in pharmaceutical manufacturing firms. Based on these findings, the third objective of the study has also been achieved.

RQ4: *What is the recommended management framework for improved implementation of a high-performance work system necessary to develop a resilient organisation and employee well-being?*

The final objective of this study was to propose a management framework for improved implementation of a high-performance work system necessary to develop resilient pharmaceutical manufacturing firms and enhance their employees' well-being. The proposed management model, as shown in Fig. 7.2 was based on the summary of research finding as depicted in Fig. 7.1.

Figure 7.1 indicated that HPWS in pharmaceutical firms would lead to employee ambidexterity (exploitation and exploration), employee resilience, and organisational resilience. Thus, is HPWS was found to significantly affect employee resilience, organisational resilience, and employee ambidexterity. Furthermore, the the exploitative activities of employees would positively influence the resilience of pharmaceutical firmssince it was found that exploitation ambidexterity had a significant and positive effect on organisational resilience. In addition, this study proposed that explorative activities will enhance the resilience of pharmaceutical firms. Although the empirical outcomes reported a decreasing effect of explorative activities on organisational resilience, it was to be significant in facilitating the resilience of the firms suggesting that managers must achieve a balance a link between exploration and exploitation activities to promote organisational resilience. Finally, a detailed analysis of the results showed that HPWS and the exploitation of employee ambidexterity will ultimately affect employee well-being through the organisational resilience of pharmaceutical firms. Therefore, the study proposed that organisational resilience is a mechanism through which HPWS and exploitative ambidexterity influence employee well-being.

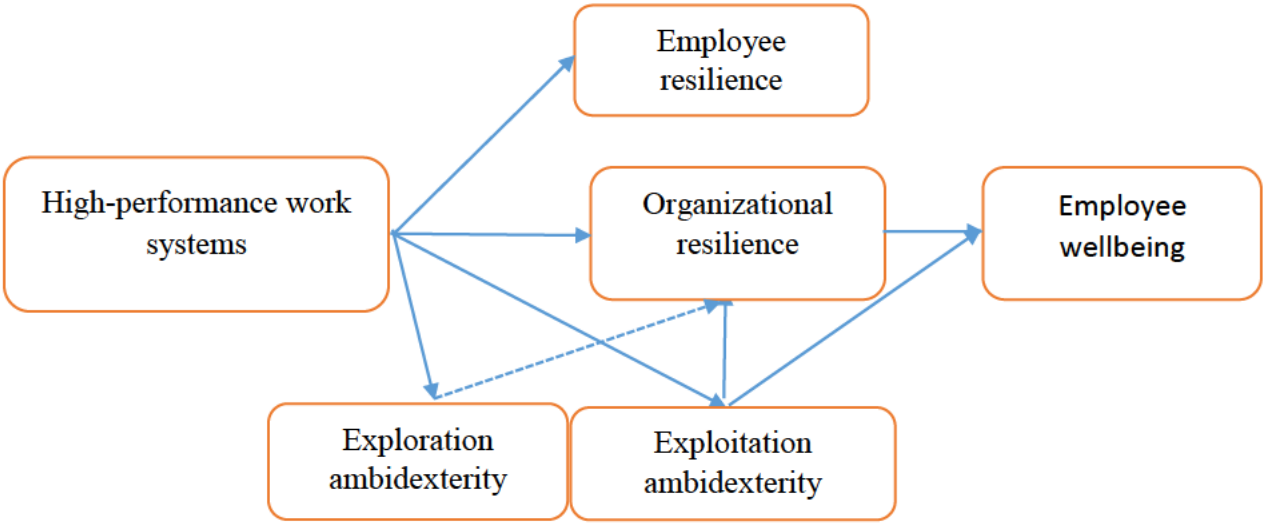


Fig. 7.1 Proposed management framework

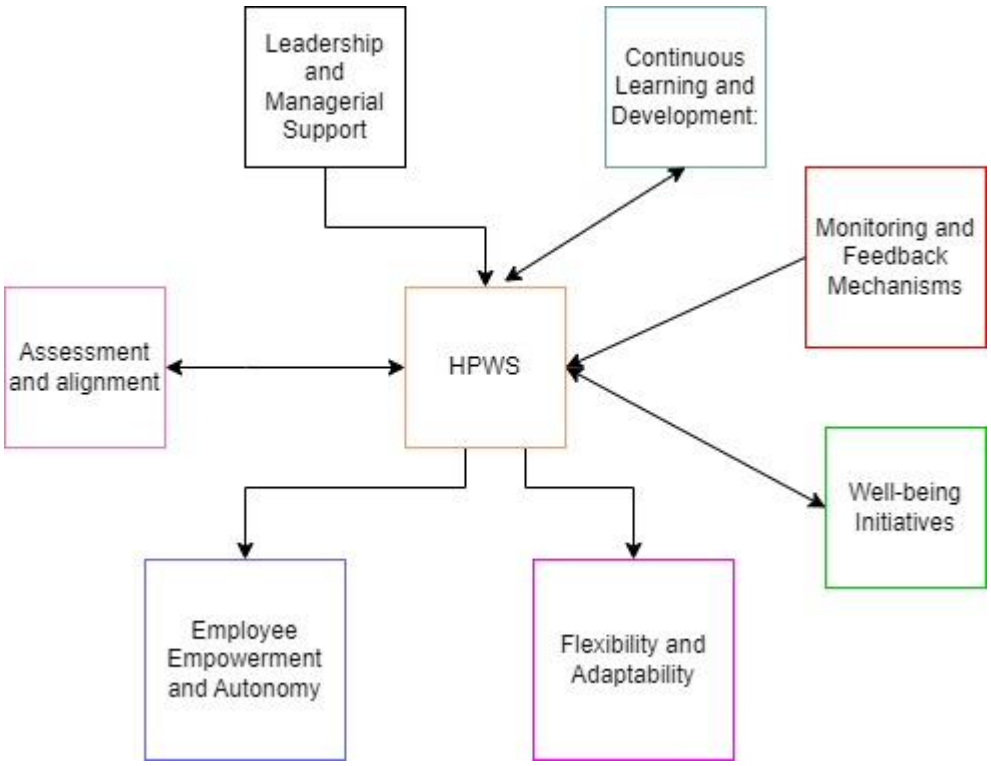
Given the findings of the study, this research suggested a substantive, practical and detailed framework (see Fig. 7.2) for the improved implementation of high-performance. This framework would provide a clear and detailed guidelines to leaders and managers on how to effectively and efficiently engage employees' explorative and exploitative capabilities and activities to ensure both employee and organizational resilience and employee wellness.

The first step of the framework emphasizes the importance of conducting an initial assessment and readiness by gauging the current performance and resilience levels of the pharmaceutical organizations. By identifying areas where high-performance work systems can be effectively integrated, leaders can develop a strategic alignment and vision that connects high-performance objectives with the organization's broader strategic goals and mission. Clear communication of this vision and its anticipated benefits to all stakeholders sets the foundation for successful implementation.

At the core of the framework lies the thoughtful design of a comprehensive high-performance work system. This system should strike a balance between exploitative and explorative activities, empowering employees to take ownership of their roles and explore new opportunities. Additionally, the inclusion of elements that promote employee well-being, such as work-life balance initiatives and wellness programs, reinforces a culture that values the health and happiness of its workforce. This suggests a bidirectional relationship between HPWS and employee well-being.

Furthermore, leadership and managerial support is essential in driving the success of the framework. Team-leaders, suppervisors, and other managers must be educated and trained on the principles of high-performance work systems and employee well-being, enabling them to guide and support their teams effectively. A leadership style that encourages collaboration, innovation, and continuous feedback cultivates a culture of psychological safety where employees feel empowered to contribute their ideas and take calculated risks.

The proposed framework also contends that monitoring and feedback mechanisms are necessary to serve as the eyes and ears of the framework, providing valuable insights into in enhancing employee ability, motivation, opportunity, and well-being. Managers may consider employee data analytics and performance metrics to track the impact of high-performance practices on resilience and wellness. Managers could then utilize this feedback to make informed decisions about improving their HPWS that would endusre to achieving resilience, ambidexterity and employee well-being



7.2 Enhanced high-performance implementation framework for employee resilience, organizational resilience, and employee wellness

Additionally, recognition and rewards for employees' contributions to both exploitative and explorative activities reinforce a culture that appreciates and motivate continued efforts toward high performance. Celebrating innovation and successful risk-taking provides a powerful incentive for employees to engage in exploration and adaptive behaviuors. Moreve, the framework called for flexibility and adaptability are embraced including leaders promoting work processes that could accommodate changing circumstances and opportunities. A culture of continuous improvement and learning from failures encourages employees to view challenges as opportunities for growth and innovation, positioning them to adapt or bounce-back during and after crises.

Continuous learning and development further fuel the framework, with investments made in employee training and skill development to enhance both exploitative and explorative capabilities. Cross-functional collaboration and learning opportunities foster an environment where employees are encouraged to learn from each other and explore new areas of interest. Finally, the framework places a strong emphasis on employee well-being through a range of initiatives such as wellness programs and stress management support. Managers should prioritise employees' mental health and emotional well-being, with regular assessments ensuring the effectiveness of these initiatives and guiding future adjustments.

7.3 Contributions of the study

The contributions and implications of this study are based on the study objectives, the measuring items, the methodological approach used in the study, and the outcomes of the data analysis. Firstly, the theoretical implications are presented. Then, the managerial or practical implications follow; and finally, the methodological contribution is outlined.

7.3.1 Theoretical contributions

This study falls within the human resource management and practice domain and makes a significant contribution to the human resource management literature. Grounded in job-demand resource theory, the study extends the theoretical explanation for how HPWS, employee resilience, and individual ambidexterity, directly influence organisational resilience. This is one of the few studies that has considered HPWS, employee resilience, and individual ambidexterity as resources for developing

organisational resilience, based on changing demands and disruptions in the business environment, in a specific developing country and from that specific perspective. Thus, examining the different impacts of HPWS, employee resilience, and individual ambidexterity on organisational resilience extends the literature on indicative antecedents of organisational resilience during a crisis.

Secondly, the review of the extant literature reveals a paucity of literature on the mediating role of organisational resilience in the relationship between HPWS, employee resilience, individual ambidexterity and employee well-being. In addition, there is limited empirical evidence of the direct relationship between organisational resilience and employee well-being. Given that current studies on disruptive business environments and crisis management emphasise resilience and employee well-being, this study addresses the research gap and contributes to the resilience and well-being literature by examining how resources, such as HPWS, employee resilience and ambidexterity, can lead to employee well-being through a resilient organisation. The study, therefore, provides a foundation for future scientific investigation into the research model, as a response to the call by Liu et al. (2019: 1235) for further conceptual development surrounding resilience, well-being and human resource management.

7.3.2 Managerial contributions

The outcomes of this study offer many practical lessons for managers to facilitate, support and improve managerial decisions, especially in the pharmaceutical sector of Ghana. Firstly, the findings of this study confirm the predictive role of HPWS in employee resilience, individual ambidexterity and organisational resilience. Thus, HPWS enables employees and organisations to adapt to changes, and also enables employees to engage in exploitation and exploration activities. Hence, managers should continue to place a premium on high-performance work systems to build individual and firm resilience, nurture exploitative activities, and improve employee exploration behaviours.

Secondly, managers within the research context need to note that, contrary to much evidence of employee resilience leading to organisational resilience in other contexts, the findings from this study do not support the relationship between employee resilience and the resilience of pharmaceutical firms. Instead, this study has revealed the

weaknesses in developing organisational resilience as a function of employee resilience. It provides an opportunity for managers to develop a resilient mindset in employees, so that they will see the resilience of the organisation as a function of their employee resilience. Therefore, pharmaceutical firms' managers are enjoined to improve their organisations' resilient capacity by emphasising resilient organisational indicators that focus on involving employees in resilient capacity-building, eventually leading to resilient manufacturing firms.

Thirdly, in times of crisis, the exploration ambidexterity of employees is a valuable resource to enable the firm to survive and bounce back. Studies have shown that employee ambidextrous activities are intricately linked to organisational resilience (Heinze 2022; Iborra et al. 2020; Amah and Onwughalu 2017:27). However, this study revealed a significant and negative relationship between exploration activities and organisational resilience. This means that employees pay more attention to exploitation activities than directing their energy to exploration activities. Therefore, managers need to change this relationship by increasing employee exploration activities in pharmaceutical firms. Managers can consider designing activities that will foster innovation and creativity within teams, encourage knowledge sharing across the organisation, and reward employees for using novel ways of solving new and existing problems that confront the organisation (Seville 2017:18). Thus, this study provides information for managers about factors that affect employee ambidexterity.

7.3.3 Methodological contribution

This study was conducted using the explanatory sequential mixed method. Previous studies examining the relationship between the concepts in the research framework of this study focused mainly on using either a quantitative approach or a qualitative approach. Studies adopting mixed approaches are rare. This study adopted an explanatory, sequential mixed method to provide a better understanding of the effects of the exogenous constructs and the endogenous variables within the research context. Thus, using the qualitative technique to elaborate or explain the outcomes obtained from the quantitative approach, in a mixed methodological approach, has enabled the researcher to better examine the concepts in this study, than either a qualitative or a quantitative study would have allowed.

7.4 Recommendation of the study

The primary aim of this research has been to examine the role of high-performance work systems and resilience in employee well-being within the pharmaceutical industry in Ghana. Twelve hypotheses were developed and tested in the study. Based on the outcomes, the following recommendations have been considered for the pharmaceutical firms in Ghana.

i. The outcomes of the study point to the significant role of HPWS in promoting resilience, ambidexterity, and well-being within pharmaceutical firms. The outcomes show a positive and significant effect of HPWS on individual and organisational resilience and individual ambidexterity. Because HPWS serves as a significant resource, managers of pharmaceuticals need to emphasise the role of HPWS in enhancing employee ability, motivation, and opportunities in their organisations. The pharmaceutical firms should emphasise the use of extensive scientific processes in hiring only the best candidates as employees (Nadeem and Rahat 2021:168; Meddour et al. 2020:512). For individuals already in employment, the firms must continue to provide comprehensive skill and knowledge development to enhance their abilities (Zhang et al. 2020:911; Meddour et al. 2020:512). The firms should also increase their motivation-enhancing practices by ensuring that part of employee compensation is based on the financial performance of the firms, and that the pay levels meet, at least, the industry standard. In respect of opportunity-enhancing practices, it is suggested that the pharmaceutical firms increase employee participation in decision-making processes and provide employees with enough information about their roles in their companies.

ii. The literature on employee resilience indicates that organisations can assist and support employees to adapt and flourish at work, or cope successfully in the face of significant change, and bounce back when faced with challenging circumstances (Nguyen et al. 2016:3; 2002b:702). The study outcomes confirm the resilient perceptions of the employees. It is, therefore, necessary for the pharmaceutical firms to nurture these perceptions. The firms should see employee mistakes as part of the work process and encourage employees to learn from their mistakes to improve work processes. Tasks can be designed so

that employees can successfully manage high workloads for long periods, resolve crises competently at work, and be encouraged to seek assistance at work when they need specific resources (Serville 2017:21). Investing in activities that can enhance employee resilience will eventually lead to resilient pharmaceutical firms (Prayag et al. 2019; Kuntz et al. 2017).

iii. The results of the study further show that HPWS promotes a context that influences employees to undertake exploration and exploitation activities. Pharmaceutical firms must engage in activities that will continually enable employees to demonstrate exploitation and exploitation behaviours. Because individual ambidexterity is about managing the tensions between exploration and exploitation activities (Papachroni and Heracleous 2020:2), managers should not focus on one activity at the expense of the other, which would hinder meaningful ambidexterity. The pharmaceutical firms can foster ambidextrous activities through promoting ability-enhancing practices, getting employees to engage in work-related activities that align with existing company policy, and focusing on the strong renewal of products/services or processes (Mom et al. 2007:38). Furthermore, both HR and line managers must learn to collaborate on ambidextrous activities with employees, provide technical support, and promote employees' self-confidence that will enable employees take up challenges and develop exploratory and exploitative behaviours (Prieto-Pastor and Victor Martin-Perez 2015:609). Engaging employees in tasks that would enable them to establish dual objectives, seeking to achieve synergies between exploration and exploitation, and undertaking activities that would exploit previous and current employee efforts, are recommended (Papachroni and Heracleous 2020:3).

iv. It should be noted that organisational resilience was measured with thirteen indicators. The thirteen indicators guarantee universal application, notwithstanding the organisation's type, size, and context. However, in the final statistical analysis, only four indicators loaded well and measured organisational resilience. Nevertheless, this study has provided sufficient information for pharmaceutical firms on what to do to improve their organisations. Thus, pharmaceutical firms need to critically review their

capabilities at regular intervals, continually identify potential weaknesses and vulnerabilities in their processes and systems, and build strong and trusting relationships with other organisations that they might have to work with when there is a crisis (Lee et al. 2013:37; Serville 2017:21). Further, the firms must focus on promoting creative problem-solvers by building the capacity of employees to effectively make tough decisions and be committed to working on problems until they are resolved (Lee et al. 2013:37; Serville 2017:21). Therefore, leaders of pharmaceutical firms must also combine their managerial skills with their firm's capabilities to enable their firms to adapt more quickly and effectively during a crisis (Hatum and Pettigrew 2004: 239; Judge and Douglas 2009: 635).

7.5 Limitations and direction for future research

No matter how well a study is designed and conducted, it has limitations (Simon and Goes 2013:259). Although this study has significant implications for theory, managerial practice, and methodology, it still has its methodological and theoretical limitations. The limitations stated below constitute the weaknesses within the research design that can affect the outcomes and conclusions of the research (Ross and Bibler Zaidi 2019:261).

Firstly, the data used for this study were drawn from respondents within a particular sector or industry, which makes the sample homogeneous. Organisations in different industries have different characteristics, which may influence perceptions about the impacts and outcomes of HPWS on employees, organisations, and the industry. For example, the competitive structure and demands of the pharmaceutical industry differ from other industries. Hence, it would be difficult to generalise the findings of this study to other industries. In addition, the study was only conducted within the context of Ghana. Although Ghana and other countries in the sub-region, or other emerging economies, may share similar national and cultural characteristics, differences in distinctive national cultural characteristics may limit the generalisation of the study's outcomes. Given this limitation, a future study may consider cross-sectional and comparative studies by considering different industries and countries within sub-Saharan Africa, or in other developing economies. The alternative is to consider conducting the same study in a different industry from the same or similar geographical

context. Such future studies will provide better and deeper insight into the model investigated in this study.

Secondly, the quantitative design only examines how the constructs in the research model relate. This implies that the outcomes could have been influenced or manipulated by controlling any factor or moderator. Designing the study in this manner has made it difficult to claim any cause-and-effect links. For example, a factor such as a supportive supervisor may moderate the relationship between employee resilience and organisational resilience. Therefore, future studies might introduce factors that could manipulate or moderate the present findings to yield better and more insightful results into for theoretical and managerial practice.

Thirdly, although the quantitative data was elicited in phases using a one-month time lag, there was not enough time to establish strong causal relationships between the constructs in the research framework. For example, investigating HPWS, individual resilience and ambidexterity, and employee well-being, over a more extended period may be interesting. Therefore, in future, researchers should consider adopting a longitudinal study to investigate the research model. In addition, the researcher is a beginner in using Nvivo, and the qualitative data analysis might not be as rigorous as possible. An expert analysis might enhance the data output. On the other hand, future studies may consider a fuzzy-set approach to analysing the qualitative data to determine causal relationships in the data set. An exploratory sequential mixed method approach would also be an interesting study.

Fourthly, it is worth noting that this study was essentially grounded in JD-R theory. In achieving employee well-being, this study treats HPWS, individual resilience and ambidexterity, and organisational resilience, as resources that should predict employee well-being, directly and indirectly. However, other theories could be used to investigate and explain the research framework. Relying only on JD-R theory to predict employee well-being limits the claim of any causal relationships, since other theoretical frameworks may yield mixed results. Hence, it is suggested that future studies consider other theories to examine the research model.

Fifthly, the dimensions of HPWS in this study are ability, motivation, and opportunity (AMO) enhancing practices. These were measured and analysed in composite, and their different impacts on employee and organisational resilience, and exploitation and exploration ambidexterity, have not been analysed and determined. It would be interesting if future studies could examine how ability, motivation, and opportunity-enhancing practices distinctly affect employee and organisational resilience, exploitation and exploration ambidexterity. This would provide invaluable information for managers about where to direct their resources and energies.

Despite the limitations, the study provides research evidence and conceptual insights that show the importance of HPWS as a predictor of employee resilience, individual ambidexterity, and organisational resilience.

7.6 Conclusion

With the continuing uncertainties, disruptions, and challenges in the global business environment, researchers and practitioners (Ikhide et al. 2022:1; Senbeto and Hon 2020:1119; Herbane 2019:476; Linnenluecke 2017:4) continue to advocate for human resource practices that will enhance individual ambidexterity and resilience at the individual and organisational level, and as well as being a safeguard, or improving the well-being of employees. While there is an enormous amount of literature on how individual human resource practices influence employee well-being, studies on how HPWS, employee resilience, and individual ambidexterity relate to employee well-being through organisational resilience are rare, especially within the context of the pharmaceutical industry in a developing country like Ghana.

Given this background, this study aimed to examine the role of high-performance work systems and resilience on employee well-being within the pharmaceutical industry in Ghana. Specifically, the study sought to examine the effects of a high-performance work system on employee resilience, employee ambidexterity, and organisational resilience; to establish the impact of employee resilience and ambidexterity on organisational resilience; and to determine the role of organisational resilience in the relationship between employee resilience, HPWS, employee ambidexterity, and employee well-being, within the pharmaceutical industry in Ghana. To achieve the given objectives, this study was grounded in JD-R theory. Furthermore, given the

demands and the associated pressure and stress placed on individuals and organisations due to crisis and disruption in the business environment, this study perceived HPWS, employee resilience, and individual ambidexterity as resources that can enhance organisational resilience and employee well-being and enable employees to adjust or cope with the changing circumstances. Thus, a comprehensive literature review was conducted to investigate the various constructs in the research model.

Previous empirical studies have reflected on how the constructs relate. The review revealed a dearth of literature on the direct relationship between organisational resilience and employee well-being, or the mediating role of organisational resilience in the relationship between HPWS, employee resilience, individual ambidexterity and employee well-being. Following the empirical review, twelve hypotheses were developed in consonant with the research objective.

The methodology was designed thoughtfully. The study was grounded in the pragmatism research paradigm and followed the explanatory sequential mixed method approach. Using this approach, a quantitative study was first conducted. The quantitative data was generated using an online structured questionnaire and was analysed using PLS-SEM. The qualitative data was sourced, based on semi-structured interviews, and was analysed using a thematic approach with the aid of Nvivo. Both quantitative and qualitative outcomes converged during the discussion of the outcomes. The ethical processes followed in conducting the research were also adequately outlined.

The results of the data analysis were presented and interpreted. The assessment of the measurement model (internal consistency reliability, convergent validity, and discriminant validity) satisfy all the conservative thresholds. The structural model assessment examined the model collinearity; the significance of path coefficients; the coefficient of determination; effect size; predictive relevance; and the out-of-sample prediction. This study developed and proposed a management framework based on the quantitative and qualitative outcomes. The proposed frameworlk (Fig 7.2), the "Enhanced High-Performance Implementation Framework", serves as a comprehensive guide for leaders and managers seeking to create a workplace that optimizes exploitative and explorative capabilities, fosters resilience at both individual and

organizational levels, and promotes employee well-being. By embracing this framework, organizations can cultivate a culture of innovation, adaptability, and sustained high performance, leading to long-term success and employee satisfaction.

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APPENDICES

APPENDIX A-1: Research Questionnaire

HIGH-PERFORMANCE WORK SYSTEMS

Please indicate your level of agreement or not with each of the following statements, where 1 = strongly disagree; 2 = disagree; 3=neither agree nor disagree; 4 = agree; 5 = strongly agree

Ability	AB1	Only the best employees are hired to work in my company
	AB2	When new employees are hired, they must go through an extensive hiring process.
	AB3	This company provides training for me to learn new ways to do my job.
	AB4	There are formal training programs to teach new employees the skills they need to perform their job.
	AB5	The training programs of this company are comprehensive.
	AB6	Performance appraisals provide specific feedback concerning how my performance can be improved.
	AB7	The results of performance appraisals are used to determine my training needs.
Motivation	MO1	The pay level in this company is higher than what competitors offer.
	MO2	When bonuses are paid, they are closely tied to individual or group performance.
	MO3	Part of my compensation is based on how well the company is doing financially.

	MO4 AB*	At least once a year, I receive a formal evaluation of my performance.
	MO5	Performance appraisals are based on objective quantifiable results.
	MO6	I have the opportunity to receive extra benefits such as housing benefits provided by the company.
Opportunity	OP1	My company places a great deal of importance on working in teams
	OP2	The work majority of the staff do in this company is organized around teams.
	OP3	There is a reasonable and fair complaint process in my company
	OP4	Information about how well my company is doing financially is shared with me.
	OP5	I am given enough information to understand my role in this company
	OP6	I am well-informed about how well the company is performing.
	OP7	I have opportunities to make important work-related decisions such as how the work is done or how to implement new ideas.
	OP8	I have opportunities to participate in the decision-making process.
	O9	I do not have a say in the decisions that are made in this company.

ORGANIZATIONAL RESILIENCE

Please indicate your level of agreement or not with each of the following statements, where 1 = strongly disagree; 2 = disagree; 3=neither agree nor disagree; 4 = agree; 5 = strongly agree

OR1	The leadership of my firm performs well in the face of adversities.
OR2	The employees are also committed to working on problems until they are resolved.
OR3	We proactively monitor our industry to have an early warning of emerging issues.
OR4	Our organization can make tough decisions effectively.
OR5	Our organization promotes creative problem solvers.
OR6	My company builds strong and trusting relationships with other organizations we might have to work with when there is a crisis.
OR7	If the key people in the organization are unavailable, there are always others who can fill their roles.
OR8	Our employees work well with others to get a job done
OR9	Our organization maintains sufficient people and resources to cope with unexpected change
OR10	I have a clear understanding of my organization's priorities if a crisis should occur.
OR11	My organization actively promotes a mindset that it is important to prepare for the unexpected.
OR12	My organization has planned how we will continue to deliver our core functions during crises.
OR13	We critically review our capabilities at regular intervals, to identify potential weaknesses and vulnerabilities

EMPLOYEE RESILIENCE

Please indicate your level of agreement or not with each of the following statements, where 1 = strongly disagree; 2 = disagree; 3=neither agree nor disagree; 4 = agree; 5 = strongly agree

EmR1	I effectively collaborate with others to handle challenges at work
EmR2	I successfully manage a high workload for long periods
EmR3	I am able to resolve crises competently at work
EmR4	I learn from mistakes and improve the way I do my job
EmR5	I often re-evaluate my performance and continually improve the way I do my work
EmR6	I effectively respond to feedback, even criticism
EmR7	I seek assistance at work when I need specific resources
EmR8	I approach my managers and colleagues when I need their support
EmR9	I use change at work as an opportunity for growth

EMPLOYEE WELLBEING

Please indicate your level of agreement or not with each of the following statements, where 1 = strongly disagree; 2 = disagree; 3=neither agree nor disagree; 4 = agree; 5 = strongly agree

EW1	My work life is purposeful and meaningful
EW2	My social relationships at and through work are supportive and rewarding
EW3	I am engaged and interested in my daily work activities
EW4	I actively contribute to the happiness and well-being of others through my work
EW5	I am competent in the work activities that are important to me.
EW6	I am a good employee and have a good work-life
EW7	I am optimistic about my future at work
EW8	People at work respect me

EMPLOYEE AMBIDEXTERITY

Please indicate your extent of agreement to which you engaged in the following work-related activities last year, *where 1 = strongly disagree; 2 = disagree; 3=neither agree nor disagree; 4 = agree; 5 = strongly agree*

		Since last year, I have engaged in work-related activities …
Exploration	ExpL1	that involved searching for new possibilities concerning products, services, processes, or markets
	ExpL2	that involved *e*valuating diverse options concerning products, services, processes, or markets
	ExpL3	that involved *f*ocusing on the strong renewal of products/ services or processes
	ExpL4	that required that I adapt to changing situations.
	ExpL5	that required you to learn new skills or knowledge
Exploitation		***Since last year, I have engaged in work-related activities …***
	ExpR1	in which I have accumulated a lot of experience.
	ExpR2	that serve existing (internal) customers with existing services/ products
	ExpR3	of which it is clear to me how to conduct them.
	ExpR4	that primarily focused on achieving short-term goals.
	ExpR5	I properly conducted by using your present knowledge.
	ExpR6	that fit into existing company policy.

BIOGRAPHICAL DATA

Kindly select where appropriate

1. Kindly indicate your age group:

   21-30 [ ] 31-40 [ ] 41-50 [ ] 51-60 [ ]

2. Please, indicate your gender:

   Male [ ] Female [ ]

3. Please, indicate your highest level of education:

   Diploma/HND [ ] Bachelor's degree [ ] Master's degree [ ] Doctoral degree [ ]

4. How long have you been working with this company?

   1-3 [ ] 4-6 [ ] 7-10 [ ] 11+ [ ]

5. Position:

Managerial (Top/Middle/First) [ ] Non-Managerial [ ]

THANK YOU

Appendix A-2: Interview Guide

1. High-performance work system

1.1 What does the company use the results of the performance appraisal for?

1.2 How comparable is the pay level in your company to what your competitors offer?

1.3 Do employees have opportunities to make important work-related decisions?

2. Organizational resilience

2.1 How does your company proactively monitor its industry to have an early warning of emerging issues?

2.2 How does your firm actively promote a mindset that it is important to prepare for the unexpected?

2.3 What plans does your firm have to continue delivering its core functions during crises?

2.4 If key people are unavailable, are there always others who can fill their roles?

3. Employee resilience

3.1 How do employees use change at work as an opportunity for growth?

3.2 How effectively do employees respond to feedback and even criticism?

3.3 How do your employees effectively collaborate with others to handle challenges at work?

4. Employee wellbeing

4.1 How supportive and rewarding are your social relationships at work?

4.2 How do you contribute to the happiness and well-being of others through your work?

4.3 Why are you optimistic about your future at work? How do your employees use change at work as an opportunity for growth?

5. Employee ambidexterity

5.1 How often were you engaged in searching for new possibilities concerning your company's products, processes, or markets since last year?

5.2 What work-related activities did you engage in since last year in which you have learned new skills or knowledge?

5.3 What work-related activities did you engage in since last year of which you have accumulated a lot of experience?

5.4 What work-related activities did you engage in since last year, which you properly conduct by using your present knowledge?

Appendix B: Total Specific Indirect Effect

	Original Sample (O)	**Sample Mean (M)**	**Standard Deviation (STDEV)**	**T Statistics**	**P Values**
Employee Resilence -> Organisational Resilence -> Employee Wellbeing	0.117	0.111	0.076	1.530	0.127
HPWS -> Employee Resilence -> Organisational Resilence -> Employee Wellbeing	0.084	0.081	0.058	1.448	0.148
Exploitation Ambidexterity -> Organisational Resilence -> Employee Wellbeing	**0.417**	**0.423**	**0.088**	**4.730**	**0.000**
HPWS -> Exploitation Ambidexterity -> Organisational Resilence -> Employee Wellbeing	0.218	0.220	0.070	3.097	0.002
Exploration Ambidexterity -> Organisational Resilence -> Employee Wellbeing	-0.311	-0.309	0.114	2.728	0.007
HPWS -> Exploration Ambidexterity -> Organisational Resilence -> Employee Wellbeing	-0.194	-0.195	0.083	2.351	0.019
HPWS -> Organisational Resilence -> Employee Wellbeing	0.476	0.483	0.096	4.985	**0.000**
HPWS -> Employee Resilence -> Organisational Resilence	0.121	0.115	0.083	1.453	**0.147**
HPWS -> Exploitation Ambidexterity -> Organisational Resilence	**0.315**	**0.315**	**0.095**	**3.312**	**0.001**

HPWS -> Exploration Ambidexterity -> Organisational Resilence	-0.280	-0.278	0.112	2.513	**0.012**

Appendix **C-1: Letter of Information**

Title of the Research Study: The role of high-performance work system on employee wellbeing in the pharmaceutical industry of Ghana

Principal Investigator/s/researcher: Charles Ata Kwaku Hanu

Co-Investigator/s/supervisor/s: Dr. Njabulo Khumalo

Brief Introduction and Purpose of the Study: Good morning and trust you are sailing smoothly. My name is Charles Hanu, a lecturer at Takoradi Technical University and a Ph.D. student at the Durban University of Technology, South Africa. I am currently researching high-performance work systems and its outcomes and kindly invite you to voluntarily partake in this research.

The purpose of this study is to examine the extent to which a high-performance work system supports and enhances the understanding of employee ambidexterity and resilience in achieving employee wellbeing within the pharmaceutical industry in Ghana. Specifically, this dissertation will examine the influence of a high-performance work system on employee resilience, employee ambidexterity, and organizational resilience within the pharmaceutical industry in Ghana, evaluate the influence of employee resilience on organizational resilience within the pharmaceutical industry in Ghana, examine the extent to which organizational resilience influences employee wellbeing within the pharmaceutical industry in Ghana, and evaluate the extent to which organizational resilience affects the relationship between high-performance work system and employee wellbeing within the pharmaceutical industry in Ghana.

Outline of the Procedures: The questionnaire is an online structured questionnaire. When you receive the link, please click on it to access the title page of the questionnaire. After reading the information on the title, click on NEXT to access the questionnaire

items ONLY if you agree to voluntarily take part in the research. After responding to the items, click on Submit at the bottom of the final section of the questionnaire. Your responses are submitted automatically.

Please, be informed that the questionnaire precludes any item that will reveal your identity and that of your company. It will take about 15 minutes to complete this questionnaire. Kindly note that there are no right or wrong answers. I am only interested in your opinion. Since, it is an online questionnaire, you can respond any time and place you find it possible to do.

Risks or Discomforts to the Participant: There are no potential risks or discomfort to you for taking part in this research. The questionnaire items do not contain any statement that will require you to perform any act or make statements that might create discomfort, compromise you, diminish your self-esteem or cause you to experience embarrassment or regret.

Reason/s why the Participant May Be Withdrawn from the Study: Please, note that partaking in this research is voluntary. For personal reasons, may withdraw from the study at any stage if you wish to do. There will be no adverse consequences should you elect to withdraw.

Benefits: There are no direct benefits to you for taking part in this study except that your opinion will add to existing knowledge and the outcome of the study will be presented to the Pharmaceutical Manufacturer Association of Ghana.

Remuneration: Please, not also that there you will not remunerated for taking part in this research. This study purely for academic purpose only and a partial requirement for the award of Ph.D. in Human Resource Management. Hence no remuneration is allocated for partaking in the research.

Costs of the Study: The respondents are not expected to cover any costs towards the study except for the use of their internet data to answer the online questionnaire.

Confidentiality: The questionnaire precludes any item that will reveal your identity and the identity of your company. The biographical information required are sex, age group, range of length of service, and whether you are a managerial employee or not.

These items generic and the outcomes cannot be attributed to any individual. You are assured of utmost anonymity and confidentiality.

Result: The results of this study will be disseminated in two ways. First, the outcome will be published in recommended journals. Second, the outcome will also be presented to the Pharmaceutical Manufacturers Association of Ghana.

Research-related Injury: There is no expected physical, psychological, or emotional injury to you for taking part in this research.

Storage of all electronic and hard copies including tape recordings: All data to be elicited from respondents will be electronic. Consequently, the data be stored electronically in Google Form and its security and confidentiality are guaranteed. Only the researcher will have access to the data until it is eventually disposed after five years.

Persons to Contact in the Event of Any Problems or Queries:

In the event of any problem or queries, kindly contact the following:

1. The researcher: Charles Hanu on +233-24-3919088 or at charles.hanu@ttu.edu.gh,
2. The supervisor: Dr. Njabulo Khumalo on 0027 74 570 4941 or at Njabulok1@dut.ac.za
3. The Director: Research and Postgraduate Support: Dr. L. Linganiso on 0027 31 373 2577 or researchdirector@dut.ac.za.
4. The Institutional Research Ethics administrator on 0027 31 373 2900.

Appendix C-2: Letter of Consent

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: IREC 109/22.
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

LUCIA ADDAE 14th MAY, 2021 4pm L.AN.

Full Name of Participant Date Time Signature

I, Charles Ata Kwaku Hanu, herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

Charles Ata Kwaku Hanu March 2021

Name of student Date Signature

Appendix D-1: Gatekeepers' Letter

Faculty of Management Sciences
Human Resource Management
South Africa

22nd April 2021

The Secretary
Pharmaceutical Manufacturers Association of Ghana
Accra
Dear Sir/Madam

REQUEST FOR GATEKEEPER LETTER

My name is Charles Hanu, a lecturer at Takoradi Technical University and a Ph.D. student at the Durban University of Technology, South Africa.

Kindly assist me to conduct my research on the topic "The role of h*igh-performance work system and employee wellbeing in the pharmaceutical industry of Ghana"* by:

a. signing the letter of informed consent (attached), and
b. providing me with an introductory letter to the members of the Pharmaceutical Manufacturers Association of Ghana.

The gatekeeper information, which is a partial requirement for the acceptance of a research proposal at the Durban University of Technology, is a confirmation that I would be permitted to collect data from the Pharmaceutical Manufacturers Association of Ghana.

Please, find attached the letter of information, the letter of informed consent, and the questionnaire. The letter of information provides information on the object of the research, what it will involve, the roles of the research participants, and what the outcome of the research would be used for. As a gatekeeper, you are required to sign the letter of informed consent if you accept to facilitate my research. The questionnaire is to help you appreciate the nature of the data I intend to elicit from the Pharmaceutical Manufacturers Association of Ghana.

I trust you would not hesitate to seek further clarification, if necessary.
Respectfully submitted with the kindest regards,

Charles Ata Kwaku Hanu

Appendix D-2: Gatekeeper's Permission

PHARMACEUTICAL MANUFACTURERS ASSOCIATION OF GHANA

Cell:
00233244894951

DTD 31
OSU-ACCRA
GHANA

ghpharma.manufacturers@gmail.com

14th June 2022

Department of Human Resource Management
Faculty of Management Sciences
Durban University of Technology
South Africa

Dear Sir/Madam,

RE: GATEKEEPER PERMISSION TO CONDUCT RESEARCH

The above subject refers upon request by Mr. Charles Hanu, who is a Ph.D. student in the Faculty of Management Sciences and conducting a research project titled "The role of high-performance work systems and resilience on employee wellbeing in the pharmaceutical industry of Ghana."

This letter serves to confirm that Mr. Hanu has been granted permission to collect primary data from the members of the Pharmaceutical Manufacturers Association of Ghana. We are satisfied with his letter of information, the approved proposal, and the items in the research instruments, and glad to extend to him all deserving courtesies.

Please, do not hesitate to contact the undersigned in case you will require further information.

Thank you.

Yours faithfully,

.....

Lucia Addae-Ntiri

(Executive Secretary)

Office Location: Ground Floor, Association of Ghana Industries (AGI) Office Building Complex (Addison House)
Ghana International Trade Fair Centre, La-Accra

Appendix E: Full Ethical Clearance

Institutional Research Ethics Committee
Research and Postgraduate Support Directorate
2nd Floor, Berwin Court
Gate 1, Steve Biko Campus
Durban University of Technology

P O Box 1334, Durban, South Africa, 4001

Tel: 031 373 2375
Email: lavishad@dut.ac.za
http://www.dut.ac.za/research/institutional_research_ethics

www.dut.ac.za

29 June 2022

Mr C A K Hanu
Faculty of Business Studies
Takoradi Technical University
Ghana

Dear Mr Hanu

The role of high-performance work system and resilience on employee wellbeing in the pharmaceutical industry of Ghana
Ethical Clearance number IREC 109/22

The Institutional Research Ethics Committee acknowledges receipt of your final data collection tool for review.

We are pleased to inform you that the data collection tool has been approved. Kindly ensure that participants used for the pilot study are not part of the main study.

In addition, the IREC acknowledges receipt of your gatekeeper permission letter.

Please note that FULL APPROVAL is granted to your research proposal. You may proceed with data collection.

Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the IREC according to the IREC Standard Operating Procedures (SOP's).

Please note that any deviations from the approved proposal require the approval of the IREC as outlined in the IREC SOP's.

Yours Sincerely

Prof J K Adam
Chairperson: IREC

Appendix F: Editor's Certificate

ETHEL ROSS

English language editing and proofreading

25 January 2023

To whomever it may concern:

This letter serves to confirm that I worked as the proofreader and language editor on Charles Ata Kwaku Hanu's Ph.D. dissertation:

THE ROLE OF HIGH-PERFORMANCE WORK SYSTEMS AND RESILIENCE IN EMPLOYEE WELL-BEING IN THE PHARMACEUTICAL INDUSTRY OF GHANA

In no way did I change the content.

Yours faithfully

Ethel Ross (BA Hons; H Dip Ed)

Email: ciarross1@icon.co.za Tel: 083 954 5412

Appendix G: Turnitin Report

THE ROLE OF HIGH-PERFORMANCE WORK SYSTEMS AND RESILIENCE ON EMPLOYEE WELL-BEING IN THE PHARMACEUTICAL INDUSTRY OF GHANA

by Charles Hanu

Submission date: 12-Jan-2023 04:02PM (UTC+0000)
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THE ROLE OF HIGH-PERFORMANCE WORK SYSTEMS AND RESILIENCE ON EMPLOYEE WELL-BEING IN THE PHARMACEUTICAL INDUSTRY OF GHANA

Submitted in fulfilment of the requirements of the
degree of Doctor of Philosophy in MANAGEMENT SCIENCES
Specialising in
Human Resource Management
in the
Faculty of Management Sciences
at the Durban University of Technology

JANUARY 2023

APPROVED FOR EXAMINATION

Supervisor (Affiliation): _____(signature)_____Date: _____

Co-Supervisor (Affiliation): _____(signature)_____ Date: _____

THE ROLE OF HIGH-PERFORMANCE WORK SYSTEMS AND RESILIENCE ON EMPLOYEE WELL-BEING IN THE PHARMACEUTICAL INDUSTRY OF GHANA

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