THE RELATIONSHIP BETWEEN JOB ROTATION AND WORK ENGAGEMENT: THE MEDIATING ROLE OF JOB SATISFACTION

By

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ABSTRACT

Job rotation has become an effective tool in providing employees with more skills, knowledge and experience in a number of jobs within companies, in addition to its role in improving employee performance. This study investigated the relationship between job rotation and job satisfaction, and work engagement. Furthermore, the study explored the relationship between job satisfaction and work engagement. Finally, the study examined the mediating role of job satisfaction in the link between job rotation and work engagement. This study was conducted on three oil and gas companies out of six companies operating in Qatar.

A quantitative approach questionnaire was deployed to collect information from nearly 300 senior staff in oil and gas companies in Qatar. The data was analysed using Structure Equation Modelling (SEM). So, the current study's population comprises employees who graduated from university and work as supervisors in Qatari oil and gas companies. Such staff are designated as "senior staff" by the researcher in the current study.

The study's findings indicated that job rotation has a significant and positive link with both job satisfaction and work engagement. Furthermore, job satisfaction has a significant and positive link with work engagement. Finally, the findings revealed that job satisfaction acts as a full mediator in the link between job rotation and work engagement.

In practice, this study will assist Qatari oil and gas companies in increasing their performance by implementing effective job rotation programmes to boost job satisfaction and work engagement, which leads to improved employee performance. As a result, implementing effective job rotation programmes with the aim of increasing job satisfaction and work engagement will encourage oil and gas company managers to expand the use of job rotation in various jobs, to provide employees in all departments with a wide range of abilities and experiences, which will improve performance.

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ABBREVATIONS

AGFI	Adjusted Goodness-Fit-Index
AMOS	Analysis of Moment Structures
AVE	Average Variance Extracted
CEO	Chief Executive Officer
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CMIN/DF	Minimum Discrepancy Function by Degree of Freedom divided
CSR	Corporate Social Responsibility
DJ	Determining Optimal Job
DM	Decrease Monotony
DR	Developing Social Relation
GFI	Goodness-Fit-Index
GDPR	General Data Protection Regulation
HRM	Human Resource Management
HTMT	HeteroTrait-MonoTrait
IFI	Incremental Fit Index
IK	Increasing Knowledge
JD-R	Job Demands-Resources
JS	Job Satisfaction
MAR	Missing At Random
MCAR	Missing Completely At Random
NMAR	Not Missing At Random
PM	Preparation for Management
QNV	Qatar National Vision
RMSEA	Root Mean Square Error of Approximation
SD	Standard Deviation
SE	Standard Error
SEM	Structural Equation Modelling
SPSS	Statistical Package for the Social Sciences
TLI	Tucker-Lewis Index
TOL	Tolerance
VIF	Variance Inflation Factors
WE	Work Engagement

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND OF THIS STUDY

Qatar is the largest global exporter of Liquefied Natural Gas (LNG) (Chen *et al.*, 2016). It possesses the third largest known reserve of natural gas in the world, following Russia and Iran (Esen & Oral, 2016). The country has approximately 24.7 trillion cubic meters of natural gas reserves. Qatar's crude oil production is around 1,300,000 barrels per day. This makes Qatar one of the top 15 oil exporting countries globally (Dargin, 2020). As well, Qatar is currently undertaking a $30 billion North Field Expansion project in the LNG sector. This project aims to increase the capacity for LNG production and diversify the range of products. In addition, Qatar's oil and gas industry continues to be a vital sector for the country's economy, contributing a significant portion of the government's revenue. Qatar's export of LNG, crude oil, and petroleum products has been a major source of revenue for the government, constituting a significant portion of the country's total revenue. In 2021, hydrocarbon revenue accounted for around 37 percent of Qatar's GDP, marking a 9 percent increase from the previous year. The oil and gas industry remains the most active sector in Qatar, and it is expected to continue playing a leading role in the country's economy in the future (International Trade Administration, 2023; Ashkanani & Kerbache, 2023).

Oil and gas sector employers seek to support the employees and urge them to develop their skills and enhance their career path. These companies provide the employees with training opportunities and tools as well as constructive feedback on their performance and behaviour. Employees are rewarded according to their performance levels (QatarEnergy, 2022). A large number of employees in oil and gas companies in Qatar play an important role in the success of these companies through their performance. These positive results are expected within the oil and gas companies because of their organisational culture

and competitive human resources policies and procedures that have so far succeeded in attracting and retaining good talent, and because of their management or support to develop the capabilities of employees (Al Muftah & Lafi, 2011; Mednicoff, 2012).

A key goal of human resources management is to maximise the participation of employees in the organisation. Organisations depend significantly on how employees can improve their experience, abilities and attitudes to achieve their objectives. Job rotation is a mechanism that several organisations have developed to increase performance (Jocom *et al.*, 2017). Job rotation is a planned and organised process of moving employees between different jobs, which leads to acquiring new techniques, information, and abilities (Sanali *et al.*, 2013). Moreover, it relates to an internal transfer of employees between different functions requiring different tasks and responsibilities (Azizi *et al.*, 2010; Brunold & Durst, 2012). Job rotation had been proposed as a management practice to be applied in the organisational environment to reduce job monotony, boredom and fatigue resulting from job simplification, specialisation, and redundancy (Santos *et al.*, 2016).

There are two types of job rotation, which are within-function and cross-function. The rotation within function refers to the movement of employees between jobs with the same level of responsibilities within the department. In contrast, the cross-function relates to the movement of employees between the various departments during a specific period (Earney & Martins, 2009). There are three theories for rotating employees: employees' learning, employers' learning, and employees' motivation (Baro, 2012; Eriksson & Ortega, 2006).

The first theory is employees' learning. Employees become more experienced and knowledgeable by doing more than one task in more than one job, thus, job rotation is one of the important mechanisms for preparing staff for leadership positions in the future. Moreover, job rotation increases employees' understanding and experience of all the organisation's jobs

(Baro, 2012). The more employees are rotated, the more they learn and gain new experience. Rotated employees have more competencies, experience and mastery than those who have not been rotated (Campion *et al*., 1994). The second theory is employers learning. Through job rotation, managers recognise employees more clearly by observing their performance in different jobs. Employers discover untapped experiences and abilities of employees. This helps to improve promotion decisions or move employees from job to job. Additionally, job rotation provides managers with sufficient information on how to develop their employees' abilities. The third theory is employees' motivation. Job rotation motivates employees by transferring them from one job to another within the organisation, thus reducing the boredom resulting from repeating the same daily work. Job rotation increases employees' desire and willingness to work, because work is more enjoyable (Eriksson & Ortega, 2006).

1.2 STUDY PROBLEM

Upgrading the knowledge and skills of employees and enhancing the training culture among the employees are the most important goals for organisations (Saravani & Abbasi, 2013; Elnaga & Imran, 2013). Job rotation, by either moving people from one job to another or even between departments, broadens knowledge, skills and experience (Dhanraj & Parumasur, 2014; Ho *et al*., 2009; Iluk, & Iluk, 2017). Furthermore, Salih & Al (2017) and Ghaffari *et al.* (2021) mentioned that some factors cause failure to apply job rotation and achieve positive results. Factors include the resistance of some employees to the rotation process because they are not aware of its importance and their belief that they are being assigned additional burdens, or their unwillingness to learn new abilities, or their preference for routine and repetition over change, transfer and new experiences (Salih & Al, 2017; Ghaffari *et al.,* 2021). As well, employees might feel uncertain about their capability to succeed in unfamiliar positions or worry about the potential impact on their future career opportunities (Epstein & Roy, 2001).

Despite extensive research on job rotation and work engagement (e.g., Ambarwati *et al*., 2023; Agustian & Rachmawati, 2021; Shin & Yu, 2017) and job satisfaction (e.g., Platis *et al.*, 2021; Djalil & Lubis, 2020; Suleman *et al.*, 2022), no studies have explored the mediating role of job satisfaction in this relationship, particularly in the context of Qatar's oil and gas sector. Previous research has often examined these variables in isolation or within different industries (Abisola, 2017; Casad, 2012; Zehra, 201), but there is a lack of understanding regarding how job satisfaction might enhance or modify the effects of job rotation on work engagement in high-stakes, specialised fields like oil and gas. Additionally, the researcher noticed a gap in the organisational development plan in the oil and gas sector due to the limited practice of a job rotation strategy. These companies apply job rotation in an unplanned way. In other words, applying job rotation is based on business needs and the employee's desire. In addition, to the best of the researcher's knowledge, there is very scarce evidence of research on examining the impact of job rotation in the oil and gas sector, or any of the organisations in the state of Qatar in general, and its link with job satisfaction and work engagement in particular. Therefore, this study is an attempt to explore the relationship between job rotation and work engagement through the mediating role of job satisfaction in the oil and gas sector in Qatar context. Exploring these gaps could provide a deeper understanding of how job rotation impacts work engagement through job satisfaction, offering insights to help companies foster more effective employee development and retention strategies in the region's oil and gas industry.

1.3 STUDY OBJECTIVES

This study sought to fulfil the following objectives:

1. Determining the nature of applying job rotation for senior staff in the oil and gas companies in Qatar.
2. Investigating the contributions of applying job rotation (decrease monotony, prepare rotated employees for management, determine

optimal job for employees, develop social relationships, increase knowledge) in the oil and gas companies in Qatar.

3. Identifying the most important challenges facing the application of job rotation in the oil and gas companies in Qatar.
4. Examining the direct relationship between job rotation and job satisfaction, job rotation and work engagement, and job satisfaction and work engagement in the oil and gas companies in Qatar.
5. Exploring the mediating role of job satisfaction in the relationship between job rotation and work engagement.

1.4 STUDY HYPOTHESES

This study was conducted to examine the following four hypotheses:

H1: Job rotation has a positive relationship with work engagement,

H2: Job rotation has a positive relationship with job satisfaction,

H3: Job satisfaction has a positive relationship with work engagement,

H4: Job satisfaction mediates the relationship between job rotation and work engagement.

1.5 MOTIVATIONS AND CONTRIBUTION

This study explored the relationship between applying job rotation in the oil and gas companies in Qatar and job satisfaction and work engagement. Furthermore, empirical research is inconsistent and often conducted in developed countries, but the current study aims to be conducted in a developing country, specifically within oil and gas companies operating in Qatar from 2021 to 2023. Moreover, extensive research and literature review do not indicate the use of job rotation and its relationship to work engagement through job satisfaction in Qatar in general and in oil and gas companies in particular. Therefore, this study makes several contributions to the oil and gas sector.

Firstly, this study evaluates the degree of application of job rotation in the

oil and gas companies in Qatar. Secondly, this study evaluates the various effects of job rotation in the oil and gas companies in terms of decreased monotony, preparation for management, determination of optimal jobs, developing social relationships and increased knowledge. Thirdly, this study seeks to determine the challenges of implementing job rotation. Fourthly, this study assesses the mediating role of job satisfaction in the relationship between job rotation and work engagement in oil and gas companies in Qatar, which brings about important results that can be beneficial not only for the oil and gas sector in Qatar but also to other firms, institutions and policy makers. Fifthly, this study may guide oil and gas companies' managers about the role of job rotation in enhancing job satisfaction and work engagement and helping them choose the best strategies and tools within companies to improve employees' performance. Sixthly, this study could be used as a reference material for future researchers on job rotation, job satisfaction, work engagement, and performance. It may help other academics who study a similar topic.

1.6 RESEARCH FRAMEWORK

The framework of this study is outlined below, based on thesis contributions, basic study objectives and the hypotheses.

Chapter 1: This chapter describes the study's background, problem, and importance. Furthermore, it outlines the objectives, hypotheses of this study, and motivations and contributions. In addition, it outlines the overall structure of the thesis.

Chapter 2: This chapter presents a comprehensive literature review on job rotation: reasons for, and objectives of, implementing job rotation; types of job rotation; job rotation theories; and challenges of implementing job rotation. Moreover, this chapter indicates how to implement effective job rotation, the pros and cons of job rotation, and the relationship between job rotation and performance. Relatedly, the chapter introduces the relationship between job rotation, work engagement and job satisfaction,

and the relationship between job satisfaction and work engagement. Besides, this chapter discusses the mediating role of job satisfaction in the link between job rotation and work engagement.

Chapter 3: This chapter addresses the study's methodology, including research philosophies, research design, study model and hypotheses, data collection method, sampling design, common method bias, questionnaire development process and ethical considerations.

Chapter 4: This chapter presents data analysis and the key findings of this study. It illustrates the overall response rate, data preparation and screening, demographic profile, measurement model assessment, confirmatory factor analysis, summary of descriptive analysis and test of hypotheses.

Chapter 5: This chapter provides the study's discussion and conclusion. The chapter provides the general findings of this study and discusses implications for theory and practice by indicating the key findings of the analysis and matching the findings with the literature review. The chapter concludes with limitations and suggestions for further study.

CHAPTER 2: LITERATURE REVIEW

2.1. INTRODUCTION

Job rotation is one of the tools that organisations use to provide employees with more skills, experience and understanding (Casad, 2012). The importance of job rotation in improving employee learning, job satisfaction, and interpersonal cooperation effectiveness has long been emphasised (Zin *et al.*, 2013). More recently, job rotation is one of the most important methods that an organisation may utilise to accomplish its objectives. In order to increase employee performance, organisations attempt to implement the job rotation method (Schultz & Schultz, 2020). As a result, job rotation may be considered as a strategy adopted by commercial or government organisations to improve employee performance (Shehansi *et al*., 2019).

Qatar has developed the Qatar National Vision 2030 (QNV 2030), which aims at “transforming Qatar into an advanced country by 2030, capable of sustaining its own development and providing for a high standard of living for all of its people for generations to come” (QNV 2030, 2008, p. 2). The Qatar National Vision 2030 (QNV 2030, 2008) is based on four main pillars. The first of these is the human development which entails developing the population of the State of Qatar so that they can build a prosperous society. The second is social development. By this it is meant that a just and secure society is developed based on good morals and social care, capable of dealing with other societies, and playing an important role in the global partnership for development. The third pillar is economic development. Economic development necessitates developing a diversified and competitive national economy capable of meeting the needs of the citizens of Qatar, at present and in the future, and securing a high standard of living. Fourthly, and finally, is environmental development. This includes environmental management in a manner that ensures harmony and consistency between economic and social development and environmental protection (CSR Report Qatar, 2020; Kirat, 2015).

In the human development field, Qatar realised that long-term economic success depends on the capabilities of the Qatari people, which will enable Qatar to deal and interact with the new world order based on broad competition. Therefore, the state has paid attention to building advanced educational systems that provide the best educational services and developing a workforce with capabilities and erudition that is more efficient than expatriate employees. The state gave due attention to providing the best training systems which keep pace with modern international standards to enable citizens to develop their creative and innovative capabilities (QNV 2030, 2008).

Qatar made extensive investments to enhance human capital to reduce unemployment rates significantly, and to strengthen the Qatari workforce (Al-Shaiba *et al.*, 2019). It invested heavily in education, technology, and research and development. Knowledge is a source of excellence in various institutions, as well as promoting economic, social, and human development. Therefore, Qatar's efforts in the field of creating, producing, disseminating, and applying knowledge were intensified (Ahmed, 2018). In this context, oil and gas companies in Qatar focus on investing in human capital, convinced that human capital is the basis for success and the continuation of increasing oil and gas exports. In addition, these companies, through human investment, expect to develop the capabilities of Qatari employees to replace foreign employees, and to take over leadership positions in companies (Kirat, 2015). Similarly, Syarnubi *et al.* (2018) concurred with this view. They highlighted how these companies heed the distinguished performance of employees, as well as increasing their productivity, which would eventually lead to the goals being efficiently achieved.

This chapter reviews related literature on the topic of job rotation and its link with job satisfaction and work engagement through introducing the origin and definitions of job rotation, reasons and objectives that drive organisations to apply job rotation, types of job rotation, challenges of

implementing job rotation, and its theories. Additionally, both advantages and disadvantages of job rotation will be addressed. Finally, at the end of this chapter, a summary of research findings is given on the relationship between job rotation and job satisfaction and work engagement.

2.2. JOB ROTATION

2.2.1. Definition of Job Rotation

Job rotation is described as working in different areas or under different situations at different times that are categorised based on a range of individual erudition, skill, and capacity of employees (Gómez *et al.*, 2004). Further, job rotation is an organised practice of rotating chosen internal candidates into specific roles in order to broaden their understanding of a company and how it works, as well as to enhance their leadership abilities (Iluk & Iluk, 2017). The first job rotation practice was observed during the industrial revolution. This early method of job rotation was recognised as migration. It included rotating trainees between roles inside and across firms (Casad, 2012). Job rotation was frequently used by community enterprises in the nineteenth century. For example, it was a widespread technique in the nineteenth century in the organisation of labour in the famous American religious communal movement known as the United Society of Believers, also known as the Shakers (Coşgel & Miceli, 1999). The notion of job rotation began in the 1950s as an administrative tool established by the Toyota Production System to allow employees to work in a variety of occupations. This process involves a systematic rotation with predetermined goals and schedules for the process's participants (Jassim, 2018; Casad, 2012). However, job rotation programmes arose in the 1980s and 1990s as organisational techniques with the purpose of enhancing employee performance and flexibility. Managers have frequently used these techniques to minimise time and manufacturing costs. The first motives for introducing job rotation programmes were based on the need for more employees with greater autonomy as part of a lean production system and complete quality (Padula *et al.*, 2017).

Job rotation is frequently utilised, although it has attracted particular attention in human resource literature (Iluk & Iluk, 2017). Further, a consensus as to how job rotation can be defined does not exist. Job rotation is one of the tactics and methods used in career development and organisational transformation. It is one of the current management strategies used to allow as many employees as possible to do several tasks in the fields of supervision, management, or leadership (Al hanty & Khan, 2019). Additionally, job rotation is a lateral transfer of an employee among jobs within the same organisation without changing the hierarchical rank or the salary grade. It is frequently regarded as an important tool for organisational development, as horizontal assignments typically fully comply with a change in job content and required expertise (Campion *et al.*, 1994). However, horizontal transfers can happen when inefficient individuals are redistributed to different jobs in order to enhance the quality of the person-job match or to inspire employees by assigning them new responsibilities inside the organisation. Many organisations' talent management strategies include job transfers for inefficient employees (Kampkötter *et al.*, 2018).

Furthermore, job rotation is viewed as a technique of shifting employees among technical and managerial positions within an organisation, for a set period and at regular intervals, allowing them to gain expertise, proficiencies and work know-how to use in their careers and improve organisational effectiveness (Jassim, 2018). Job rotation is the practice of allocating employees from their present task to another task in the organisation (Prasetyanto *et al.,* 2020). Similarly, job rotation is an opportunity for employees to obtain an overall awareness of organisational goals, create a deeper mastery of diverse functional areas, develop a network of organisational connections, and improve employees' abilities (Zin *et al.*, 2013). Job rotation is an alternate method that a firm may use to handle excessive or monotonous employee work routines. This must be done if the employee's job is no longer considered difficult. In this case, the person is shifted to a different position in the same division and with the

same job requirements (Natalia *et al.*, 2020). As part of a career development programme, job rotation is a technique for work orientation and professional skill development, with the goal of assisting the new employee in acquiring a sufficient level of competence for the position (Järvi & Uusitalo, 2004).

To distinguish job rotations from other forms of job enrichment, the purpose of the assignments must be evaluated. Employees who rotate to a new position are not expected to stay there indefinitely (Campion *et al.*, 1994). This transfer occurs without additional remuneration and should not be conflated with any promotion, which serves significantly different goals than job rotations, namely greater duties in exchange for increased salary and benefits. Job rotations exist solely to build proficiencies, provide job diversity, and recognise particular talents. They can play an important role in deciding promotions, but they are not promotions, and vice versa (Casad, 2012).

2.2.2. Reasons for and Objectives of Implementing Job Rotation

Rotating employees from one unit to another, according to organisational scholars, is not a privilege but a basic requirement in today's professional environment. This is because it generates an intermittent opportunity for employees to tackle higher-level diversified tasks, which expands job engagement and, as a result, strengthens job performance (Campion *et al.*, 1994). Demands of customers, skilled employees, regulators, social activists, and shareholders raise the pressure on organisations to produce great performance while meeting the requirements of stakeholders. Job rotation can boost both employee and organisational productivity (Ajusa & Atambo, 2016).

In this vein, job rotation is a training strategy that a company may use to grow and enhance its human resources across departments. This is made possible through giving employees learning opportunities to gain varied job competencies for a certain period. Furthermore, work rotation is a practical

method of enriching and expanding job duties for employees as its efforts to create human capital can allow the company to compete with other companies (Jassim, 2018; Seibert *et al.,* 2001). Likewise, a company uses job rotation for three reasons. These include the ability to improve product quality, providing employees with the opportunity to explore different career routes, and, most significantly, eliminating stagnation and boredom (van Wyk *et al.*, 2018; Aryanezhad *et al.*, 2009).

Employees will participate in a job rotation programme when they wish to extend, deepen, or take advantage of their competence, or when they are ageing employees who want to shift occupations. Employees' professional growth chances are enhanced by job rotation opportunities (Siikaniemi, 2009). Job rotation opportunities benefit both individual employees' professional growth and the competence development of work environments. Job rotation may be utilised as a remedy for employees who are feeling suffocated by the lack of challenge in their job or by over-routinisation (Dhanraj & Parumasur, 2014). Similarly, employees who took part in job rotation are more likely to obtain another job if their employment is terminated since they learned numerous abilities in the roles, they rotated to inside the organisation. Employees believe that job rotation benefits their productivity and job security, as well as the organisation as a whole (Dhanraj & Parumasur, 2014). In terms of the perceived impact of job rotation on employees, employees see the personal advantages as satisfying their desire for challenge, boosting self-confidence, and making them more desirable. These findings show that employees feel that job rotation improves their understanding, coordination, and cooperation, as well as their capacity to deal with company changes (van Wyk *et al.*, 2018).

Interestingly, job rotation is occasionally used to handle employees' experiences of monotony, boredom, and tiredness resulting from job simplicity and specialisation. Job rotation provides employees with the opportunity to support one another. Similarly, another reason is job burnout, which has a negative impact on both individuals and businesses,

resulting in feelings of depression and failure, quitting the job, turnover, reducing organisational commitment, reduced productivity, and physical illness, as well as affecting the quality of employees' work (Hsieh & Chao, 2004). The early motives for adopting job rotation programmes were based on the need for more employees with greater autonomy as part of a lean production system and total quality (Padula *et al.*, 2017). Job rotation programmes are commonly recommended to reduce the continuous exposure to risk factors for Musculoskeletal Disorders (MSDs) (Mehdizadeh *et al.*, 2020).

Job rotation may provide employees with renewed vitality, assist them in learning new abilities, and result in innovation and new ideas (van Wyk *et al.*, 2018). Furthermore, job rotation programmes improve the competitive advantage by integrating information and providing flexibility to an organisation's structure when focused on the structural aspect (Burke & Moore, 2000). Additionally, the purpose of job rotation is to provide knowledge of virtually every department in the company as well as exposure to a wider range of work experiences (Vitton Jr, 1982). Jaturanonda *et al.* (2006) viewed job rotation as the epitome approach for human resources to fulfil goals including staffing jobs, orienting new employees, reducing job boredom, training people, and advancing their careers. Some of the most popular reasons for job rotation are to extend one's experience and to improve one's skills.

Job rotation is utilised to achieve a variety of organisational goals. The most noted in the literature being the connection between job rotation and learning and ability (Campion *et al.*, 1994; Cheraskin & Campion, 1996). Job rotation is a method of progressive Human Resource Development (HRD) and an important means of increasing the value of work experience to the employees' career growth (Iluk & Iluk, 2017). Additionally, the use of job rotation to allocate employees to different tasks and workstations based on their personal qualities, such as age and physical capabilities, can encourage the ultimate objective of increasing elderly employees'

employability, along with their welfare and, therefore, total productivity (Daria *et al.*, 2018; Botti *et al.*, 2021).

Moreover, job rotation is intended to provide variation in job content. It is performed through the purposeful rotation of tasks at specified intervals. Employee competency is enhanced by job rotation, which leads to higher task completion possibilities. Job rotation allows employees to become acquainted with work procedures employed in units other than their own. Furthermore, job rotation is a tool for professional growth, and the agreement between the employee and the employer on job rotation must always be voluntary on the employee's part. Job rotation is a component of a career development program that serves as a method for both job familiarisation and enhancing professional skills. The aim is to support new employees in attaining a satisfactory level of proficiency required for their roles (Järvi & Uusitalo, 2004).

The primary goal of job rotation is to move employees from one job to another to enhance their motivation and enthusiasm (Fernando & Dissanayake, 2019). Likewise, job rotation is not only a method of attracting and familiarising new employees with the firm, but it rewards and trains employees, resulting in improved career growth (Iluk & Iluk, 2017). The justification for adopting job rotation varies based on organisational goals and Human Resource Management (HRM) practices. Job rotation can be used for succession planning. The idea behind succession planning is to determine "Who will succeed whom". The primary role of job rotation is to create a pool of employees who may be placed at a senior level when someone retires or quits the organisation. The goal is to find an expedient replacement for a high-value employee inside the organisation (Adu-Oppong *et al.*, 2019; Ortega, 2000). Bhadury & Rodovilisky (2006) added that job rotation is used for reducing job boredom. One important goal of job rotation is to minimise the boredom and repetitiveness of the job. It gives employees the opportunity to try out new types of jobs and encourages them to perform well at each level of job replacement. In

addition to this, it is used to create right-employee job fit. An organisation's success depends on its employees' on-the-job productivity. They will be able to produce the most if they are appropriately positioned. If they are not allocated to a position at which they are competent, it causes a serious problem for both the individual and the organisation. As a result, one of the primary goals of job rotation is to place the appropriate individual in the correct position (Choudhary, 2016).

On the other hand, a firm applies job rotation to expose employees to sectors of the firm, in order to familiarise them with how the organisation runs and how tasks are completed. It allows them to understand how the organisation operates and the many challenges that arise while working (Campion *et al.*, 1994). In addition, the firm rotates employees to develop a broader range of work experience. Typically, employees are less inclined to alter their field of operations. They do not want to leave their comfort zone after they have begun executing a certain activity. Managers prepare them in advance for a greater range of work experience and the development of diverse abilities through job rotation. This is essential for an individual's entire growth. In addition, they comprehend the difficulties of many departments and attempt to change or adapt properly (Campion *et al.*, 1994; Whittington, 2004).

Finally, a significant objective of job rotation is to evaluate the competencies of the employees. Equally significant is that the job rotation process tests and analyses employees' abilities and competencies before giving them work in which they thrive. It is accomplished by exposing them to various occupations and assignments and assessing their aptitude. Placing employees where they excel boosts their on-the-job productivity (Leoni, 2012).

2.2.3. Types of Job Rotation

Organisations implement several types of job rotation programmes depending on their organisational goals and needs. Each programme has

its own set of benefits and applications. In most cases, an adviser is required while implementing a job rotation programme (Campion *et al.*, 1994). It may be suggested by advisers, human resource departments, or anybody else, including supervisors, management, ergonomics monitors, manufacturing staff, and trade union representatives (Brunold & Durst, 2012). The period of rotation varies according to the organisational goal and expectations from job rotation (Campion *et al.*, 1994).

There are two types of job rotation as mentioned in Iluk & Iluk, (2017), Jassim (2018), Casad (2012) and Bennett (2003). The first type is within-function rotation that happens when rotation applies between jobs at the same responsibility level, between similar jobs, or at the same operational or functional area (Bennett, 2003). The second type is cross-functional rotation that entails moving between jobs in different sections of the company over time. Instead of rotating through a number of jobs which are in the same group and closely connected to each other, the person or new employee would rotate through a number of jobs in respective units (Casad, 2012). This approach gives possibilities for growth for the individual or new employee, and similar methods may be utilised by the organisation to obtain data about their abilities, interests, and potential to suggest their eventual placement (Jassim, 2018). Cross-functional rotations are commonly employed for trainees who are expected to spend a set amount of time in a series of assignments to different roles or units in order to prepare for a substantive appointment (Iluk & Iluk, 2017).

However, there are five types of job rotation as Vitton Jr (1982) indicated. Firstly, rotation in non-supervisory work. In this case, trainees are allocated to pre-set jobs for a set length of time in order to get diverse experience. Secondly, rotation in observation assignments. This means that the trainees are rotated across different departments according to a set schedule to familiarise themselves with the work of the department heads. Thirdly, rotation among managerial training positions. In this case, certain management roles at the same organisational level are identified as

training stations, to be filled sequentially by selectees. The goal of this sort of job rotation is to provide trainees with real-world supervisory experience in a range of jobs across many departments. Fourthly, rotation in middle-level “assistant” positions to extend their expertise to a higher level. The trainees are rotated among jobs as assistant managers in several departments. Fifthly, unspecified rotation in managerial positions where promising managers are shuffled from one area to another on an unplanned basis. In none of these roles is the manager told how long he/she will be there. He/She may not be rotated again if he/she does not show signs of growth.

2.2.4. Job Rotation Theories

Organisations implement job rotation techniques to improve employee learning and growth, employer learning and awareness of employees’ skills, and employee motivation (Ortega, 2000). Employee learning, employer learning, and employee motivation are three reasons why companies implement job rotation. These can be described as theories (Eriksson & Ortega, 2006). The first theory states that employees who rotate develop greater human capital because they are exposed to a broader range of experiences. The more an employee moves, the more he/she learns. This is referred to as the Employee Learning Theory (Baro, 2012). The second theory holds that seeing how people perform in different tasks allows the company to understand more about them. To determine which job an employee is most suited for, the company must move the individual about and study how he/she performs in each position. This is known as the Employer Learning Theory. The third theory known as Employee Motivation Theory, is that job rotation motivates employees who would otherwise get bored and tired of doing the same activities over and over. The theories make various predictions about the sorts of individuals that are more likely to rotate and the types of organisations that are more likely to rotate employees (Eriksson & Ortega, 2006).

The Employee Learning Theory is an effective technique to increase employees' talents (Adu-Oppong *et al.*, 2019; Tarus, 2014). Job rotation has two positive impacts (Campion *et al.*, 1994). Firstly, an individual who rotates gains experience faster than an individual who does not rotate. As a result, job rotation is considered as a useful strategy for professional growth. Secondly, a rotating individual gains experience in more areas than a non-rotating individual. As a result, it is simpler to teach an individual to become a generalist if he/she rotates more frequently. Job rotation is a beneficial technique to increase employees' competencies, according to the employee learning theory. Inter-functional job rotation, for example, involves preparing subordinates to become top managers (Eriksson & Ortega, 2006). As individuals advance in their careers, they need to obtain a better grasp of more elements of organisation; job rotation assists them in doing so. Intra-functional rotation may be highly effective at lower organisational levels for allocative efficiency reasons; organisations profit from being able to re-allocate individuals across different jobs since it allows them to meet production needs. However, re-allocation is prohibitively expensive unless individuals have prior expertise in new professions (Carreon *et al.*, 2021).

The Employee Learning Theory suggests that job rotation can offer employees valuable learning experiences, enabling them to acquire new skills and knowledge. As a result, job rotation can enhance job satisfaction by providing opportunities for growth and development. When employees are satisfied with their jobs, they are more likely to be engaged and dedicated to their work, as indicated by studies (Al-Romeedy, 2019). Thus, the Employee Learning Theory can serve as a theoretical framework to understand how job rotation influences work engagement, with job satisfaction acting as a mediating factor, in this case the oil and gas industry context in Qatar. This theory underscores the significance of learning and development opportunities in improving job satisfaction, work engagement, and overall employee performance.

The Employer Learning Theory suggests that an organisation gains valuable insights about its employees by observing their performance in various roles (Al-Nashmi & Almoayad, 2015). To determine which job an employee is most suited for, the employer must move the individual around and see how he/she performs in each job (Adu-Oppong *et al.*, 2019). In addition, the employer learning theory enhances job assignments in a different way. The premise is that job rotation informs the employer about the employee's talents (Eriksson & Ortega, 2006). It enables the organisation to determine which portion of an employee's performance is due to general abilities, which portion is due to job-specific factors unrelated to the employee (for example, the job may be particularly difficult and performance low as a result), and which portion is due to job-specific abilities. This data may be utilised to make better promotion decisions (Eriksson & Ortega, 2006). When an organisation knows less about its employees' capabilities and is engaged in activities where the returns are by deduction more unclear, the relative advantages of job rotation are larger (Ortega, 2000).

The Employer Learning Theory, as it pertains to job rotation, suggests that job rotation can serve as a means for employers to gain insights into individual employees' strengths and weaknesses, potentially influencing their job satisfaction and organisational commitment (Campion *et al*., 1994). According to this theory, employers acquire knowledge about employees' productivity and skills by observing them in different roles through job rotation. Job rotation can function as a dual-purpose mechanism for both employee development and employer learning. It provides employees with a broader understanding of the company and facilitates the acquisition of new skills, thereby increasing their job satisfaction (Eriksson & Ortega, 2006). This heightened job satisfaction can subsequently mediate the relationship between job rotation and increased work engagement (Yalabik *et al.*, 2017; Park & Johnson, 2019). In the context of oil and gas companies in Qatar, the implementation of job rotation has the potential to elevate job satisfaction, which, in turn, could

mediate the association between job rotation and work engagement. When employees experience greater job satisfaction, they are more likely to exhibit heightened engagement with their work, leading to improved performance and productivity. The theory proposes that job rotation can enhance employees' versatility and motivation, which are crucial elements in fostering job satisfaction and engagement.

In the Employee Motivation Theory, job rotation stimulates employees who would otherwise become bored with the constant repetition of the same activities (Carreon *et al.*, 2021). Job rotation has been seen to help make work more exciting from a motivational standpoint (Eriksson & Ortega, 2006). One of the advantages of job rotation is enhanced satisfaction, according to Cosgel & Miceli (1999). Employees prefer to undertake a range of activities rather than specialising in a single activity, according to their model and, as a result, job rotation promotes job satisfaction (Baro, 2012). This benefits the organisation since it can afford to pay lower wages when employees are satisfied. Job rotation, on the other hand, does not contribute to training. Contrary to the employee learning argument, employees learn more by specialising rather than rotating (Coşgel & Miceli, 1999).

According to the Employee Motivation Theory, individuals are driven by intrinsic factors, such as a desire for personal growth and achievement (Bushi, 2021). In the context of job rotation, employees may be intrinsically motivated by the opportunity to acquire new skills, broaden their experiences, and take on diverse challenges (Al-Romeedy, 2019). The study suggests that job rotation influences job satisfaction, and the Employee Motivation Theory aligns with this by emphasising that intrinsically motivated employees, seeking personal development, are likely to find satisfaction in varied and challenging tasks. Intrinsic motivation, as proposed by the theory, contributes to positive emotions and satisfaction derived from the work itself (Devloo *et al.*, 2015). The Employee Motivation Theory also considers extrinsic factors, such as

rewards and recognition as motivators. Job rotation, offering the prospect of career advancement and increased employability, can be seen as an extrinsic motivator. Employees anticipating these rewards may experience higher levels of job satisfaction. Work engagement, which is the ultimate outcome in the study, can be viewed as a manifestation of employee motivation. The Employee Motivation Theory posits that motivated employees, whether intrinsically or extrinsically driven, are more likely to be engaged, committed, and perform effectively in their roles (Eriksson & Ortega, 2006).

2.2.5. Challenges of Implementing Job Rotation

Job rotation implementation involves several challenges. The key issues are not necessarily related to the rotation strategy, but rather to the change in the work structure, organisational culture, and employees' perceptions, opportunities, and resistance (Triggs & King, 2000). Besides, job rotation is frequently hampered by narrow qualification standards, detailed job descriptions, and a lack of initiative and courage. The most significant challenges to job rotation are management, supervisors, and employee attitudes. Supervisors, for example, may be concerned about losing competent staff (Järvi & Uusitalo, 2004).

Implementing job rotation within an organisation can present certain challenges. The implementation of job rotation may face opposition from employees who feel at ease and accustomed to their current positions (Fægri *et al*., 2010). Employees may resist change due to worries about added workload, fear of unfamiliar territory, or the belief that job rotation could disrupt their expertise or sense of stability (London, 2014). The successful execution of job rotation necessitates employees acquiring fresh proficiencies and information to excel in various positions (Azizi *et al*., 2010). Nonetheless, not all employees may possess the essential abilities or have the ability to learn rapidly (Erdogan *et al*., 2011). Discrepancies in skills and knowledge can impede the seamless implementation of job rotation (Cotgrove *et al*., 2023).

Besides, the introduction of job rotation has the potential to disturb established workflows and processes within teams or departments (Fægri *et al*., 2010). When employees transition to new roles, there may be a period of adjustment and a temporary decline in productivity (Booth *et al*., 2002). As well, introducing job rotation in organisations characterised by complex structures or multiple departments can present challenges (Thongpapanl *et al*., 2018). Coordinating and harmonising rotations across different teams, ensuring seamless transitions, and managing the logistical aspects of job rotation necessitate effective communication, collaboration, and coordination among diverse stakeholders (Davis & Eisenhardt, 2011; Dodgson *et al*., 2020; Ananthram & Chan, 2013).

Although job rotation can provide developmental prospects, there is a potential for employees to view such as a temporary task or a way to fill gaps rather than a genuine path for career advancement (Rothwell *et al*., 2015; Otto & Battaïa, 2017). Evaluating the efficacy of job rotation programs and quantifying their influence on employee performance, satisfaction, and engagement can pose difficulties (Herzberg, 2008; Sageer *et al*., 2012). Obtaining the support and commitment of managers and supervisors is essential for the effective execution of job rotation (Earney & Martins, 2009). Managers may need to address concerns related to potential disruptions within their teams, resource allocation, and performance management during rotations (Fægri *et al*., 2010; Allwood & Lee, 2004). Besides, the implementation of job rotation may necessitate supplementary resources, such as training programs, mentoring, or job shadowing opportunities (Earney & Martins, 2009; Stahl *et al*., 2012). Organisations with constrained resources or limited capacity may encounter difficulties in offering sufficient support for job rotation initiatives (Ramlall, 2004; Ho *et al*., 2010).

Likewise, employees may encounter challenges when it comes to the implementation of job rotation. When employees engage in job rotation and transition into unfamiliar roles, they are required to swiftly adjust to new

tasks, responsibilities, and work environments (Lengnick-Hall & Lengnick-Hall, 2002; Pulakos *et al*., 2000). During this process, employees may encounter a learning curve as they acquire the essential capabilities and mastery needed to effectively perform in their rotated positions (Anzanello & Fogliatto, 2011; Martin *et al*., 2014). The implementation of job rotation can bring about uncertainty and job insecurity, especially if employees view it as a temporary assignment or harbour concerns about the potential elimination of their original position (Foroutan *et al*., 2021). Employees may experience apprehension regarding their ability to thrive in new roles or anxiety about the potential implications for their long-term career prospects (Sverke & Hellgren, 2002; Epstein & Roy, 2001).

Moreover, the impact on work-life balance can vary for employees depending on the nature and extent of job rotations they undergo (Jolaolu, 2022). Adapting to new roles and responsibilities may necessitate extra time and effort, potentially leading to longer working hours or heightened job demands (Meijman & Mulder, 2013; Berg *et al*., 2010). The objective of job rotation is to improve employees' competencies by exposing them to various roles (Kampkötter *et al*., 2018). Nonetheless, certain employees may encounter difficulties in developing the necessary competencies within the designated timeframe or find it challenging to excel in multiple areas simultaneously (Espinoza & Ukleja, 2016; Michaelis & Markham, 2017).

When employees engage in job rotation, they depart from their original roles, leading to a temporary loss of their expertise and institutional knowledge (Casad, 2012). This loss of expertise can have implications for both the team or department they leave behind and their own sense of professional identity and mastery (Downey & Lucena, 2004; Hall & Mirvis, 1995). Moreover, job rotation can generate a tension between the goal of expanding employees' skill sets through diverse experiences and the desire to specialise and advance in a specific area (Hsieh & Chao, 2004; Kampkötter *et al*., 2018). Certain employees may prioritise deepening their expertise in a specific domain rather than constantly rotating through

different roles (Davenport, 2005; Sveiby, 2001). Although job rotation has the potential to increase engagement and motivation, there is a possibility that employees may experience disengagement or demotivation if they perceive job rotations as repetitive or lacking meaningful developmental opportunities (Khan *et al*., 2017; Kaymaz, 2010).

Additionally, certain job rotations may be less desirable or feasible for employees due to their personal preferences or life circumstances (Lindbeck & Snower, 2000; Morgeson *et al*., 2005). Factors such as location, travel requirements, or family considerations can impact on employees' capacity or willingness to engage in specific job rotations (Adjei, 2012; Hsieh & Chao, 2004). There are employees who may exhibit resistance towards job rotation due to personal factors or a reluctance to venture outside of their comfort zones (Fægri *et al*., 2010). They may hesitate to assume new responsibilities or experience apprehension regarding the uncertainties associated with transitioning into different roles (McMillan & Woodruff, 2003).

During the initial phases of a new rotation, employees may encounter difficulties in their performance (Van Wyk *et al*., 2018). They may require time to acquire the essential expertise, establish relationships with new team members, and comprehend the expectations associated with their new roles (Holton, 1996; Olsen & Stensaker, 2014). Further, job rotation can lead to elevated workload and stress levels for employees, particularly when they are tasked with managing multiple roles or swiftly adjusting to new responsibilities (Casad, 2012; Yunita & Saputra, 2019). Although job rotation can offer valuable learning experiences, employees may perceive limited opportunities for growth if they frequently rotate through similar roles or if there is a lack of well-defined career progression paths tied to job rotations (Hsieh & Chao, 2004; Jaturanonda *et al*., 2006).

2.2.6. How to Implement Effective Job Rotation

Job rotation plans must be carefully developed utilising both qualitative and quantitative data, because badly constructed rotation schedules may actually raise employee stress levels. In a similar manner, wrongly rotating employees may, over time, generate disorders throughout the whole workgroup (Triggs & King, 2000). The following are critical components which must be considered when developing a job rotation plan. Namely, these are jobs included in the rotation, the number of jobs included in the rotation, the frequency of job changes, the sequence in which jobs are switched from one to the next, wage parity for employees in the same rotational jobs, and the responsibility of administering the rotation programme (Tharmmaphomphilas & Norman, 2007). In rotation studies, details on job rotation characteristics are frequently lacking. While some studies propose rotation schedule techniques, few studies have looked into whether specific rotation strategies are more beneficial than others. As a result, further study is required to assist in determining effective rotation strategies (Vezina, 2004).

There are various issues that should be considered by organisations while adopting job rotation. Firstly, organisations should establish broad plans for a variety of concerns. Specific plans are necessary, outlining the rotation period, objectives, evaluation criteria, risk evaluation, and rotation coordination systems. Likewise, the organisation should conduct a comprehensive evaluation of the competence of employees in rotation, in order to allocate them to the most appropriate jobs, ensuring that employees' abilities fit the requirements of the jobs (Pei, 2009). Secondly, before establishing the rotation system, the organisation should highlight the importance of the communication about the job. Because employees may have been involved in a certain business for many years, they may have created one set mode of business in their minds, and hence are likely to deny and resist the rotation (Pei, 2009). Furthermore, some employees are hesitant to accept a job that is harder and more urgent than their current

one. As a result, if organisations do not provide an adequate explanation and communication to these employees prior to rotation, they may face psychological challenges (Zeff, 2007). Simultaneously, working in rotation is part of the task of personnel training; employees have personal preferences and interests, if organisations assign them to new jobs without sufficient contact with them before hand, they may not work optimally in their new assignment. As a result, rather than providing orders, the adoption of job rotation necessitates a great deal of specific labour (Pei, 2009). Thirdly, the organisation should be aware of any potential issues that may arise throughout the process of job transfer and professional training. The organisation should guarantee that all resources are completely transferred, and that newly arriving employees have a thorough grasp of the task they will be performing. All of these are critical. Furthermore, as a result of the job rotation system's implementation, employees will encounter a variety of different work and be required to master a variety of new working methods. Consequently, they may fail in their jobs if they do not receive related professional training before taking the new jobs (Zeff, 2007). Hence, one of the most significant linkages is professional training prior to the implementation of the job rotation system (Pei, 2009).

Moreover, task, employee, and work environment variables influence human performance and mistake proneness. Job rotation has been viewed in recent years as a technique of establishing a more varied workload, thereby compensating for the impact of boring repetitive work, which is a primary source of workload related disorders (Pinhatti *et al*., 2017). Because employees must fulfil the needs of various duties around the clock, this varying workload enables them to acquire several talents. During the scheduling procedure, the physical limits of human operators must be considered. Assigning employees to tasks with high physical requirements for extended periods of time will result in bottlenecks owing to cumulative weariness of the employee, who will be unable to maintain the minimum

necessary throughput of work. To keep the production going smoothly, an equitable workload allocation is required (Michalos *et al.*, 2011).

Seven strategies for applying for job rotation programmes efficiently were developed by Van Wyk *et al.* (2018). Firstly, making explicit regulations about who will be eligible and if employees will be confined to certain jobs or whether opportunities will be available to employees in all job classifications. Secondly, assessing whether the programme will be mandatory or optional for employees. Will choosing to opt out have a negative influence on their performance evaluation? Thirdly, engaging employees and supervisors in the design of job rotation to ensure a clear understanding of mutual expectations. Fourthly, identifying which abilities will be improved by putting an individual through the job rotation procedure. Fifthly, employing a rotation programme for individuals in non-exempt positions, as well as those in professional and management tasks. Sixthly, employees should have ownership of the rotation policy and should be involved in the process. When they take ownership of something and take responsibility for it, they begin to take good care of it, and the next stage is passion. The ultimate aim of the organisation for all employees is to develop a passion for their work. Seventhly, it is crucial to establish regular communication with both leaders and individuals who have achieved the highest level of success. This enables valuable information about the specific positions they are seeking within the organisation to be gained.

Importantly, the open-door policy is of utmost importance in the effective implementation of job rotation within an organisation. By promoting transparent communication and creating a culture of openness, it enables employees to freely express their thoughts, concerns, and aspirations regarding job rotation. This fosters trust, engagement, and collaboration between employees and management, allowing for a better understanding of individual career goals and organisational needs. The open door policy ensures that employees have a voice in the job rotation process, leading to increased satisfaction, motivation, and commitment to the organisation's

objectives. Additionally, it facilitates the exchange of knowledge and experiences, enabling employees to acquire diverse skills and perspectives through job rotation, ultimately enhancing their professional growth and contributing to overall organisational success (Emam, 2019).

2.2.7. Pros and Cons of Job Rotation

There is increasing interest among researchers and academics in the different effects of job rotation on organisations (Santos, 2019). Studies have been conducted during the past decades in a variety of research fields to identify the positive and negative effects of job rotation as a managerial practice on many of the organisational characteristics and outcomes associated with work (Richardson *et al.*, 2003). Job rotation can satisfy employees by diversifying the tasks required of them, strengthening relationships with colleagues, assisting in management and executive development, and mitigating the effects of job stability (Arya & Mittendorf, 2004). Additionally, organisations may apply job rotation as a learning mechanism, and give employees the opportunity to acquire more capabilities and information that will help them advance in the organisation. They may seek to apply job rotation to enhance morale, self-efficacy, and productivity (Ortega, 2000). However, at the beginning of the rotation, efficiency decreases due to a lack of understanding of new jobs (Huynh, 2003; Nafziger, 2011; Casad, 2012).

The effect of job rotation on motivation, satisfaction, job burnout, quality of performance, and many other factors is complex and often conflicting, as Santos *et al.* (2016) pointed out. However, there are studies that dealt with the impact of job rotation on such factors which confirmed that there are positive effects of job rotation. For example, some studies highlight that job rotation positively affects organisational commitment (Chen *et al.*, 2015). Job rotation offers employees the opportunity to acquire a broader range of skills and experiences (Dhanraj & Parumasur, 2014). Engaging in diverse tasks and roles can provide employees with a sense of challenge, motivation, and investment in their work (Rich *et al*., 2010). This heightened

engagement can contribute to increased levels of organisational commitment (Aboramadan *et al*., 2020).

Additionally, job rotation exposes employees to different facets of the organisation, enabling them to explore various career paths and identify areas of interest (Ho *et al*., 2010). When employees perceive that their organisation supports their career development and growth, they are more likely to demonstrate higher levels of commitment to the organisation (Weng *et al*., 2010; Jehanzeb, 2020).

Job rotation has the potential to mitigate the feelings of boredom and monotony that can emerge from performing repetitive tasks. By experiencing a variety of roles and responsibilities, employees may discover enhanced job satisfaction. Satisfied employees are more inclined to develop a sense of commitment to their organisation and its objectives. Through job rotation, employees have the opportunity to interact with colleagues from various departments or teams, fostering the sharing of knowledge and collaboration (Fægri *et al*., 2010). When employees perceive themselves as part of a cohesive and supportive work environment, their commitment to the organisation tends to grow (Choi, 2007).

Job rotation improves employees' adaptability and versatility (Azizi & Liang, 2013). Through exposure to different roles, employees develop increased flexibility and adaptability to change (Van den Heuvel *et al*., 2013; Pulakos *et al*., 2000). This enhanced adaptability fosters a better alignment between employees and the organisation, resulting in higher levels of commitment (Kumari & Pradhan, 2014). Job rotation enriches employees' adaptability and flexibility through exposure to diverse work environments and challenges (Casad, 2012). Employees who have engaged in various roles tend to demonstrate greater adaptability to change, possess stronger capabilities to handle new responsibilities, and exhibit resilience amidst organisational shifts (Dess & Picken, 2000). This enhanced adaptability

empowers employees to excel in different situations, thereby contributing to high levels of workplace performance (Pulakos *et al*., 2000).

By providing opportunities for employees to explore different roles and take charge of their career progression, job rotation can empower them and instil a sense of control over their career path and professional development (Jackson & Sirianni, 2009; Joshi, 2023). When employees have the chance to actively shape their career trajectory, they are more inclined to develop a commitment to the organisation (Liu *et al*., 2020). Further, job rotation enhances high workplace performance (Tarus, 2014). Through job rotation, employees are exposed to a wide variety of tasks and responsibilities (Dhanraj & Parumasur, 2014). As they rotate through different roles, employees gain new capabilities, expand their expertise, and develop a more holistic understanding of the organisation (Du Plessis, 2007; Dixon, 2017). Job rotation enables the transfer of knowledge and encourages collaboration across different functions (Fægri *et al*., 2010). As employees transition between departments, they bring with them new perspectives, ideas, and best practices from one area to another (Al-Romeedy, 2019). This exchange of knowledge fosters innovation, problem-solving, and collaboration, ultimately enhancing workplace performance (Carmeli *et al*., 2013; Kremer *et al*., 2019).

Additionally, career development can be supported by job rotation (Khan *et al.*, 2019). Regarding what will happen to employees who have been rotated after the end of the rotation period, Cohn *et al.* (2005) and Prasetyanto *et al.* (2020) highlighted the occurrence of beneficial career development for employees when job rotation is part of an integrated leader development program, within the framework of a broad future plan for promotions and career development. Employees wishing to assume new positions should realise that the path to success and promotion is circular, that is, the more they rotate within the organisation, the more likely they will advance in such positions (Faegri *et al.*, 2010). As well, potential leaders see rotation as a means of acquiring the competencies required for

promotion, as it expands their experience and understanding, helps acquire best practices when performing many different tasks, and is a new way of building an individual's career (Baro, 2012; Goff, 1999). Zin *et al.* (2021) summarised the relationship between job rotation and career development through three perspectives. The first is the effect of job rotation on the employees who are rotated to acquire managerial expertise, and to learn more broadly and deeply about the organisation's activities. The second perspective is the contribution of job rotation to the employees who are being rotated, who acquire the technical understanding and abilities necessary to perform many tasks during their rotation between several tasks and jobs within the organisation. The third perspective is the contribution of job rotation to the employees who are being rotated and acquiring individual abilities that enhance their professional and personal experiences. Indeed, all of this will be reflected in improving career growth opportunities for employees within the organisation (Ondiba *et al.*, 2021).

As well, job rotation raises employee motivations (Kaymaz, 2010; Earney & Martins, 2009). Where the employee is constantly in need of motivation and encouragement, job rotation contributes to making work more interesting (Bhadury & Rodovilisky, 2006). Moving from one job to another during a specified period, exposes employees to new proficiencies, professional fields, relationships, work environment, experiences, and keeping the employees away from repeating the same tasks daily for an extended period of time, raises morale, and, consequently, improve motivation (Adomi, 2006). In addition, job rotation is a strong indicator of employee motivation, commitment, and participation in work. This is because it reduces boredom and fatigue at work and enhances employee motivation through the diversification of tasks, which is highly recommended for innovative workforce development in order to meet the current and future requirements of the organisation's dynamic environment (Carreon *et al.*, 2021; Huang, 1999).

Successful application of job rotation also leads to improved quality of work life (Chitsaz, 2015). Job rotation brings diversity to employees' work experiences (Assefa, 2019). Rather than engaging in repetitive tasks on a daily basis, employees have the opportunity to participate in various activities and confront fresh challenges (Edmondson, 2012). This diversity helps counteract monotony and enhances work engagement, resulting in a more rewarding work experience (Dibua *et al*., 2023; Spreitzer *et al*., 2012). Through job rotation, employees are exposed to various facets of the organisation and its functions (Dhanraj & Parumasur, 2014). This exposure enables employees to gain information about different processes, departments, and perspectives (Adjei, 2012). The ongoing learning that accompanies job rotation enhances the quality of work life by providing intellectual stimulation and opportunities for personal growth (Martel & Dupuis, 2006). Job rotation frequently entails collaborating with diverse teams and colleagues from different departments (Aboko *et al*., 2016). This collaborative environment and networking opportunity facilitates relationship building, encourage the exchange of knowledge, and foster a sense of belonging within the organisation (Chiu *et al*., 2006; Ahmed *et al*., 2016). Strong relationships and a supportive work environment contribute to an improved quality of work life for employees (Ahmad, 2013).

Rotating employees reduces their feelings of job alienation (Yavarzadeh *et al.*, 2015). Job rotation serves as a means to alleviate the monotony and boredom that can result from repetitive job tasks by rotating employees through different roles and responsibilities (Azizi, 2009). The introduction of variety through job rotation helps maintain employee engagement and interest, reducing feelings of disconnection (Parker, 2014). Job rotation offers employees the opportunity to assume new responsibilities and face fresh challenges, which can instil a sense of empowerment and autonomy, as employees are able to make decisions and contribute in different areas (Choudhary, 2016). The increased level of responsibility can counteract feelings of powerlessness and disengagement (TenHouten, 2016).

Moreover, job rotation increases employees' sense of organisational justice (Yavarzadeh *et al.*, 2015). Job rotation has the potential to foster procedural justice by implementing a structured and transparent approach to employee assignments (Warman *et al*., 2022). When the criteria for selection, decision-making processes, and communication surrounding job rotations are perceived as fair and unbiased, employees are more likely to perceive a sense of procedural justice (Searle *et al*., 2011; Kim & Lee, 2021). It can influence distributive justice by providing employees with equal access to developmental opportunities and career advancement through rotations. When job rotations are based on merit and potential, employees are more likely to perceive the distribution of opportunities as fair and equitable (Burke & Moore, 2000; Van Wyk *et al*., 2018). Job rotation has the potential to impact interactional justice by fostering transparency, open communication, and employee participation in the decision-making process. When employees receive sufficient information about job rotations, are provided with clear explanations, and have the opportunity to express their preferences or concerns, it enhances their perception of interactional justice (Mazzei *et al*., 2019; Lee *et al*., 2021).

Increasing organisational creativity was among the advantages of job rotation (Yavarzadeh *et al.*, 2015). Job rotation promotes the exchange of ideas between different roles and departments, facilitating the cross-pollination of diverse perspectives and experiences (van Amelsvoort & Van Hootegem, 2017). When employees engage in job rotation, they bring a wealth of varied insights and experiences to their new positions. This exposure to different ways of thinking and problem-solving can stimulate creativity by encouraging the exchange of ideas and fostering innovative thinking (Campion *et al*., 1994). Moreover, job rotation empowers employees and nurtures a sense of ownership over their work (Van Wyk *et al*., 2018). When employees have the opportunity to assume different roles and take on fresh responsibilities, it enhances their sense of autonomy and accountability (Belias *et al*., 2015; Cheng *et al*., 2021). This empowerment can fuel creativity as employees become more inclined to take risks,

experiment with new ideas, and contribute to the organisation's efforts in innovation (Caniëls *et al*., 2017).

Rotating employees contributes to increasing organisational learning capabilities (Yavarzadeh *et al.*, 2015). The transfer of employees between different tasks within the organisation increases their abilities and experience, and this is reflected in the creation, exchange, and application of knowledge at work (Brunold & Durst, 2012), repetition and accumulation of knowledge, and the creation of organisational knowledge that helps achieve organisational goals with high efficiency. This transfer is reflected in enhancing organisational learning and making the organisation more able to keep pace with changes in the work environment (Faegri *et al.*, 2010).

Job rotation offers employees the opportunity to develop a broader understanding of the organisation and its various functions (Adjei, 2012). This cross-functional perspective promotes holistic thinking and enables employees to grasp the bigger picture, which is crucial for organisational learning (Young-Hyman, 2017; Li *et al*., 2021). It also serves as a motivator for employees to engage in Organisational Citizenship Behaviour (OCBs). By encouraging collaboration and cooperation among employees, job rotation facilitates interactions with different colleagues and teams, fostering relationships and networks throughout the organisation. This increased collaboration can cultivate positive social dynamics and a sense of teamwork, resulting in higher levels of OCBs, such as helping others, sharing knowledge, and assisting colleagues in achieving their goals (Ragel & Ragel, 2017; Musawir *et al*., 2019).

Moreover, job rotation supports the effectiveness of commitment to duties (Abouzari & Alizadeh, 2016). Job rotation has the potential to enhance job satisfaction, which, in turn, influences the level of commitment to job responsibilities (Santoso *et al*., 2022). By providing employees with opportunities to experience diverse roles and responsibilities, job rotation helps alleviate monotony and increase engagement (Harju *et al*., 2016).

Employees who derive satisfaction from their work are more likely to demonstrate commitment to their duties and strive for higher levels of effectiveness in their performance (Murgianto *et al*., 2016).

Productivity is influenced by the positive effects of job rotation (Bahramfard & Khaderpoor, 2017; Khan & Jalees, 2017). Job rotation is one of the most important approaches to enhancing the productivity of the organisation. However, it needs appropriate training and the cooperation of colleagues to support rotated employees into new jobs (Whyns, 2015). Job rotation systems can aid in organisational productivity and efficiency through sharing knowledge among employees, particularly between organisations that do not make long-term commitments to their employees or have work environments in which employees are competing (Siruri & Muathe, 2014).

Job rotation can influence job involvement, as highlighted by Mohsan *et al*. (2012). When employees are given the chance to make decisions, take ownership of their work, and contribute in various roles, they are more likely to experience a sense of control and investment in their job responsibilities. This, in turn, leads to higher levels of job involvement (Chi & Han, 2008; May *et al*., 2004). Job rotation can be viewed as a valuable opportunity for career development for employees (Khan *et al*., 2019). It exposes them to different facets of the organisation and facilitates the acquisition of a diverse skill set (Campion *et al*., 1994). This aspect of career development can foster increased levels of job involvement, as employees perceive their work as a stepping stone to future growth and advancement (London & Smither, 1999).

Furthermore, job rotation mitigates the risk of burnout (Hsieh & Chao, 2004; Chen *et al*., 2015; Schneider *et al*., 2005). Through job rotation, employees are exposed to variety and novelty in their work experiences (Järvi & Uusitalo, 2004). By rotating employees across different roles, they are given the opportunity to engage in new tasks and responsibilities, which helps alleviate monotony and boredom that can contribute to burnout. The change in tasks and challenges can renew employees' interest and

motivation, reducing the likelihood of burnout (Hsieh & Chao, 2004). Job rotation contributes to a more balanced distribution of workload and responsibilities among employees (Michalos *et al*., 2010). It enables the redistribution of tasks, preventing individuals from becoming overwhelmed or excessively burdened with specific roles (Song *et al*., 2016; Moussavi *et al*., 2019). Through the sharing of responsibilities, job rotation fosters a healthier work-life balance and reduces the risk of burnout caused by excessive workload and stress (Irfan *et al*., 2023; Shiffer *et al*., 2018).

Rotating employees between jobs and departments supports the alignment between employees' values and organisational goals (Ajusa & Atambo, 2016). Job rotation exposes employees to different teams, departments, and work environments within the organisation (Campion *et al*., 1994). This exposure facilitates the development of a deeper understanding of the organisation's culture and values (Suleman *et al*., 2022). By experiencing various work settings and collaborating with diverse colleagues, employees can assess the congruence between their own values and the prevailing organisational culture (Belias & Koustelios, 2014; Gotsis & Grimani, 2016). This enables them to identify areas of alignment as well as areas where their values may differ, empowering them to make informed decisions about their career path within the organisation (Beer *et al*., 2005).

Similarly, job rotation contributes to enhancing employees' sense of job security (Rashki *et al*., 2014). Job rotation helps empower employees in their new tasks or roles (Saravani & Abbasi, 2013). Additionally, job rotation can foster innovation and creativity among employees (Madjar & Oldham, 2006). When employees are exposed to different roles and responsibilities, they encounter diverse challenges and opportunities for problem-solving (Reiter-Palmon & Illies, 2004). This exposure prompts them to think creatively, explore new ideas, and propose innovative solutions (Isaksen *et al*., 2010). By fostering a culture of innovation, job rotation empowers employees to unleash their creativity and make valuable contributions to the growth and improvement of the organisation (Liang *et al*., 2020).

Furthermore, the practice of rotating employees between jobs and departments can potentially contribute to a decrease in absenteeism (van Wyk *et al*., 2018). The periodic change and variety provided by job rotation can help prevent burnout and reduce the occurrence of absences related to fatigue or stress (Hsieh & Chao, 2004; Hakenes & Katolnik, 2017). When employees feel engaged and stimulated in their work, they are more likely to experience higher levels of motivation and job satisfaction, resulting in reduced absenteeism (Schaufeli *et al*., 2009).

Job rotation can help reduce labour turnover (Batt & Colvin, 2011). The employee's repetition of daily tasks constantly leads to boredom and monotony at work (Ayough *et al.*, 2020), and this will reflect negatively on the level of employee motivation (Mohsan *et al.*, 2012). A frustrated workforce will eventually lead to high rates of absenteeism and employee turnover, usually accompanied by poor customer service (Melamed *et al.*, 1995). Furthermore, job rotation relieves boredom and monotony clearly by assigning employees to new tasks that free them from the daily routine they are accustomed to (Azizi *et al.*, 2010). As well, job rotation is one of the effective methods applied to modify the way work is organised. Job rotation is the orderly transfer of employees from one job to another within the organisation as a way to change the method of renewal and development of work, or in other words, to increase the possibility of adjusting the design of the work of the organisation (Santos, 2019). Similarly, job rotation is an effective mechanism for organising work by improving working conditions and changing activity to reduce boredom and fatigue, and the risk of muscle injuries (Diego-Mas *et al.*, 2009).

Despite the many difficulties and challenges organisations face in accomplishing their work, whether internally or externally, job rotation is an effective entry point to confronting these difficulties by providing a qualified workforce that is ready to adapt and face those difficulties and challenges (Robbins & Finley, 2000). In this regard, job rotation enhances the effectiveness of work clearly by providing employees with more skills in

different tasks, which contributes to the rapid completion of work efficiently and effectively (Huang & Pan, 2014).

At the level of support and promotion of teamwork, team leaders realised that job rotation benefits the team by improving team spirit, team cohesion, and the ability to solve group problems, which was reflected in the overall satisfaction level of team members (van Velzer, 1992). Job rotation has the potential to cultivate a sense of team spirit and unity within a group (Wang & Wan, 2010). When team members have the opportunity to work in various roles or departments, they acquire a broader comprehension of the organisation and its functioning (Liberatore & Luo, 2010). This shared knowledge and experience establishes a common foundation for collaboration and communication among team members (Zakaria *et al*., 2004). As they rotate through different positions, team members develop a deeper understanding of each other's contributions and challenges, fostering empathy and mutual respect. This shared experience and understanding contributes to the cultivation of team spirit and unity (Fapohunda, 2013; Poovan *et al*., 2006).

Job rotation promotes the sharing of knowledge and mutual support among team members (Al Saifi *et al*., 2016). When employees rotate through different roles, they bring their unique insights and expertise to the team (Nonaka, 2009). This exchange of knowledge and experiences enhances the collective knowledge base of the team, enabling members to learn from one another and provide support (Kauppila *et al*., 2011; Šūmane *et al*., 2018). By leveraging their diverse skill sets and experiences, team members can collaborate to solve problems, creating a supportive environment that fosters overall satisfaction (Thamhain, 2003; Guinan *et al*., 2019). Besides, job rotation not only allows employees to learn different tasks, it gives them an overview of the production process, and thus they are more aware of quality problems and work to treat and improve them efficiently (Ebeling & Lee, 1994; Allwood & Lee, 2004; Mohan & Gomathi, 2015).

In contrast, the implementation of job rotation can have a negative impact on product quality as it reduces the level of employee specialisation. Specialisation enables employees to develop task-specific knowledge, insights, and proficiency over time. When employees rotate through different roles, they may lose some of the task-specific knowledge that is acquired through experience and repetition. This loss of specialised knowledge has the potential to impact product quality, as employees may not possess the same level of familiarity with the intricacies and nuances of specific tasks or processes (Cosgel & Miceli, 1999).

On the level of problem solving and the positive role played by job rotation (Hong & Via, 2008), job rotation has positive results with regard to factors that help resolve conflicts and problems, such as increasing competencies and mastery, recognising the activities carried out by subordinates and appreciating their efforts, improving personal relationships, in addition to reducing resistance to working in other tasks or jobs (Pinhatti *et al.*, 2017). Job rotation enables employees to identify problems from different sides because they performed different jobs in the organisation, and they acquired more skills that enable them to analyse all aspects of the problem and work to solve it using their experience (Taylor & Greve, 2006).

In line with the multiple positive results achieved by job rotation in organisations, the implementation of job rotation followed by incentives based on learning abilities by employees, not only enhances human capital, but also leads to removing the organisation from idleness and monotony and leads to job satisfaction as a result of increasing efficiency and effectiveness (Adomi, 2006). Ho *et al.* (2009) disagree with that, as they mention that employee satisfaction will not change if these new jobs do not interest the employee.

Moreover, job rotation enhances the mental and physical health of employees by creating positive attitudes towards other employees, improving their health, increasing diversity at work, reducing physical exertion, and enhancing their intrinsic motivation for future positions

(Ortega, 2000). Job rotation is one of the effective solutions to improve the work environment (Botti *et al.*, 2021; Moussavi *et al.*, 2018; Tumipa & Rumokoy, 2018), and make it more attractive which leads to job satisfaction (Michalos *et al.*, 2010; Otto & Scholl, 2013). Many studies indicate that job rotation leads to reducing the routine and boredom of employees resulting from repetition of tasks, and thus improving their motivation (e.g., Kaymaz, 2010; Carreon *et al.*, 2021), and, therefore, increasing their level of job satisfaction (Khan *et al.*, 2019; Al-Romeedy, 2019; Chen *et al.*, 2015). However, the studies of Campion *et al.* (1994) and Friedrich *et al.* (1998) confirmed that job rotation reduces employee motivation and satisfaction. This is because some employees feel uncomfortable leaving their jobs that they used to perform and being transferred to other jobs that will require more effort, work and learning, and this may cause them to be dissatisfied. When it comes to payment and incentives, there are some organisations that have to pay additional incentives to employees who are rotated, which leads to inequality in wages and incentives that negatively affects the employees' morale and satisfaction (Salih & Al, 2017; Eltahir, 2018).

Interestingly, job rotation can develop social capital, as rotation between jobs and departments allows employees to develop new relationships with other employees within the organisation and exposes them to gaining work experience from more experienced colleagues (Bennett, 2003). In addition, as a result of rotation and upskilling of employees, they are able to engage in better human and social relationships with each other and with their new colleagues (Saravani & Abbasi, 2013).

Regarding the impact of job rotation on working time, job rotation enhances the organisation's ability to use time as a competitive advantage, where time equals money, productivity, quality and even creativity. Through rotating employees across various roles and departments, organisations can swiftly respond to shifting market dynamics, benefiting from employees' varied skills and expertise. This practice fosters innovation and problem-solving by integrating insights and best practices from different

domains. Furthermore, job rotation enhances employee engagement and retention by offering avenues for professional growth, leading to increased productivity and effectiveness (Dhanraj & Parumasur, 2014).

On the contrary, job rotation may have negative consequences, since rotated employees need more time to adapt to the new job, performance will decrease, and production will be somewhat disrupted (Earney & Martins, 2009). Furthermore, all the rotated employees do not have the technical qualifications needed to transfer them from one job to another (Ho *et al.*, 2009). Another disadvantage of job rotation is that it has the potential to bring about an escalation in workload. The process of job rotation involves transitioning from one role to another, which can lead to an adjustment period and an increased workload. Employees may need to delegate their previous responsibilities to others while simultaneously taking on new tasks and responsibilities. This transitional phase can result in a temporary surge in workload as individuals strive to manage both their previous and new responsibilities during the transition (Cheraskin & Campion, 1996; Michalos *et al*., 2010; Padula *et al*., 2017).

Similarly, job rotation has the potential to decrease the productivity of managers and employees, particularly during the initial period of rotation. When employees transition to new roles, there can be disruptions to established workflows. The process of adjusting to the new position and reorganising work responsibilities may lead to interruptions in work processes. The time required to adapt to the new role and establish efficient workflows can result in reduced productivity during the transitional phase (Cheraskin & Campion, 1996; Fægri *et al*., 2010; Santos *et al*., 2016).

Job rotation has the potential to restrict employees' capacity to specialise in a specific role or function (Coşgel & Miceli, 1999). Specialisation enables individuals to cultivate in-depth expertise and proficiency in particular tasks, which can enhance productivity (Madiedo *et al*., 2020; Von Krogh *et al*., 2003). However, when employees frequently rotate through various roles,

they may not have enough time to develop the same level of specialised information and competencies, which can potentially impact productivity (Tarafdar *et al*., 2007; Aslesen & Isaksen, 2007).

Similarly, there are many studies that deal with the positive effect of job rotation on alleviating muscular and physical injuries and disorders (e.g., Tharmmaphornphilas & Norman, 2007; Carnahan *et al.*, 2000; Leider *et al.*, 2015; Comper & Padula, 2014). Due to the possibility of employees suffering from fatigue or muscle injuries as a result of constantly repetitive daily tasks, Kuijer *et al.* (2004), Moussavi *et al.* (2019) and Mehdizadeh *et al.* (2020) highlighted that job rotation is a method of rotating employees between different tasks that have different physical and mental requirements during a period of time. It is, therefore, an important mechanism for managing employee stress, especially in the case of dynamic tasks that require differences in muscular load. However, Frazer *et al.* (2003) concluded that job rotation may not be effective in reducing muscle injury risk factors. This study shows an increase in the risk of muscle injury when the employee is transferred from a less risky job to a high-risk job, or in other words, the employee is transferred from a job that requires little effort to a job that requires increased effort. Malinski (2002) agrees with the previous result, showing that job rotation may lead to exposing employees who have been rotated to some dangerous situations and injuries in the work environment.

Furthermore, working in one department or one job continuously may make the employee very comfortable with his/her surroundings. This may lead to the employee not realising he/she is more prone to making mistakes due to complacency. Moving the employee from one job to another makes him/her more attentive to new tasks and he/she acquires practical information that enables him/her to perform those tasks efficiently while being better disposed to avoiding errors (Adu-Oppong *et al.*, 2019).

On the role of job rotation in expanding the experience of employees who are being rotated, applying job rotation develops the experience as well as

the vision of executives by transferring them from one job to another. The jobs being transferred should differ in terms of tasks and activities so that line managers can gain new experience. In this case, job rotation should be planned rather than resulting from employee loss or reorganisation (Vitton Jr, 1982; Yu & Zhang, 2020). Job rotation among CEOs aids career development since it increases their managerial experience in many ways. They add that job rotation provides managers with broader mastery in different areas of business, ranging from developing a network of organisational communications to increasing their problem-solving skills (Noe & Ford, 1992; Tarus, 2014).

Job rotation with the inclusion of on-the-job training techniques will be the primary means of employee and organisational development, and employee career development as confirmed by Zin *et al.* (2013) and Wright and Belcourt (1994). Multiple abilities are related to developing employees' abilities to perform a wide range of tasks and exercise greater responsibilities. Therefore, job rotation is in line with the philosophy of human resource management, which emphasises the importance of human investment (Dhanraj & Parumasur, 2014). In this context, job rotation can lead directly to rapid development of new employees, because it enhances employees' understanding of the organisation and its functions. Job flexibility is only possible when employees have a set of competencies required to perform different tasks (Bennett, 2003). For example, machine operators have the skills to not only operate their machines, but also perform basic maintenance and deal with minor faults. If employees are rotated between jobs that require new and different abilities, they become more valuable to the organisation (Dhanraj & Parumasur, 2014). Despite the importance of job rotation in training, changing jobs for employees leads to an increase in the time an employee spends learning a new job, and requires a long period of learning and training on the requirements of the new job. This is reflected in the increased costs of learning and training (Iluk & Iluk, 2017).

In light of the keenness of various organisations to encourage creativity and innovation, job rotation enhances creative work behaviours because it enumerates a motivating practice for employees to perform other tasks to enhance their experience (Monks *et al.*, 2013). Organisations that implement job rotation are more creative, because experienced employees apply their experience in their current jobs to improve different tasks (Cosgel & Miceili, 1999; Ghaffari & Bahranifard, 2021).

In the case that management desires to expand its activities, practices, or work plans, it will find that there are some rotated employees who have some experience to deal with expansion, which enhances organisational flexibility (Boenzi *et al.*, 2015; Comper *et al.*, 2017). As organisations operate in a rapidly changing and volatile work environment, and business requirements change rapidly, it is advantageous for organisations, to utilise job rotation so as to improve the ability of these organisations to deal with changes efficiently; and enhances their ability to meet all changing work requirements by having a workforce that has extensive experience in many aspects of the organisation (Cunningham & Eberle, 1990; de Weerd-Nederhof *et al.,* 2002). They are more prepared to deal with unexpected events and adapt to unusual situations (Koike, 1994).

Importantly, operational requirements also play a crucial role in determining the likelihood of job rotation. Industries or organisational functions such as manufacturing or customer service might have a lower tendency for job rotation due to the specialised nature of their tasks or the necessity for ongoing process improvement. Furthermore, the personal preferences and career goals of employees can significantly influence the propensity for job rotation. While some employees actively pursue opportunities to broaden their skills and experiences, others may prefer to stay in a single role (Tims & Bakker, 2010; Campion *et al.*, 1994).

Table 2.1 summarises the pros and cons of job rotation.

Table 2.1 Pros and Cons of Job Rotation

Authors	Pros	Authors	Cons
Chen *et al.*, 2015	Enhance organisational commitment	Huynh, 2003; Nafziger, 2011; Casad, 2012	Low efficiency, lack of knowledge
Tarus, 2014	Support high workplace performance	Ho *et al.*, 2009	Not enjoying new tasks, decrease satisfaction
Khan *et al.*, 2019	Enhance career development	Campion *et al*., 1994; Friedrich *et al.,* 1998	Reduce employee motivation
Kaymaz, 2010; Earney & Martins, 2009	Raise motivation	Coşgel & Miceli, 1999	Disrupt employees capacity, product quality, employee specialisation, loss of the task-specific knowledge, lack of ability to perform new tasks
Chitsaz, 2015	Improve quality of work life		
Yavarzadeh *et al.*, 2015	Low job alienation, support organisational justice, organisational creativity, organisational learning capabilities		
Abouzari & Alizadeh, 2016	Develop effectiveness of commitment to duties	Salih & Al, 2017; Eltahir, 2018	Employees experience job instability, employees are sometimes unfairly given incentives
Bahramfard & Khaderpoor, 2017; Khan & Jalees, 2017	Increase productivity		
Mohsan *et al*., 2012	Increase job involvement		
Hsieh & Chao, 2004; Al-Romeedy, 2019; Chen *et al*., 2015	Low burnout	Earney & Martins, 2009	Waste time, decrease performance, disrupt production
Michalos *et al*., 2010	Enhance balanced workload	Fægri *et al.*, 2010; Santos *et al.*, 2016	Decrease productivity, Disrupt workflows, interrupt work processes
Ajusa & Atambo, 2016	Support alignment between employees' values and organisational goals		
Rashki *et al*., 2014	Raise job security	Frazer *et al.*, 2003	Increase muscle injury risks
van Wyk *et al*., 2018	Low absenteeism		
Batt & Colvin, 2011	Low turnover	Cheraskin & Campion, 1996; Michalos *et al.*, 2010; Padula *et al.*, 2017	Increase workload
van Velzer, 1992	Raise team spirit, team cohesion		
Al Saifi *et al*., 2016	Support sharing of knowledge	Tarafdar *et al.*, 2007; Aslesen & Isaksen, 2007	Lack of time to perform new tasks
Hong & Via, 2008	Improve problem solving		
Adomi, 2006	Support human capital	Malinski, 2002	Expose employees to some dangerous situations
Ortega, 2000	Raise mental and physical health		
Khan *et al.*, 2019; Al-Romeedy, 2019; Chen *et al.*, 2015	Enhance job satisfaction	Iluk & Iluk, 2017	Increase costs of learning and training
Bennett, 2003	Support social capital		
Tharmmaphornphilas & Norman, 2007; Carnahan *et al.*, 2000; Leider *et al.*, 2015	alleviating muscular and physical injuries and disorders		
Datta *et al.*, 2005; Zhang *et al.*, 2018; Tarus, 2014; Shehansi *et al.*, 2019;	Improve performance		
Abisola, 2017; Zehra, 2015; Platis *et al.,* 2021; Agustian & Rachmawati, 2021	Increase work engagement		

Source: *The Author*.

2.2.8. The Relationship between Job Rotation and Employees' Performance

Nowadays, firms acquire a competitive advantage based on human resource productivity, learning system growth, intellectual capital development, and the creation of autonomous personal and functional identities. Investment in organisational human assets uncovers its latent productivity and contributes to human resource profitability. The enhancement of individuals' various competencies is the cornerstone of improved human resource production. Consequently, organisational optimum performance is dependent on human resource efforts to build employees' organisational capacities (Saravani & Abbasi, 2013). Organisations are always competing in today's global economy. The intensity of competition is growing year after year. All organisations, to survive and expand, must constantly enhance organisational performance. Managers are continually on the look-out for innovative strategies to optimise the performance of strategic resources (Akbari & Maniei, 2017).

Interestingly, human resources are one of the most significant resources in any business for gaining a competitive advantage and building the organisation's success. It is a significant feature because of its ability to help in the conversion of other resources into output. Any resource in a business may be imitated by a rival, but human resources are unique. As a result, employee performance in business is a critical part of the human resource management. The ultimate goal of an organisation is to increase its wealth. This may be accomplished through the performance of its personnel. Individuals might differ not just in appearance but also in talents. As a result, their performance may differ from one to another, and it may be assessed positively or adversely. Thus, employee performance may be recognised based on a variety of information about the job or activities that they complete (Bhadury & Radovilsky, 2006). Increasing job performance is one of the most significant theoretical and practical issues in organisational study. Scholars have long recognised that how employees

view their occupations have a significant impact on their job performance (Grant, 2008).

Employee performance is one of the critical indicators stressed by management. Employees are more concerned with their productivity (Jocom *et al.*, 2017). Performance may be considered as both a process and a result of the work itself, as performance is a method of how an employee's work can be done appropriately to reach a job outcome (Nuritasari & Arwiyah, 2019). It includes output quality and quantity, presence at work, accommodating and helpful disposition, and output timeliness (Tumipa & Rumokoy, 2018). Poor employee performance has been connected to higher customer complaints and brand switching, whilst good employee performance has been linked to enhanced consumer impression of service quality (Yang, 2008). Similarly, there are various obstacles in determining the elements influencing performance and the amount to which they interact with one another. The employee's abilities, needs, interests, values, and intentions all play a role in defining his/her level of performance. The job and its necessary duties, tasks, obstacles, and prospects for professional advancement are other important factors in evaluating performance level. The position, which comprises the material resources, organisational environment, leadership styles, and flexible or rigid organisational structure, is an important factor in influencing the level of performance (DeSenzo *et al.*, 2016).

Many factors affect employee performance including job satisfaction (Graves & Luciano, 2013; Fadlallh, 2015; Macutay, 2020; Fu *et al.*, 2021), work engagement (Kim *et al*., 2013), fairness (Sherwani, 2018), employee training, remuneration, work culture, work environment, discipline (Musawir *et al.*, 2019), preparation for management (Sturman, 2003), job security, workload, shift work (Vijayan, 2017), relationship and communication within organisation (Giri & Kumar, 2010), organisational commitment (Rita *et al.*, 2018), and organisational citizenship behaviour (Chiang & Hsieh, 2012). Moreover, some aspects are associated with the employee himself/herself,

such as talents, competencies, and characteristics (Pawirosumarto *et al.*, 2017) and expertise and information utilised to execute tasks effectively and efficiently (Dukhan *et al.*, 2017; Davidescu *et al.*, 2020). Other aspects connected to the work environment include motivation (Jalagat, 2016). The organisation motivates its employees and strives to meet their needs in order to increase their performance and help the organisation accomplish its goals (Vipraprastha *et al.*, 2018). Additionally, offering appropriate rewards to employees leads to a favourable attitude toward their work, which increases their production (Sandhu *et al.*, 2017). Furthermore, involving employees in decision-making processes boosts their productivity, since involvement fosters a sense of privilege and promotes commitment to the organisation, both of which improve employee performance (Soomro *et al.*, 2018). In addition, equipment, operational procedures, physical work environment, projected performance, and feedback on performance are just a few of the aspects that might also influence employee performance (Lankeshwara, 2016).

Concerning the relationship between job rotation and employee performance, because performance is at the core of an organisation's strategy (Sainaghi, 2010), several organisations have tended to increase performance in order to promote good organisational behaviour principles (Burke *et al.*, 2009). The indirect relationship between job rotation and employee performance, specifically focusing on organisational behaviours has been indicated by Al-Romeedy (2019). These behaviours encompassed motivation, organisational commitment, job satisfaction, job involvement, and job burnout. The findings from this study indicated a direct association between job rotation and performance, mediated by these behaviours. Similarly, Idris and Wahyudi (2021) conducted a separate study that explored the indirect relationship between job rotation and performance, with a specific focus on motivation as the mediating factor. The study examined how job rotation links with performance through its relationship with motivating employees.

Job rotation is one of the most essential techniques that an organisation uses to achieve its goals and objectives (Schultz & Schultz, 2020). At the time of writing this thesis, organisations are seeking to implement job rotation strategies in order to enhance employees' proficiencies, which in turn improve employee performance (Shehansi *et al.*, 2019). There is a need in every firm to improve employee job performance. Implementing job rotation and development are among the most important actions firms must adopt to improve employee job performance indirectly (Whyns, 2015). Firms that have greater job rotation and developed personnel can prevent needless spending, which may be reflected in increased performance. Similarly, small, and big firms are seeking to enhance work design systems via the adoption of job rotation strategies. Job rotation has a positive influence on employees, promoting employee performance with regard to efficiency, productivity, and quality (Schultz & Schultz, 2020; Tumipa & Rumokoy, 2018).

An organisation can observe each employee's performance during job rotation and then allocate that employee to the best appropriate position based on that person's abilities and traits (Eguchi, 2005). Rotation is a great technique in identifying whether a department or job would be more productive when performing poorly in a specific job over a specific length of time. If data from a time period demonstrates that an employee has poor productivity, job rotation enables a simpler identification of units or departments where high performance might be demonstrated (Jaturanonda *et al.*, 2006). The implementation of a job rotation system in an organisation can strengthen employee performance through developing their competencies, especially for employees who have already shown strong performance (Kampkötter *et al.*, 2018).

Although a job that is repetitive in nature and only accomplishes one thing at a time for an extended period of time can surely lead to boredom, it can contribute to loss of morale and passion (van Wyk *et al.*, 2018), Job rotation across sectors within a company is one of the most effective development

strategies for companies to use in order to reduce boredom, which has an impact on boosting employee performance (Natalia *et al.*, 2020). Additionally, the assignment to a new position should foster the development of new abilities and, as a result, have a beneficial impact on individual performance by increasing relevant human capital (Zehra, 2015; Achieng *et al.*, 2014). Job rotation suggests greater performance if the fit between employee and job can be improved, according to the 'employer learning' (Hsieh & Chao, 2004). Moreover, prior literature has found out that there is a link between job rotation and employee performance, which could be either negative or positive (Shehansi *et al.*, 2019). Various studies (e.g., Zhang *et al.*, 2018; Khan *et al.*, 2014; Ravikumar *et al.*, 2020) highlighted the positive association between job rotation and employee performance. Understanding job rotation is a prerequisite to comprehend the demands of individuals and groups within the organisation in order to optimise their experience, which correlates to great performance in the workplace (Tarus, 2014). Likewise, researchers on job rotation and organisational performance revealed that organisations gain a sustainable competitive advantage based on staff productivity, the creation of learning systems, and the development of employee intellectual capital (Whyns, 2015). Employees nowadays increasingly seek change, choice, flexibility, and diversity in their jobs (Davidescu *et al.*, 2020; Claus, 2019). The value of the organisation grows with more effective job rotation and trained employees who are highly motivated and have a sense of responsibility for the organisation as if it were their own (Stroh *et al.*, 2003).

The objective of job rotation is to acquire and develop employee understanding, offer incentives for employees to pursue advancement in their professions and promote performance to improve via open competition (Musawir *et al.*, 2019). If these job rotations can be carried out, rotated employees are expected to learn advanced knowledge and integrate all parts of their organisation’s knowledge resources (Ortega, 2000; Weichel *et al.*, 2010). Employees’ talents are strengthened by taking on new jobs and responsibilities independently and responsibly (Jansen *et*

al., 2005). In this context, a job rotation system increases human resource productivity and improves performance at both the organisational and individual levels by providing practical participation for employees (Weichel *et al.*, 2010), improving their abilities (Kurnia & Rahmawati, 2017; Ravikumar *et al.*, 2020; Hosseini *et al.*, 2015), building a network across the organisation, developing capabilities required for future career progression (Fernando & Dissanayake, 2019), collaboration, decreasing monotony (Saravanan *et al.*, 2017), recognising and correcting errors (Oparanma & Nwaeke, 2015), besides providing opportunities for operational teamwork, reducing job stresses, increasing intellectual power and innovation and increasing hours of effective work (Xie & Johns, 1995).

Similarly, job rotation has a substantial impact on performance via workforce development and adaptability. Rotating employees in the workplace will increase their skills on the job, making them more adaptable, providing a positive relationship with performance (Oluwatuase *et al.*, 2019). Job rotation facilitates socialisation and information sharing, resulting in a more knowledgeable employee base. As a result, employees assume their responsibilities much better, improving workplace productivity for employees collectively as well as individually (Felstead *et al.*, 2010). Furthermore, Origo and Pagani (2008) regarded job rotation as an effective operational strategy for improving human capital performance and productivity. They claim that it is an excellent choice for facilitating and accelerating operations, as well as saving time and resources.

Job rotation entails allocating people to positions that demand varying levels of expertise. This organisational method enhances multiskilling and career growth whilst making organisations more adaptable to issues such as work absenteeism, absence through sickness, and demand fluctuations. In addition, job rotation enables firms to gain a better understanding of their employees' talents and capabilities by monitoring their performance in a variety of positions (Asensio-Cuesta *et al.*, 2012).

Moreover, job rotation enhances both the psychological and physical health of employees by instilling positive attitudes in them, supporting their health, and increasing the variety of work by reducing boredom at work, noticing things from a new perspective, reducing physically demanding portfolios, and having self-motivation towards their positions in organisations. This is reflected in the improvement of performance (Ortega, 2000). Oparanma & Nwaeke (2015) added that job rotation is regarded as one of the effective techniques or systems in an organisation since it is a training tool that, if properly implemented, will develop employees' performances. After completing the training program, employees will possess extensive expertise and knowledge, particularly regarding the organisation's operations, resulting in significant professional growth and capability. Furthermore, job rotation is regarded as a strategy of job categorisation in which employees attempt to obtain processional abilities from other sectors and reduce fatigue from doing repetitive jobs. Dealing with new responsibilities energises personnel and promotes their morale, allowing them to perform better (Chitsaz, 2015).

Job rotation has been utilised to adopt boosting employee momentum and actively participating in jobs within the organisation, both of which are extremely important for beneficial performance (Khan *et al.*, 2014). Consistent with positive results that job rotation has on performance, job rotation also has a positive influence on employee performance (Tuei & Saina, 2015; Cherotich *et al.,* 2021; Shehansi *et al.*, 2019). Moreover, managers and supervisors can implement job rotation programmes to support employees who have the potential to accomplish future departmental goals. Job rotation may be a beneficial and effective technique for developing employee performance (Earney & Martins, 2009; Emam *et al.*, 2019). Job rotation might be used to generate knowledge and fusion in both breadth and depth. When this technique is used, employees who have rotated are expected to learn advanced information and integrate all elements of the organisation's knowledge resources (Weichel *et al.*, 2010). Similarly, obtaining excellent performance is one of most firms' top

priorities (Mihalache & Mihalache, 2016). Employees who participate in job rotation have more productive human capitals than their colleagues because they gain more experience (Eltahir, 2018).

Additionally, Tarus (2014) explored job rotation as a high-performance workplace technique. High Performance Workplace Practices are described as a collection of internally coherent and consistent HRM practices that aim at improving employee performance, attitude, motivation, and commitment, allowing any firm to gain a sustainable competitive advantage (Datta *et al.*, 2005; Zhang *et al.*, 2018). Given the necessity to maintain a competitive advantage and to increase organisational performance, many firms have implemented job rotation as a strategy to survive in the market. Job rotation strongly predicts high performance in the workplace and firms might enhance performance by strengthening their job rotation strategy (Tarus, 2014).

On the contrary, some studies indicate a negative association between job rotation and employee performance, whereas Prasetyanto *et al.* (2020) showed that job rotation, created to promote employees with experience, abilities, and opportunities for advancement, is not accompanied by high levels of job performance. Further, job rotation does not increase general problem-solving ability or productivity by proving a negative association between job rotation and employee performance (Allwood & Lee, 2004). Similarly, the studies of Rizwan *et al.* (2014) confirmed the non-significant links between job rotation and employees' performance. Moreover, Tumipa & Rumokoy (2018) and Musawir *et al.* (2019) showed there is no significant correlation among job rotation and performance. Besides, the results of Natalia *et al.* (2020) and Jocom *et al.* (2017) asserted that job rotation has no positive impact on employee performance.

2.3. WORK ENGAGEMENT

Work engagement has grown in relevance as positive psychology has developed. It has become important that businesses value employees,

involved in their work, who have great energy during work, strive at their work, perform their work sincerely, and genuinely appreciate their job (Yucel *et al.*, 2021). The term 'work engagement' has been proposed by Kahn (1990). It is definable as the effective utilisation of employees' abilities in their tasks by which they implement and express themselves physically, emotionally and cognitively (Arshad *et al.*, 2021; Attridge, 2009). Work engagement is viewed as a positive, fulfilling, and work-related mental state distinguished by vigour, dedication, and absorption (Schaufeli & Bakker, 2004; Schaufeli *et al.*, 2002). Vigour is defined by high levels of energy and mental adaptability while working, as well as a desire to invest effort in one's work and perseverance even in the face of adversity (Schaufeli & Salanova, 2007). Employees who are dedicated to their jobs are those who enjoy the inspiration, enthusiasm, pride, significance, and challenge that comes with the job (Schaufeli *et al.*, 2002). Absorption is defined as a complete focus on work and positive involvement in it (Schaufeli *et al.*, 2002), because of which time passes quickly, and it is difficult to separate oneself from the job (Schaufeli & Salanova, 2007). Work engagement that requires a lot of mental and physical energy, appreciation, willingness to put forth effort in one's job and participation in one's work, sedulity, eagerness, and a sense of value (Syrek *et al.*, 2017), is an essential factor to consider in organisations because it is a crucial indicator of the positive well-being and performance of employees (Sun *et al.*, 2022).

Given the significance of employee engagement, the Job Demands-Resources (JD-R) model is used because it is regarded as highly integrative of employee engagement predictors and consequences (van den Broeck *et al.*, 2013; Tan & Yeap, 2021; Kunte & Rungruang, 2019). The JD-R model depicts dynamic relationships between the various job demands and job resources that have an impact on employee engagement (Kwon & Kim, 2020; Kattenbach & Fietze, 2018; Gastearena-Balda *et al.*, 2021). It implies that job resources have a positive impact on work engagement (Hu *et al.*, 2016; Schaufeli & Bakker, 2004) while job

demands, regarded as impediments, are negatively linked to it (Crawford *et al.*, 2010; Sun *et al.*, 2022). The JD-R model incorporates all demands and resources, asserting that work engagement and job performance are affected by job resources or demand (Koroglu & Ozmen, 2021; Marathe *et al.*, 2019). Psychological, physical, social, or organisational attributes of the job that necessitate sustained physical and/or psychological (emotional and cognitive) effort or skills are referred to as 'job demands' (Bakker & Demerouti, 2007; Lee, 2019). They are, thus, connected with psychological and physiological expenditure (Singh, 2021; Demerouti *et al.*, 2001). Job demands exhaust individual resources to achieve such needs, which may result in employees' physical and mental degeneration, and consequently initiating an 'impairment process' (Lu *et al.*, 2015; Kwon & Kim, 2020). For instance, job demands (e.g., high levels of job stress, a poor physical environment, job difficulty, physical and emotional demands (Bakker & Demerouti, 2007; Boonsiritomachai & Sud-On, 2021; Koroglu & Ozmen, 2021) are the most important determinants of health issues (Rabiul *et al.*, 2022; Hakanen *et al.*, 2008), exhaustion (Nuutinen *et al.*, 2021; Xanthopoulou *et al.*, 2007), decreased job satisfaction (Smith & Dyal, 2016; Lu *et al.*, 2010), absenteeism due to illness (Toppinen-Tanner *et al.*, 2005), inadequate performance (Bakker, 2011; Lu *et al.*, 2010), hampered productivity (Barnes & Collier, 2013; Seibt *et al.*, 2009), and insufficient organisational commitment (Halbesleben & Buckley, 2004; Schaufeli, 2015). Whereas job demands are not always negative, they might become job stresses when achieving those demands necessitates a significant amount of effort from which the person has not sufficiently recovered (Bakker & Demerouti, 2007).

Job resources, on the other hand, relate to psychological, physical, social, or organisational characteristics of the job that are effective in encouraging personal learning and progress, decreasing job demands and the accompanying psychological and physiological costs, or attaining work goals (Bakker & Demerouti, 2007; Kwon & Kim, 2020; Demerouti *et al.*, 2001). Job resources can be found at the organisation level (e.g.,

compensation, job security, promotion), at the task's level (e.g., task identity, task relevance, work autonomy, and performance feedback), in social and interpersonal relationships (e.g., support from supervisors and employees, a positive team environment), and the work organisation (e.g., role clarification, decision-making involvement) (Bakker & Demerouti, 2007; Koroglu & Ozmen, 2021; Sun *et al.*, 2022). Job resources initiate a "motivational process" as they may drive employees to take on more difficult duties and perform better (Lu *et al.*, 2015; Oberländer & Bipp, 2022). Similarly, job resources – whether supplied by the business or voluntarily sought by employees – are the most significant predictors of work engagement (Bakker *et al.*, 2014). For example, Schaufeli *et al.* (2009) pointed out that work engagement is predicted by a growth of job resources such as learning opportunities, autonomy, feedback, and social support. Job resources are especially important in high-demand situations as they encourage employee engagement at work (Oberländer & Bipp, 2022). Job resources serve as a motivator by encouraging work engagement and generating good behaviour (Koroglu & Ozmen, 2021). As a result, when tough job demands are matched with rich job resources, employees are most engaged in their work (Bakker, 2022).

In a similar manner, several previous studies (e.g., Bakker *et al.*, 2003; Lee, 2019; Hakanen *et al.*, 2006) highlighted the positive impact of job resources on work engagement (Katou *et al.*, 2021). Job resources, according to the motivating process, have a favourable influence on work engagement (Bakker & Albrecht, 2018; Katou *et al.*, 2021). The motivating capacity of suitable job resources pushes employees to fulfil their goals. As a result, job resources are increasingly considered since engaged employees demonstrate high levels of innovation and effectiveness (Bakker *et al.*, 2014). Job resources were found to increase organisational citizenship behaviours, satisfaction, job performance, work engagement, and decrease tiredness (Aube *et al.*, 2007; van Prooijen, 2009).

In this vein, work engagement is a fully active condition of bringing something unique to work. Job resources help employees stay engaged whilst acting as a cushion against demands. Job demands are often considered as a stress. However, depending on an employee's coping skills, they can act as either a barrier that constrains or a challenge that fosters desired behaviours. As a result, keeping an exact balance that extends beyond the resource-demand dichotomy is critical to keep staff engaged, especially in the face of demanding responsibilities such as innovation (Kwon & Kim, 2020). On both individual and organisational levels, work engagement has been found to be positively related to desirable work outcomes (Schneider *et al.*, 2018; Bao *et al.*, 2021). Work engagement is an important performance metric that helps employees deliver valuable results even in difficult work circumstances (Britt *et al.*, 2001; Tokdemir, 2022; Halbesleben, 2011). Engaged employees are eager and excited about their job and are frequently entirely absorbed in it (Schaufeli & Bakker, 2010). Besides, employees who are more engaged at work are more excited about their jobs and are more likely to commit more time and energy in order to increase work productivity (Haldorai *et al.*, 2020; Guo & Hou, 2022; Teo *et al.*, 2020; Silva & Lopes, 2021). As a result, it is not unexpected that work engagement is a stronger indicator of performance (Bakker, 2022). Moreover, Kim *et al.* (2013) and Fletcher (2016) added that work engagement has a positive relationship with employee performance.

Furthermore, work engagement was linked to stress (Amor *et al.*, 2021), organisational commitment (Tokdemir, 2022; Hakanen *et al.*, 2008; Hakanen *et al.*, 2006), career success (Bakker, 2022; Hakanen *et al.*, 2021), organisational effectiveness (Kataria *et al.*, 2014), absenteeism (Schaufeli, 2015), organisational citizenship behaviour (Saks, 2006; Matta *et al.*, 2015; George *et al.*, 2021; Yucel *et al.*, 2021), turnover intention (Shuck *et al.*, 2011), and interpersonal interaction quality (Silva & Lopes, 2021; Decuypere & Schaufeli, 2020). Additionally, work engagement is the skilled integration of pleasant emotions and strong drives at work and it is

a critical cause for firms to alleviate immediate strain and gain long-term competitive benefits (Guo & Hou, 2022; Yan *et al.*, 2021; Ozturk *et al.*, 2021). Employees with a high level of engagement were found to have good mental and physical health (Tokdemir, 2022; Bakker *et al.*, 2014). Work engagement is one of the driving causes for workplace innovation. It is a significant confirmed component in boosting innovation via autonomous motivation. Employees who are passionate are more likely to put inventive ideas into action (Koroglu & Ozmen, 2021; Hakanen *et al.*, 2008; Hon, 2012).

Work engagement has sparked interest as a significant predictor of employee performance (Barnes & Collier, 2013; Sonnentag *et al.*, 2021; Hundschell *et al.*, 2022). Work engagement is, therefore, a source of worry for managers and supervisors throughout the world since it is acknowledged as a critical factor in determining the level of performance efficiency, creativity, and competitiveness (Bedarkar & Pandita, 2014). As well, it is broadly described as an employee's level of dedication and participation in their organisation and its principles. When an employee is fully engaged, he/she is aware of his/her role in the organisational objectives and inspires his/her colleagues to help the organisation reach its objectives. This indicates that when an employee is engaged, he/she does his/her job well (Anitha, 2014). When employees are engaged, they utilise and integrate varied levels of their emotional and cognitive identities as they turn their job duties and specialised activities into significant achievements (Byrne, 2015). Similarly, employees might be involved personally in their job, putting good cognitive and emotional energy into their work roles (Truss *et al.*, 2013). When opposed to disengaged employees, highly engaged employees have a love for their work, an understanding of the importance of their work, and a commitment to their companies. Therefore, work engagement has a positive role in enhancing task performance and achieving goals (Ismail *et al.*, 2019).

Work engagement and performance outcomes are linked: the higher the work engagement, the greater the sense of belonging, passion, enthusiasm, strength of the link between employer-employee, and work knowledge that leads to less ambiguity, problems, absence, turnover and more knowledge sharing. This leads to quality and effectiveness in the job, and motivating employees to perform extra duties to enhance the performance and reputation of the company. This will speed up the process of an organisation's progress (Tanwar, 2017). Most of the companies understand the need of engaging and encouraging their employees to perform, which has grown in importance over time. What is less frequently known is that employees desire to be involved in work when they feel they are positively contributing to something bigger than themselves (Bedarkar & Pandita, 2014). One of the concerns that companies are presently focusing on is that of encouraging a high degree of work engagement. This phenomenon has the potential to improve work performance (Motyka, 2018).

Employee engagement is seen as a fundamental component underlying important workplace outcomes, such as performance, as Ismail *et al*. (2019) demonstrate. Rotenberry & Moberg (2007) and Brown (1996) suggest that employee work behaviours should be classified as a result of work engagement, and postulate that work engagement influences employees' effort and motivation which, in turn, influences performance. Additionally, work engagement is one of the primary predictors of high levels of employee performance, as evidenced by several researchers, who found a significant and positive relationship between work engagement and performance (e.g., Carter *et al.*, 2018; Bhatti *et al.*, 2018; Bakker & Bal, 2010; Bakker *et al.*, 2012). Work engagement was associated with two performance elements: adaptivity and proactivity. Adaptivity copes with, reacts to, and promotes change, whereas proactivity begins to change, is future focused, and is self-starting (Koekemoer *et al.*, 2021; Griffin *et al.*, 2007). Similarly, the findings of Ismail *et al.* (2019)

highlighted that, through creativity, employee engagement significantly and positively affects job performance.

Similarly, several studies (e.g., Knight *et al.*, 2017; Mäkikangas *et al.*, 2016; Christian *et al.*, 2011) demonstrate that focusing on boosting employee engagement is a significant method to improve employee performance (Anitha, 2014). A high level of work engagement improves performance, productivity, psychological climate, organisational citizenship behaviour, organisational commitment, discretionary effort, and customer service (Mäkikangas *et al.*, 2016; Christian *et al.*, 2011; Rich *et al.*, 2010). Demerouti & Cropanzano (2010) point out that work engagement can result in improved performance as a result of a variety of factors. These findings are confirmed by a rising amount of research that has shown a positive association between engagement and employee performance (e.g., Anitha, 2014; Halbesleben, 2010).

Actions that encourage participants to maximise their job demands and (job and personal) resources can increase work engagement and performance according to the Job Demands-Resources (JD-R) model (van Wingerden *et al.*, 2017; Bakker & Demerouti, 2014). A high level of engagement results in better employee performance according to the JD-R model of work engagement (Bakker & Leiter, 2010). This view is supported by a substantial amount of data demonstrating that engaged employees outperform less engaged colleagues (Mäkikangas *et al.*, 2016). Employees who are highly engaged in their jobs are more likely to contribute significantly to the fulfilment of company goals and are less likely to leave (Rotenberry & Moberg, 2007). Employees who feel competent in meeting their work requirements have been reported to be more engaged and productive in their work (Gutermann *et al.*, 2017; Ghafoor *et al.*, 2011; Schaufeli *et al.*, 2002). Moreover, employees who are engaged are more innovative, productive, and eager to make additional efforts (Bakker & Demerouti, 2008; Kim *et al.*, 2012). The employee exerts more effort, accepts greater responsibility for job tasks, and is a positive factor in adding

to the organisation's profit margins, when he/she is engaged (Vogelgesang *et al.*, 2013; Schaufeli *et al.*, 2006).

Furthermore, employees who have a high level of engagement strive to accomplish their job well (Anitha, 2014). Those employees are more observant and focused on their jobs. They respond to client demands and concerns efficiently through a high-quality performance. This is understandable given that engaged individuals devote their emotional, psychological, and physical resources to their jobs (Karatepe, 2013). As opposed to disengaged employees, engaged individuals are more inclined to work better through increased levels of discretionary effort (Karatepe & Olugbade, 2016; Kovjanic *et al.*, 2013). Work engagement is seen to be advantageous for both the employee and the company since it influences how employees execute and complete their job duties (Bakker *et al.*, 2012; Demerouti & Cropanzano, 2010; Fletcher, 2016). Likewise, work engagement is more likely to lead to inspired work behaviour and, as a consequence, improved job performance (Carter *et al.*, 2018). Employees who are significantly involved in their job will find it simpler and more exciting rather than tough, and they will be more devoted, vigorous, and interested in their tasks (Crawford *et al.*, 2010). This will encourage employees to think positively and will assist them in providing excellent service to their consumers (Gupta *et al.*, 2015; Harter *et al.*, 2002).

Four elements have been recognised as affecting employee engagement, which enhances performance (Bakker, 2014). Employees must be a) Exposed to good feelings, b) In excellent physical and mental health, c) Given the ability to develop their own personal resources (the adaptability and resilience required to deal with any given scenario), and d) Able to communicate their enthusiasm to their colleagues (Bhatti *et al.*, 2018; Bakker & Demerouti, 2008; Eldor, 2017). In addition, work engagement has been linked to better performance outcomes such as profitability, productivity, customer loyalty and satisfaction, employee retention, decreased absenteeism, and reduced rates of employee turnover

(Gonring, 2008; Tanwar, 2017). Engaged employees are more likely to make fewer mistakes when doing a job compared with disengaged individuals who make more mistakes (Tanwar, 2017; Gonring, 2008). Moreover, engagement allows individuals to devote themselves to their job while creating a sense of self efficacy (Robertson-Smith & Markwick 2009; Bedarkar & Pandita, 2014). Work engagement is a key indicator of a company's enthusiasm and orientation towards exceptional performance (Gupta *et al.*, 2015; Mokaya & Kipyegon, 2014). In the same context, employees who are engaged have several characteristics that contribute to improved performance. Firstly, they are happy to be involved with the company and have a strong desire to remain members regardless of the chances offered outside the company. Secondly, the employee does not fear being asked to put in extra work or time, and he/she has the initiative to help an organisation succeed. Thirdly, the employee is enthusiastic about the company and promotes it to others, paving the path for new consumers and employees (Tanwar, 2017; Baumruk, 2006).

There are various reasons why engaged employees may outperform non-engaged colleagues (Demerouti & Cropanzano, 2010). Firstly, positive feelings are frequently experienced by engaged employees (Bindl & Parker, 2010). Happy employees are more assured and enthusiastic, more open to new possibilities, and more extroverted and beneficial to others (Cropanzano & Wright, 2001). Positive emotions such as happiness, curiosity, and joy can widen employees' fleeting thought-action repertoires and create personal resources (including physical, intellectual, social, and psychological resources) by broadening the range of thoughts-actions (Fredrickson, 2001). For example, joy expands resources by encouraging a desire to play and to be innovative. Another good emotion that stimulates the urge to investigate, integrate new information and experiences, and grow is curiosity (Fredrickson & Losada, 2005). As a result, engaged employees may outperform because they frequently feel pleasant emotions and are receptive to new experiences. Another reason why engaged employees may work better is that they have better physical

resources (Bakker *et al.*, 2012). Physical resources (e.g., health, physical abilities), social resources (e.g., social support networks, friendships), intellectual resources (e.g., executive authority, information), or psychological resources (e.g., efficacy, positivity) may be among these resources. These personal resources can be utilised to meet the demands of the work and perform successfully (Bakker *et al.*, 2012; Schaufeli, 2012). Likewise, engaged individuals are dedicated to their customers, teams, and job, and they have the motivation and energy to focus on the assigned work (Tanskanen *et al.*, 2019; Yalabik *et al.*, 2015).

2.4. JOB SATISFACTION

Job satisfaction is described as employees' attitudes about the organisation, their colleagues, their job, and other elements that may be related to the psychological climate of the workplace (Elsahoryi *et al.*, 2022). Furthermore, job satisfaction is a comprehensive attitude and pleasant emotional mood that reflects an individual's emotive reaction or assessment of his/her work experience, communicating the meaning of job success (Hendri, 2019; Judge & Hurst, 2008). Job satisfaction is an important concept in organisational psychology, and it is defined as a pleasant emotional state resulting from overall job appraisals (Jang *et al.*, 2022). Academic scholars and management are interested in work satisfaction from three viewpoints (Yang, 2010).

Every person who works in a company expects to receive everything that is advantageous to him. Their perceptions of the working circumstances, as well as their sentiments of satisfaction or dissatisfaction with these circumstances, will influence their performance at work as stated by Bailey *et al.* (2016) and Berliana *et al.* (2018). When an individual experiences high work satisfaction, it indicates that they have a positive attitude towards, appreciate, and feel content with their job (Vettori *et al.*, 2022; Wahyono & Hutahayan, 2019; Rojikinnor *et al.*, 2022). Employee impressions of the benefits acquired from their job affect job satisfaction (Berliana *et al.*, 2018; Farmaki *et al.*, 2022). The first point of view

emphasises job satisfaction as a result of organisational factors such as authentic leadership (Jang *et al.*, 2022), emotional intelligence, and organisational culture (Illyas & Abdullah, 2016).

A work atmosphere that encourages creativity and innovation adds to increased job satisfaction (Grolleau *et al.*, 2022). Moreover, factors such as chance for advancement, social interaction, and work connections (Berliana *et al.*, 2018), salary (Rojikinnor *et al.*, 2022), supervisory quality, organisational structure (Rojikinnor *et al.*, 2022), job classification and job security (Ansong & Darko-Adjei, 2022) impact on job satisfaction. Furthermore, organisations must recognise the significance of job recognition, financial benefits, attainment of personal objectives, a positive working environment (Elsahoryi *et al.*, 2022), training (Chien *et al.*, 2022; Ali & Farooqi, 2014), structural empowerment (Kelly *et al.*, 2022) and learning within the organisation (Hendri, 2019) for increasing job satisfaction. Similarly, job attributes such as skill diversity, task identity, task relevance, autonomy and feedback, as well as stress, all have an impact on job satisfaction (Yuen *et al.*, 2018).

Job satisfaction is a crucial component that affects organisational outcomes according to the second point of view (Jang *et al.*, 2022). It is a key component to examine while attempting to comprehend organisational behaviour (Berliana *et al.*, 2018). Job satisfaction has been connected to a variety of outcomes such as work engagement, well-being, and intent to remain (Mharapara *et al.*, 2022; Farmaki *et al.*, 2022). Further, many organisational outcomes, such as organisational efficiency (Huynh & Hua, 2020; Çınar *et al.*, 2022), job happiness (Al-Ali *et al.*, 2019), turnover intention of employees (Saeed *et al.*, 2014; Syardiansah *et al.*, 2020), organisational commitment (Kaur & Kang, 2021), and organisational citizenship behaviours (Straatmann *et al.*, 2020; Indarti *et al.*, 2017) are influenced by job satisfaction. Employee satisfaction is excellent for a company because it boosts productivity and career advancement (Abdulwahab, 2016; Shu *et al.*, 2022).

Similarly, job satisfaction has various advantages for a company. Employees who are more satisfied with their work are more devoted and loyal to the company, and they are more likely to secure the organisation's confidential information against illegal access (Popoola, 2009). It is harder for an employee who appreciates their job to freely leave to pursue other alternatives (Lambert & Hogan, 2009). Employees exhibit a good work attitude when they are satisfied with their jobs, which contributes to enhanced retention and productivity as well as fostering creativity and innovation, thus contributing to the attainment of the company's goals (Ansong & Darko-Adjei, 2022).

A number of prior researchers who established a direct relationship between job satisfaction and job performance support the concept that the two are positively connected (e.g., Octaviannand *et al.*, 2017; Syardiansah *et al.*, 2020; Asbari *et al.*, 2020; Berliana *et al.*, 2018). These researchers demonstrate that satisfied employees perform better and contribute significantly to the organisation's overall success. Furthermore, satisfied personnel exert maximal effort, resulting in great production (Ansong & Darko-Adjei, 2022), and they are more ready to complete a task to the best of their capacity (Rojikinnor *et al.*, 2022). When compared to organisations with fewer satisfied employees, those with more satisfied employees tend to be more productive (Noermijati & Primasari, 2015). The third point of view on job satisfaction is focused on employees' temperament, which is impacted by individual characteristics (Jang *et al.*, 2022).

On the contrary, lack of job satisfaction has a detrimental impact on companies, since it can lead to increasing complaints and issues (Mbah & Ikemefuna, 2012), lack of productivity (Vettori *et al.*, 2022), low levels of commitment (Ansong & Darko-Adjei, 2022), employee protests, high turnover (Elsahoryi *et al.*, 2022), degrading organisational climate (Berliana *et al.*, 2018), and a rise in absenteeism (Al-Ali *et al.*, 2019). In this vein, when employees are dissatisfied with their work, they lose morale and excitement, which can lead to feelings of boredom or irritation, as well as

other undesirable repercussions (Wahyono & Hutahayan, 2019; Rojikinnor *et al.*, 2022) that have a detrimental impact on the organisation (Ansong & Darko-Adjei, 2022).

Job satisfaction may be an essential strategy in understanding how people accomplish their responsibilities in the competitive global market environment. (Barakat *et al.*, 2015). Furthermore, as competition has increased, businesses have acknowledged the importance of job satisfaction in increasing employee performance in order to compete in the business environment (Ahmad *et al.*, 2010). Job satisfaction has become an important strategy for enhancing performance and, thereby, organisational performance (Alamdar *et al.*, 2012; Siengthai & Pila-Ngarm, 2016). It is frequently seen as a major motivator and influencer on employee behaviour and, ultimately, organisational performance (Ölçer & Florescu, 2015). Many organisations' managers are prone to assume that satisfaction affects performance and that attempts to improve employee satisfaction would result in increased performance (Bowling, 2007).

In the research on organisational behaviour, the association between job satisfaction and performance has been well confirmed (Barakat *et al.*, 2015). Job satisfaction is important in organisational behaviour research because of its positive link with job performance, which, in turn, ultimately promotes organisational performance (Lannoo & Verhofstadt, 2016; Hancock *et al.*, 2013). Job satisfaction is commonly seen as a job consequence. However, it has been demonstrated as a predictor of other job outcomes such as performance (Wright *et al.*, 2007; Judge *et al.*, 2001). The significant and positive impact of job satisfaction on performance was strengthened through the studies of Wu *et al.* (2017), Miao & Kim (2010), Bin & Shmailan (2015), Berliana *et al.* (2018), and Pawirosumarto *et al.* (2017). These studies demonstrated that employees' attitudes, and sentiments regarding their work and/or workplace experiences, have a major impact on their performance.

Additionally, high job satisfaction will stimulate successful achievement of the company's objectives, whereas a poor level of job satisfaction is a hazard that will swiftly or gradually destroy or damage the business (Badrianto & Ekhsan, 2020). Higher job satisfaction suggests that an individual will be more confident in his/her abilities to perform his/her work (Arif *et al.*, 2019). Similarly, employee attendance and behaviour are significant characteristics of personal performance that are frequently regarded as a result of the work environment. Brewer & Lee (2005) found that job satisfaction is adversely connected to the employee absenteeism and turnover. Job satisfaction predicts how much stress and strain a person can endure on the job. Employees who like their jobs are more likely to be more efficient in dealing with the everyday challenges they face, resulting in fewer absences or withdrawals from work. If they are satisfied with their work, it typically gives them a good buffer to manage those various everyday stresses that they will face that influence their performance (Zeffane *et al.*, 2008).

Employees who are more satisfied with their jobs are more devoted to the company, have greater retention rates, and are more productive (Ölçer & Florescu, 2015). Dharmanegara *et al.* (2016) stated that employee job satisfaction has considerable effects, one of which is an improvement in productivity. In addition, quality-based employee productivity may be increased by increasing job satisfaction (Ahmad & Jameel, 2018). A highly satisfied employee is more likely to outperform his/her dissatisfied counterpart. Satisfied employees are more present at work, make fewer mistakes at work, and are more productive and engaged with their organisations (Sánchez-Beaskoetxea & Coca García, 2015; Yuen *et al.*, 2018). Furthermore, high levels of job satisfaction may result in a high degree of organisational commitment, which correlates to superior job performance (Karem *et al.*, 2019; Ahmad *et al.*, 2010; Falkenburg & Schyns, 2007). This was confirmed by Widodo (2014) who clarifies that, in addition to the individual job and organisational commitment, factors influencing performance include job satisfaction or dissatisfaction. While a

low degree of job satisfaction has a negative impact on organisational commitment, it also has a negative impact on the attainment of organisational goals and performance (Alamdar *et al.*, 2012). Similarly, dissatisfied employees are less dedicated to the company, which impacts on their performance and, ultimately, the firm's performance (Ahmad *et al.*, 2010).

Moreover, job satisfaction may have an impact on performance since it is crucial in developing an organisation in order to increase employees' effectiveness and performance (Ahmed & Uddin, 2012). It has an impact on performance since employees who work in line with the organisation's intended goals and are content with their job, will be able to increase overall performance outcomes (Noviyanti *et al.*, 2019). To do so, highly satisfied staff are a vital requirement for an organisation's performance growth. As a result, every company strives to develop satisfied staff in order to promote the organisation's performance (Ölçer & Florescu, 2015). In addition, a highly satisfied individual may work longer hours than planned or seek to meet company objectives more effectively so that the company may benefit more (Ram, 2013). Employees who can apply their talents and expertise in the workplace would be quite satisfied with their jobs. If employee satisfaction is addressed, those employees will most significantly improve their performance in terms of both quality and quantity (Widodo, 2014). Job satisfaction may have an influence on an employee's performance, and companies with a high degree of employee satisfaction perform better when compared to companies with employees who are dissatisfied with their jobs (Karem *et al.*, 2019). Arifin *et al.* (2019) confirm that employees who are pleased with their jobs are more likely to work cheerfully and energetically and thus improve their performance. Individuals who have a feeling of belonging and are content with their work believe they are respected and have a significant obligation to implement their tasks to achieve the organisational goals (Ölçer & Florescu, 2015).

Furthermore, positive emotions, such as satisfaction, might lead to improved total performance, particularly when performance is defined as more than just task performance (Vandenabeele, 2009). Employee actions that influence organisational efficiency and performance can be influenced by job satisfaction (Belonio, 2012). A high level of satisfaction influences performance thereby becoming more compatible with what is expected by the organisation (Dharmanegara *et al.*, 2016). Moreover, employees are motivated and satisfied by a reward policy, personal policies, income gained, effective training, and enhanced advancement paths. All these factors contribute to improved employee performance (Ali & Farooqi, 2014; Dizgah *et al.*, 2012; Ram, 2013).

2.5. THE RELATIONSHIP BETWEEN JOB ROTATION AND WORK ENGAGEMENT

Job rotation is regarded as one of the most essential and successful indicators of empowering individuals toward increased motivation, commitment, and job engagement, all of which are required for good performance as demonstrated by Syed & Yan (2012) and Zehra (2015). According to organisational scholars, the rotation of employees across different units is not merely a privilege but rather a fundamental necessity in the contemporary professional environment. This practice offers intermittent opportunities for employees to take on diverse tasks at higher levels, leading to increased job engagement and ultimately enhancing job performance (Campion *et al.*, 1994). A clear and obvious rotation plan will offer employees comfort and security. It is associated with developing positive social relationships with colleagues at new jobs, as well as enhancing their work motivation and engagement (Azizi *et al.*, 2010; Kim *et al.*, 2016; Agustian & Rachmawati, 2021). In addition, employees who are rotated are more engaged in their work inside companies (Mohsan *et al.*, 2012). Furthermore, job rotation is one of the most effective techniques for increasing employee engagement (Abisola, 2017; Casad, 2012). Zehra (2015) and Platis *et al.* (2021), meanwhile, delineate a significant

relationship between job rotation and work engagement. The notion of job rotation has a positive and significant influence on work engagement (Agustian & Rachmawati, 2021; Shin & Yu, 2017). Therefore, the researcher suggests the following hypothesis:

H1: Job rotation has a positive relationship with work engagement.

2.6. THE RELATIONSHIP BETWEEN JOB ROTATION AND JOB SATISFACTION

One of the advantages of job rotation is that it enhances job satisfaction (Ghaffari *et al*., 2021). Employees prefer to undertake a range of activities rather than specialising in a single activity, according to their model and, as a result, job rotation promotes job satisfaction. It is a potential solution to these employees' lack of motivation since it drives them to attain greater performance whilst allowing for ongoing growth at work, expanded expertise, and increased employee quality (Cosgel & Miceli, 1999). Many previous studies (e.g., Chen *et al.*, 2015; Platis *et al.*, 2021; Djalil & Lubis, 2020; Suleman *et al.*, 2022) confirmed the positive impact of job rotation on job satisfaction.

Management wants to adopt job rotation in order to improve employee satisfaction (Al-Romeedy, 2019). Employee job satisfaction is increased by job rotation since employees are given new duties on a regular basis (Saravani & Abbasi, 2013). Furthermore, as compared to units that did not employ job rotation, rotation systems increased productivity and job satisfaction (Jeon & Jeong, 2016). When a company implements job rotation, the link between job rotation and employee motivation improves, resulting in greater overall employee performance (Kaymaz, 2010). The higher the degree of employee performance in job rotation, the better their future performance and, hence, increasing job satisfaction (Muazza & Syarifuddin, 2017; Hussein *et al.*, 2020). Furthermore, job rotation meets individuals' particular requirements by allowing them to explore new

activities and identify the job that they find most satisfying (Jans & Frazer-Jans, 2004; Chen *et al.*, 2015).

Job rotation may benefit both individuals and organisations by improving mastery and skills, increasing job satisfaction, and identifying individual talents for optimal organisational performance (Casad, 2012). From the study of Saravanan *et al.* (2017), job rotation has a major positive influence on employee performance. It improves staff competency, motivation, and department cohesion. It eliminates monotony, all of which contributes to job satisfaction, productivity, and motivation. Additionally, job rotation reduces tiredness and burnout issues caused by carrying out repeated duties every day, which leads to increased job satisfaction (Mays *et al.*, 2011; Chen *et al.*, 2015), while Dinis & Fronteira (2015), Choi & Kang (2022) and Ho *et al.* (2009) claim that there is no significant relationship between job rotation and job satisfaction. On balance, the researcher proposes the following hypothesis:

H2: Job rotation has a positive relationship with job satisfaction.

2.7. THE RELATIONSHIP BETWEEN JOB SATISFACTION AND WORK ENGAGEMENT

Organisations require creative employees who take the initiative to engage in their job role and remain dedicated to demonstrating high performance standards in order to survive and compete in today's dynamic environment. As a result, organisations strive to improve employee satisfaction, which increases job engagement. Organisations struggle to retain their skilled employees in this environment. Several studies have found a link between job satisfaction and employment (Garg *et al.*, 2018). Job satisfaction and work engagement are important factors in employee retention (Alzyoud, 2018). Work engagement has grown in relevance as positive psychology has developed, and it has become an issue that organisations value. Employees who are engaged in their work have high energy whilst working, perform their work sincerely, strive at their work, and genuinely appreciate

their jobs (Schaufeli *et al.*, 2002; Kašpárková *et al.*, 2018). Job satisfaction is one of the indications of employees' psychological and emotional wellness, and the level of commitment of employees to the company (Rabiul *et al.*, 2022). A satisfied employee is more active and enthusiastic, is more likely to stay on the job, and will work more to meet the organisation's objectives (Silva & Lopes, 2021).

Job satisfaction is a consequence of the motivational process that relates to the influences that job resources have on positive outcomes such as job performance, job satisfaction, and well-being, via the mediating role of work engagement, according to the Job Demands-Resources Model (JD-R) (Guglielmi *et al.*, 2016). The association between job satisfaction and work engagement will be higher among employees subject to a high level of job demands. Employees who are satisfied are more driven and devoted to their tasks, which enhances the resources available to them. This should boost their engagement and identification. This association should be especially strong when employees must deal with a highly demanding job since they will believe they have the resources to do the task (Guglielmi *et al.*, 2016). Job satisfaction is the primary motivator of all aspects of work engagement, including vigour, dedication, and absorption (Yalabik *et al.*, 2017). Engaged employees exhibit better levels of job satisfaction and organisational citizenship (Saks, 2006; Yucel *et al.*, 2021; Rabiul *et al.*, 2022; Tokdemir, 2022).

Additionally, there is a positive correlation between job satisfaction and work engagement as demonstrated by previous studies (e.g., Koekemoer *et al.*, 2020; Park & Johnson, 2019; Pepe *et al.*, 2019; Garg *et al.*, 2018). Besides, there are studies (e.g., Alzyoud, 2018; Zhang *et al.*, 2018; Guglielmi *et al.*, 2016; Lu *et al.*, 2016) that asserted the significant and positive impact of job satisfaction on work engagement. Similarly, work engagement has been proven to be both a predictor (Abraham, 2012) and a result of job satisfaction (Yalabik *et al.*, 2017; Park & Johnson, 2019; Karatepe *et al.*, 2020). As a result, when employees are satisfied with

various aspects of their work, they may supply the organisation with higher levels of work engagement (Yalabik *et al.*, 2017). Consequently, the researcher assumes the following hypotheses:

H3: Job satisfaction has a positive relationship with work engagement.

H4: Job satisfaction mediates the relationship between job rotation and work engagement.

The development of the study model examining the mediating role of job satisfaction in the connection between job rotation and work engagement follows a systematic approach comprising several stages (See Fig. 3.1). Initially, an in-depth exploration of existing literature on job rotation, job satisfaction, and work engagement is conducted to grasp their conceptual frameworks, theoretical underpinnings, and established associations comprehensively. This literature review lays the groundwork for crafting hypotheses grounded in both theoretical principles and empirical findings. These hypotheses posit that job rotation positively influences job satisfaction, which in turn impacts work engagement (Zehra, 2015; Chen *et al.*, 2015; Choi & Kang, 2022; Guglielmi *et al.*, 2016; Karatepe *et al.*, 2020). Subsequently, a conceptual model is delineated, visually representing the proposed associations. Within this model, job rotation is identified as the independent variable, job satisfaction as the mediating factor, and work engagement as the dependent variable. This model serves as a guide for subsequent empirical investigation and analysis to validate the proposed relationships and elucidate the mediating function of job satisfaction.

Data were entered into AMOS software by drawing the model linking the independent variable (job rotation), the mediating variable (job satisfaction), and the dependent variable (work engagement), where each variable was entered separately with its components (items). Then paths were drawn between the three variables by linking the independent variable to the mediating variable and the dependent variable, as well as

linking the mediating variable to the dependent variable. AMOS doesn't directly add up or find the average of each variable's components (items) to determine the relationships with other variables. Instead, it looks at the overall pattern of connections between variables to see how they influence each other.

Therefore, the model is formally expressed as:

Work engagement = $\beta_0 + \beta_1 \times$ Job rotation + ϵ_1 (1)

Job satisfaction = $\alpha_0 + \alpha_1 \times$ Job rotation + ϵ_2 (2)

Work engagement = $\gamma_0 + \gamma_1 \times$ Job rotation + $\gamma_2 \times$ Job satisfaction + ϵ_3 (3)

Each term represents:

- $\beta_0, \alpha_0, \gamma_0$: Intercept terms for each equation
- $\beta_1, \alpha_1, \gamma_1, \gamma_2$: Coefficients for independent variable in the first equation, independent variable in the second equation, independent variable in the third equation, and mediating variable in the third equation, respectively
- $\epsilon_1, \epsilon_2, \epsilon_3$: Error terms for each equation

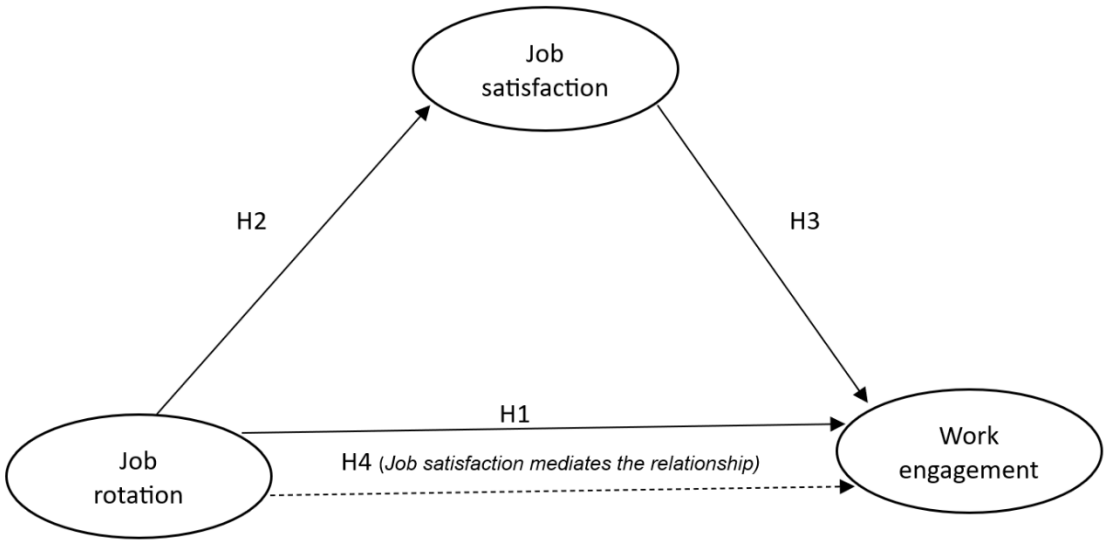

Fig. 2.1 The study model and hypotheses

H4: Job satisfaction mediates the relationship between job rotation and work engagement.
Note: Continuous lines (→) refer to the direct links between variables (without mediator).
Dashed line (⇢) refers to the indirect links between variable (including mediator).

Based on the foregoing, this study is an attempt to explore the relationship between job rotation and job satisfaction and work engagement in the oil and gas sector in context of Qatar. Hence, the study investigating the mediating role of job satisfaction in the connection between job rotation and work engagement in oil and gas companies in Qatar offers several notable contributions. Firstly, it highlights the relationship between job rotation, job satisfaction, and work engagement within the unique context of oil and gas companies in Qatar. By gathering and analysing data from senior staff members in these organisations, the study tests the proposed hypotheses and offers insights into the interplay between these variables. Secondly, the study places specific emphasis on the mediating role of job satisfaction in the connection between job rotation and work engagement. This finding contributes to a deeper understanding of the underlying processes and mechanisms involved in how job rotation impacts on work engagement. Thirdly, the study's contextual analysis within oil and gas companies in Qatar attempts to provide valuable insights into the practicality and efficacy of job rotation strategies within this industry. By exploring the mediating role of job satisfaction in this specific context, the study will offer practical implications and guidance for organisations operating in the oil and gas sector in Qatar. These findings will inform their decision-making processes regarding the implementation of job rotation and the formulation of employee engagement strategies, enabling them to enhance employee satisfaction and engagement effectively. Fourthly, the findings of this study will make contributions to the Job Demands-Resources (JDR) model by providing empirical evidence and deepening our understanding of the relationship between job rotation, job satisfaction, and work engagement. The study's results will provide empirical support and reinforce the importance of job satisfaction as a mediating factor in facilitating work engagement through job rotation. This insight enhances existing theories by providing a better understanding of the underlying mechanisms and outcomes associated with job rotation practices. Fifthly, the study's findings will provide practical implications for companies operating in the oil and gas

sector in Qatar, aiming to enhance employee satisfaction, engagement, and performance through job rotation programs. By recognising the mediating role of job satisfaction, companies can develop and implement job rotation initiatives that cultivate employee satisfaction, consequently resulting in heightened levels of work engagement. These insights can inform the formulation of talent development strategies, employee motivation programs, and human resource management practices within the oil and gas industry.

CHAPTER 3: METHODOLOGY

3.1. INTRODUCTION

This chapter discusses the approach used to address the research objectives of the current study. Research philosophy is outlined, as are research design and data gathering techniques, as well as the rationale for choosing a research philosophy, research design, and data collection method. The sample design is further described in the chapter. As well, it covers common method bias, the questionnaire development process, and ethical concerns.

3.2. RESEARCH PHILOSOPHY

The research philosophy refers to the thoughts and beliefs about the theoretical approach. A philosophy is a researcher's worldview that influences the choice of study strategy and methodology (Ihuah & Eaton, 2013). A research philosophy is viewed as a method of scientifically recognised principles, values, beliefs, and methodologies that give various conceptualisations of the world (Johnson *et al.*, 2007). Similarly, a research philosophy is a collection of activities and attitudes associated with a particular research methodology (Yilmaz, 2013).

There are three reasons why understanding the research philosophy in relation to research technique is important (Easterby-Smith *et al.*, 2012). Firstly, it aids in the refinement and specification of research methodologies that may be applied in the study. Secondly, a researcher has the ability to evaluate numerous methods and approaches, preventing improper usage and excessive labour by identifying the limitations of a specific methodology early enough so as to save lost effort. Thirdly, research philosophies foster the researcher's originality and creativeness when it comes to selecting methodologies beyond his or her experience (Easterby-Smith *et al.,* 2008).

Philosophical belief is the fundamental belief system or worldview that guides the researcher (Rehman & Alharthi, 2016). Guba & Lincoln (1988) devised the best recognised approach for evaluating various research philosophies in social science using the notions of philosophy of knowledge: ontology and epistemology (Morgan, 2007). Furthermore, Wahyuni (2012) considers research philosophies as ontology and epistemology in order to offer direction to the research design. Ontology is concerned with reality and the nature of the universe, whereas epistemology is concerned with how reality is seen and how the knowledge of external reality is gathered (Ormston *et al.*, 2014; Bahari, 2010).

The science or study of being is known as ontology (Blaikie & Priest, 2019). It relates to ideas or beliefs regarding the nature of social reality (Saunders *et al.*, 2009). It makes assertions about what exists, how it appears, what units comprise it, and how these units communicate with one another (Rijgersberg *et al.*, 2013; Gray, 2021). As a result, ontological assumptions were engaged with what we take to be the initiator of social reality (Höijer, 2008; Cruickshank, 2012). Furthermore, ontology was described as the fundamental belief that people have about the essence of a problem (Lawson, 2019). Ontology is concerned with whether social phenomena may, and should, be regarded as objective entities with a reality outside of members of society (Lawson, 2019; Bahari, 2010), or if they may, and should, be viewed as social constructs based on social players' perceptions and actions (Bell *et al.*, 2022). This will shape how a researcher thinks and, as a result, how the world will be studied (Ormston *et al.*, 2014; Johnson *et al.*, 2007).

Likewise, epistemology is defined as the study or theory of the process of knowledge foundations (Becvar, 2009; Shepperd, 2022; Easterby-Smith *et al*., 2012). The essence of the interaction between the researcher and what he expects to discover is defined as epistemology (Moon & Blackman, 2014; Saunders *et al*., 2009). Epistemology is concerned with the issue of how we know and what we wish to know? (Tolk, 2015; Hatch, 2018; Audi,

2010). Both quantitative and qualitative research epistemology are related with the well-known philosophies of positivism and interpretivism in social science (Tuli, 2010; Briggs *et al*., 2012; Antwi & Hamza, 2015; Alharahsheh & Pius, 2020; Easterby-Smith *et al*., 2008; Ryan, 2018; Ikram & Kenayathulla, 2022; Henderson, 2011; Williamson, 2006). Positivism, which employs a clear quantitative technique of investigation to explore phenomena, is reliant on the natural science approach to deal with confidence (Myers & Avison, 2002). Interpretivism, however, is interested in comprehending the subjectivity of social phenomena and seeks to illustrate and explore phenomena in depth from a qualitative approach (de Villiers *et al*., 2019). Below is a thorough examination of how the two separate philosophies relate to the broader research approach.

Positivism suggests using natural scientific approaches to investigate social reality (Moon & Blackman, 2014). The positivist philosophy is based on established correlations between phenomena and is often evaluated using a design tool. The positivist philosophy's research is mostly undertaken to test theories in order to gain a better knowledge of the phenomena (Antwi & Hamza, 2015). In terms of methodology, positivists employ quantitative methodologies in their study, and the conclusions they reach should be reproducible and generalisable (Onwuegbuzie & Leech, 2005; Allsop, 2013). The positivism approach may generate hypotheses based on actual theory (Chigbu, 2019). These hypotheses might be verified and validated fully or partially, or disproved, resulting in the further theoretical development, that would then be examined through additional future research (Saunders *et al.*, 2009). The positivistic approach proposes defining an area of study based on an objective notion that interactions between variables may be explored using hypothesis (Antwi & Hamza, 2015; Tronvoll *et al.*, 2011). As a result, positivistic research approaches in social science have been used to conduct large-scale surveys, where data is rigorously controlled, and findings are reproducible (Mohajan, 2020). To put it another way, researchers primarily gather data, investigate their

relationships, and employ scientific procedures to reach measurable and generalisable conclusions (Zohrabi, 2013).

Moreover, interpretivism is founded on critiques of the positivism philosophy to support the premise that social reality exists in the minds of researchers and is assessed through subjective measures (Willis *et al.*, 2007). The core of human experiences of a phenomenon is determined by interpretivism (Creswell *et al.*, 2011). Interpretivism is concerned with the study of people's lived experiences, with the belief that these experiences are conscious (Sloan & Bowe, 2014). Natural scientists can employ interpretivism to examine situations that seem to be troublesome (Matta, 2015; Nudzor, 2009; Scotland, 2012). According to the interpretivist paradigm, social sciences are basically different from natural sciences and, hence, require a methodology that recognises humans' uniqueness in relation to the natural order (Moon *et al.*, 2016).

The interpretive approach often employs qualitative approaches to find and explain human behaviour, which originates from people's perceptions of various events. It has the potential to improve social science knowledge (Morrow & Smith, 2000; Easterby-Smith *et al.*, 2008). Nevertheless, interpretivism's findings are not generalisable to bigger groups and have limited uses (Parker & Northcott, 2016; Hasan, 2016). A number of criteria affect the decision regarding which approach to adopt. These include the research problem, the availability of literature reviews related to the study (Creswell, 2014), supervisor's opinion (Creswell *et al.*, 2011) that helps develop a theoretical framework and hypotheses, the research objectives, personal experiences of the researchers, and the participants (Venkatesh *et al.*, 2016; Saunders *et al.*, 2009).

Therefore, the design of the current study is based on a positivism approach as it offers several advantages (Balarabe Kura, 2012; Kim, 2003). Firstly, it aims at understanding how a change in one variable (e.g., job rotation) will induce a change in another variable (e.g., job satisfaction, work engagement). The positivist approach promotes acquiring more

output for a researcher's input (causal relationships) (El Hussein *et al.*, 2014). Secondly, the positivist approach aids in the development of externally valid knowledge. Accordingly, the results of the positivist approach may be extended and utilised outside the context wherein the research was initially carried out (Anney, 2014). Thirdly, the positivist approach's empirically based procedures reduce researchers' values and biases which may corrupt the research process. Consequently, this approach provides a self-corrective instrument for assessing data trustworthiness and reducing the warping impact of human subjectivity on knowledge formation (Pascale, 2010; Kim, 2003).

Moreover, it is a typical approach in various business and management research, especially those aiming at investigating mediation impacts (Bizumic, 2018; Lambert & Hogan, 2009; Byrne *et al.*, 2012). Since the study tests some hypotheses, the positivism approach goes along with the principle that, it may generate some hypotheses whose validity can be fully or partially tested and lead to theoretical development. Furthermore, Cuthbertson *et al.* (2020) and Whiteley (2012) report that as long as the positivism approach is accepted in the research discipline, the researcher does not need to waste much energy explaining and defending the methods and methodologies used. Additionally, the study's topic is reasonably rich in literature, and its aims, attempt to explore the extent to which job rotation is used in oil and gas companies in Qatar and to investigate the link between job rotation and work engagement through the mediating role of job satisfaction. Based on this information, the positivism approach was deemed acceptable for this research investigation. In this vein, the study's results will be utilised to examine the objective reality of existing correlations among study variables, that is to inform managers on how, and to what degree, individual job rotation perceptions link with job satisfaction and work engagement.

3.3. RESEARCH DESIGN

The term “research design” describes the required data, as well as the procedures utilised to gather and analyse the data, in order to meet the study’s objectives for addressing the research questions (Snyder, 2019; Nardi, 2018). Choosing a research design often incorporates three factors. These are the problem of the study, the researcher’s own experience, and the research audience (Abutabenjeh & Jaradat, 2018). The problem of the study should determine the research design that best meets the research objectives (Queirós *et al.*, 2017; Creswell, 2009; Carter & Little, 2007; Turner *et al.*, 2017). The researcher’s own experience and preferences are also considered while selecting the research design (Murshed & Zhang, 2016).

Many studies emphasised three types of research designs: quantitative, qualitative, and mixed method designs (e.g., Hanson *et al.*, 2005; Bryman, 2006; Leech & Onwuegbuzie, 2009; Greene *et al.*, 2005; Almalki, 2016). In the social sciences, quantitative and qualitative research are the two primary research methods (DeCuir-Gunby, 2008; Cadena-Iñiguez *et al.*, 2017; Arghode, 2012; Onwuegbuzie & Leech, 2005; O'Dwyer & Bernauer, 2013; Rutberg & Bouikidis, 2018; Shah & Corley, 2006; Lunde *et al.*, 2013). The current study used a quantitative method, based on the research philosophy, study objectives, and questions. The quantitative method was chosen since it gives a means of achieving the study objectives and answering the research questions (Doyle *et al.*, 2009). The quantitative method allows for the testing and validation of previously developed hypotheses regarding how things occur (Dellinger & Leech, 2007; Fraenkel *et al.*, 2012). The quantitative method provides additional benefits such as data clarity, data objectivity (Rahman, 2020), ensuring that data gathering and processing are reasonably rapid (Palinkas *et al.*, 2015), The possibility of generalizing responses while ensuring respondent anonymity (Smith & Osborn, 2009; Bagdonienė & Zemblytė, 2005; Kolb, 2012), and verifying the validity and reliability of data (Savela, 2018).

3.4. DATA COLLECTION METHOD

Primary and secondary sources are two types of data source which could be employed in research (Meshram & Pandey, 2018). Primary data are obtained from original sources via questionnaires, experiments, focus groups or interviews to fulfil the study aims (Nardi, 2018). Secondary data are collected through available records, such as previous studies, publications, internal records, and databases (Ellram & Tate, 2016). When a data collection method is chosen, three primary elements must be addressed (Wohlin & Aurum, 2015; Yin, 2009; Baker, 2000). Firstly, considering the different sorts of research questions that are being provided. Secondly, the degree to which the researcher has influence over behavioural occurrences. When the investigator has little or no influence over behavioural occurrences, the questionnaire is the primary method of data collection (Rahi, 2017). Thirdly, the degree to which modern events are prioritised above past events. When it comes to examining modern events, a questionnaire survey is the best research method. The present study examines the modern issues of job rotation, job satisfaction, and work engagement (Zhai *et al.*, 2014; Yin, 2009).

A questionnaire is a series of questions that are carefully created and evaluated for a specific set of respondents in order to elicit trustworthy replies (Collis & Hussey, 2014). There are several sorts of questionnaires available depending on how they are disseminated, including self-administered questionnaires, post/mail questionnaires, online questionnaires, and telephone questionnaires. Each one of these has advantages and disadvantages (Katarina *et al.*, 2018; Leatherman & Warrick, 2008; Moreira *et al.*, 2016; Kimura *et al.*, 2011).

The COVID-19 pandemic triggered significant and previously unforeseen transformations in research study design and execution, profoundly affecting data collection methodologies and logistics (Sheng *et al*., 2021; Montoya-Torres *et al*., 2023). To comply with government-imposed precautions aimed at minimising virus transmission risks, researchers were

driven to replace traditional, in-person data collection techniques with safer, more viable options (Newman *et al*., 2021; Keen *et al*., 2022). The virus's rapid proliferation and subsequent lockdown measures rendered physical interactions and large gatherings hazardous, severely limiting the use of in-person interviews, focus groups, and paper-based surveys. This fundamental shift demanded a comprehensive re-evaluation of data collection strategies to meet the new demands of a socially distanced environment (Mihelj *et al*., 2022; Sheng *et al*., 2021; Ogbu *et al*., 2024).

Integrating electronic questionnaires became a critical component in study designs, requiring researchers to adopt digital solutions like online survey tools and platforms to safely engage participants (Singh & Sagar, 2021). This shift not only allowed compliance with governmental safety guidelines but also ensured the continuity of academic and professional research projects that might have otherwise been halted by the pandemic (Wyatt *et al*., 2021). Researchers had to factor in new considerations for study design, such as ensuring participants could easily access digital tools, fostering engagement in a virtual setting, and optimising questionnaires for an intuitive, user-friendly online experience (Novikov, 2020; Dimulescu, 2023).

The pandemic's influence reached far beyond adjustments in data collection, affecting broader logistical aspects as well (Montoya-Torres *et al*., 2023). Researchers needed to accommodate participants' changed circumstances, with many individuals now working remotely or dealing with major lifestyle shifts. This required flexibility in recruitment strategies, utilising digital outreach such as email marketing, social media, and engagement through online communities (O'Connor *et al*., 2020; Maison *et al*., 2021).

Because of the nature of this study population, primarily oil and gas companies operating in Qatar, and the negative impacts of COVID-19 pandemic with need for the safety and social distancing, the online questionnaire was deemed the best method for collecting data and

achieving the objectives of the study (Hensen *et al*., 2021). Therefore, the COVID-19 pandemic has prompted researcher to use electronic questionnaires due to the precautionary actions implemented by government to mitigate the risk of infection, as well as the shift of many companies to remote work. The practice of social distancing to reduce the transmission of the virus among individuals has also encouraged the researcher to rely on questionnaires. Additionally, using electronic questionnaires is considered a safe method to avoid large gatherings and reduce the risk of infection transmission (Geldsetzer, 2020; Xie *et al*., 2020). The survey was conducted several months after the onset of the COVID-19 pandemic, by which time employees had adjusted to working remotely. As the situation progressed, the initial impacts of the pandemic had lessened, with employees becoming more familiar with the challenges of remote work, leading to a reduction in the psychological effects that were more severe in the early stages of the crisis (Adisa et al., 2023; Wang et al., 2021).

Questionnaires are heavily used in management studies due to the many advantages they provide (Alessi & Martin, 2010; Dörnyei & Taguchi, 2009). A questionnaire is simple to use (Song *et al.*, 2015) and data coding, processing, and interpretation are quite straightforward (Saunders *et al.*, 2009). Additionally, because the replies are limited to the supplied choices, the obtained data is consistent (Simms *et al.*, 2019). Furthermore, a small group of respondents can be utilised to evaluate the characteristics of a sizable population (Feldman & Bolino, 2000). Questionnaires may help give understanding of respondents' perceptions and views, as well as organisational policies and procedures (Guldenmund, 2007). Questionnaires are commonly used to investigate variables' correlations, explain these interactions, and build models for these correlations (Justicia-Galiano *et al.*, 2017). In addition to gathering exact data, questionnaires are often less time-consuming and less expensive than observations and interviews (Denscombe, 2017; Brace, 2018). Finally, because employees may fill out questionnaires at their leisure, the questionnaire method is a

favoured form of data collecting that does not disrupt their work routine (Derks *et al.*, 2015).

Questionnaires are widely employed as a data collection method in research due to several advantages (Braun *et al.*, 2021). Firstly, they ensure standardised data collection by presenting participants with the same set of questions in a consistent order. This uniform approach minimises potential biases resulting from variations in data collection methods or interviewer behaviour. Standardisation promotes comparability and enhances data reliability collection (Namey *et al*., 2016; Adams & Cox, 2008). Secondly, surveys are advantageous for researchers seeking to gather data from a broad participant base. They offer a convenient means of distributing questionnaires to diverse individuals or groups, such as survey panels, online platforms, or mailing lists. This streamlined approach enhances data collection efficiency and allows researchers to analyse information on a broader scope. Thirdly, questionnaires offer a cost-effective approach to data collection, particularly in comparison to methods like interviews or focus groups. Once the questionnaire is created, it can be distributed to multiple participants without necessitating direct involvement from researchers. This eliminates the requirement for extra resources, such as interviewers or facilitators, thereby reducing costs associated with data collection (Namey *et al*., 2016; Adams & Cox, 2008). Fourthly, questionnaires afford participants a sense of anonymity and privacy. This enables respondents to provide their answers without feeling self-conscious or influenced by social pressures. Consequently, questionnaires often elicit more honest and candid responses, particularly when addressing sensitive topics or personal opinions (Vogel, 2018; Roberts & Allen, 2015). Fifthly, questionnaires excel at collecting quantitative data, allowing researchers to measure and quantify variables accurately. Through the use of structured response formats like Likert scales or multiple-choice questions, researchers can easily analyse and summarise the data using statistical methods. This facilitates the generation of numerical data for statistical analysis and hypothesis testing

(Sukamolson, 2007). Sixth, questionnaires provide flexibility regarding data collection methods. They can be administered in various formats, including paper-based surveys, online surveys, or computer-assisted interviews. This adaptability allows researchers to select the most suitable method based on factors such as the target population, research objectives, and available resources (Abgaz *et al*., 2018). Seventh, questionnaires typically require less time to complete compared to other data collection methods like interviews or observations. Participants can answer the questions at their own pace, and the process is not constrained by real-time interactions. This convenience makes questionnaires a practical choice for both researchers and participants, particularly when time is limited (Johnson & Turner, 2003).

The current study used the questionnaire (see Appendix A) to collect data because it is compatible with the aims and questions of the research. Moreover, it is one of the most often used techniques for gathering data in management and behavioural studies (Mangal & Mangal, 2013; Baruch & Holtom, 2008; Winborg & Landström, 2001; Furnham, 2012; Saunders *et al.*, 2009; Sekaran & Bougie, 2016; Creswell, 2014). The questionnaire is used due to the four following reasons. Firstly, a questionnaire is a tool that has been widely utilised in past research in related fields such as job rotation, job satisfaction, and work engagement (e.g., Järvi & Uusitalo, 2004; Chen *et al.*, 2015; Hancer & George, 2003; Golbasi *et al.*, 2008; Olivier & Rothmann, 2007; Bakker & Bal, 2010). Secondly, this research requests crucial data from study respondents, such as their perceptions of effects of job rotation, the level of job satisfaction and work engagement. Due to the social desirability difficulties, the researcher suspected that participants would not answer appropriately when such questions are asked during interviews. As a result, the researcher uses anonymous questionnaires to overcome any embarrassment and to allow them to give their opinion frankly (Leggett *et al.*, 2003). It has been proposed that a questionnaire is an appropriate method for gathering data on perceptions and attitudes, according to Brahm & Jenert (2015) and Sekran & Bougie

(2016). Thirdly, the questionnaire is appropriate for descriptive research in which interpretations and data for testing hypotheses are obtained (Judd *et al.*, 2017). Fourthly, the researcher desired consistency in the data obtained. Due to questionnaires limiting respondents' replies to the supplied choices alone, gathered data is consistent (Brace, 2018). Consequently, the researcher expects that employing questionnaires will lead to achieving a good level of consistency in the data obtained.

3.5. SAMPLING DESIGN

The current study used a five-step sample-drawing approach based on the recommendations of Churchill and Lacobucci (2006) and Malhorta *et al.* (2017). The first step includes defining the population. The target population is the group of people who are selected based on characteristics that are expected to lead to obtaining the data needed (Maxwell, 2021; Malhorta *et al.*, 2017). The accurate characterisation of who should and who should not be involved in the sample is the most critical aspect of specifying the target population (Lundberg *et al.*, 2021).

There are several reasons that prompted the researcher to choose these companies. The first reason is the large size of these companies; they employ thousands of employees. The presence of a large number of senior staff was a reason to choose these companies as well. Another reason for selecting these companies is, given that the researcher has been working in the oil and gas sector for 30 years, and has numerous relationships with employees in companies operating in this field, he was able to communicate with the department manager in each of these companies through his contacts who are working in the same companies. Furthermore, due to the researcher's work in one of the oil and gas companies in Qatar, he preferred not to apply the study in the company in which he works for several reasons, such as fear of complimenting the researcher or senior staff bias in the responses to the questionnaire items. Moreover, he preferred not to apply the study in his company so that there

would be no use of his authority to force respondents to fill out the questionnaire or direct them to choose certain answers.

The current study's population comprises employees who graduated from university and work as supervisors in Qatari oil and gas companies and have undergone prior rotations. Such staff are designated "senior staff" by the researcher in the current study. Additionally, the study did not consider the age, nationality, or position of the senior staff, such as managers, assistant managers and heads. Due to the nature of the study, the researcher has excluded the employees who hold a supervisory position in the company but do not have a bachelor's degree due to two reasons. The first reason is that those employees usually do not play a critical role in the company (Hodges & Burchell, 2003). The second reason is that most of them do not have a good command of the English language (Ting *et al.*, 2017; Erazo *et al.*, 2019), which might lead to difficulty in understanding some of the questions in the survey. About 40% of the total employees are senior staff, which is equal to approx. 6,000 of the total number of the senior staff at the three companies.

The second step addresses determining the sampling frame. A sample frame is described as a list of target population members who may be utilised to build and/or form the sample (Acharya *et al.*, 2013). The goal of a sample frame is to choose specific survey respondents from the target population (Andrews *et al.*, 2003). The sample frame is regarded as an important component in sampling design since it has implications for the survey's cost and quality (Lohr, 2021). The sample frame of the current study targets senior staff from oil and gas companies in Qatar. The respondents were chosen because they are in a supervisory position and should be competent enough to complete the questionnaire and give the right information. They should have been rotated through some positions in order to determine the various effects of job rotation, as well as the link with job satisfaction and work engagement. Moreover, because they have rotated through many jobs within the company, such senior staff have a

wide range of experience. The senior staff were chosen since they will have perceptions about job rotation and its different effects.

The third step is to determine the sampling technique. The sampling technique is used to determine the analysis unit and the method for gathering data from the target respondents (Khan, 2014). There are several sampling design techniques available depending on the necessary data and the type of sample being researched (Li & Heap, 2014; Collins *et al.*, 2007). Target sampling entails selecting particular individuals to participate in the study because they are representative of the target population and fulfil the study's specific needs (Acharya *et al.*, 2013; Hulland *et al.*, 2018; Daniel, 2011). There are two types of sampling techniques: probability sampling and non-probability sampling (Pace, 2021; Bell *et al.*, 2022; Miller *et al.*, 2010; Saunders *et al.*, 2009). In probability sampling, each member of the population has an equal chance of being chosen from the target sample (Acharya *et al.*, 2013). Probability sampling is classified into four types: systematic sampling, simple random sampling, cluster sampling, and stratified sampling (Sharma, 2017).

Non-probability sampling is defined as any sampling technique that does not require the random selection of sample elements (Sarstedt *et al.*, 2018). Non-probability sample techniques can be used in cases where conducting a probability sample would be impractical, such as when there is no sampling frame, or the necessary resources are unavailable (Uprichard, 2013). Non-probability sampling, as opposed to probability sampling, does not contain any chance or random selection in its sample (Lehdonvirta *et al.*, 2021). Non-probability sampling is classified into four types: convenience sampling, judgment sampling, quota sampling, and snowball sampling (Ayhan, 2011; Etikan & Bala, 2017; Bhardwaj, 2019). It is difficult to choose a sample from a population since not all cases are known or available to the researcher (Etikan & Bala, 2017).

The current study employs non-probability, convenience sampling to be representative of the study population. Respondents are selected for

convenience sampling depending on their availability and accessibility (Leiner, 2014). Similarly, because of the following reasons, the current study uses a non-probability convenience sampling technique. Firstly, the target oil and gas companies in Qatar employ around 6,000 senior staff. It was not possible to reach all of them, mostly because the oil and gas companies were unwilling to provide contact information for all of their senior staff owing to confidentiality concerns. As a result, it was impossible to construct a sample frame from which a probability sample could be selected. In the absence of suitable lists, stratified random sampling, systematic random sampling, or any other sort of probability sampling approach were ruled out (Baltes & Ralph, 2022). Therefore, it was necessary to contact the other companies' department managers to explain the objective of the study in order to forward the email with the survey link to their senior staff to participate in the survey. Secondly, when working with a somewhat homogeneous group with comparable backgrounds and profiles (senior staff in oil and gas companies with similar educational backgrounds and work environments), a non-probability convenience sample technique might be a viable option. Non-probability convenience sampling is recommended when there is little variation in the population and the population is homogeneous (Espinosa *et al.*, 2012; Etikan & Bala, 2017).

The COVID-19 pandemic had a substantial impact on the sampling strategy for this study, reshaping both participant outreach methods and the types of responses gathered (Newman *et al.*, 2021). The pandemic added new layers of difficulty to pre-existing challenges, prompting modifications to the sampling approach and influencing how participant responses were ultimately interpreted (Rahman, 2021). The onset of the pandemic triggered widespread shifts in work settings, with numerous organisations moving to remote or hybrid operational models (Babapour Chafi *et al.*, 2021). This shift had substantial repercussions for sampling strategies, as direct engagement with participants in their professional spaces became significantly constrained, underscoring the reliance on

convenience sampling. Researchers encountered increased challenges in reaching participants, as remote work policies dispersed potential respondents, making it difficult to connect with them through traditional recruitment channels (Guzmán-Merino *et al.*, 2021; Keen *et al.*, 2022; Roberts *et al.*, 2021). As a result, researchers leaned heavily on digital outreach methods, such as emails, professional networks, and virtual communication platforms, to locate and engage participants willing and available to participate in the study (Gunn *et al.*, 2022; Reñosa *et al.*, 2021).

The pandemic significantly influenced participants' willingness and ability to engage in research, as many employees faced a period of unprecedented uncertainty, increased workloads, and the psychological strain of adapting to new working conditions. This impact manifested in two main ways (Newman *et al.*, 2021; Shahi, 2024; Rahman *et al.*, 2021). First, elevated stress levels and shifting priorities may have made some individuals less inclined to respond to surveys, affecting both sample size and the demographic diversity of respondents. Conversely, the unique pressures of the pandemic likely shaped participants' responses. Their perceptions of job satisfaction and work engagement were directly influenced by pandemic-related stressors, such as remote work challenges and health concerns, which disrupted established routines and altered work processes (Pfeifer *et al.*, 2021; Abolnasser *et al.*, 2023; Gómez-Salgado *et al.*, 2021).

Assessing COVID-19's impact on participants' job satisfaction and work engagement is essential for a thorough understanding of the collected data. The pandemic caused substantial workplace disruptions (Ambrogio *et al.*, 2022), including social isolation due to remote work, increased demands as companies restructured operations, and a widespread sense of uncertainty surrounding job security and health (Aloisi & De Stefano, 2022; Bussin & Swart-Opperman, 2021). For some participants, these factors may have lowered job satisfaction, as the struggle to balance work and personal life during the pandemic hindered their ability to maintain a

positive perspective on their roles. Additionally, work engagement may have declined as remote arrangements disrupted team dynamics and daily routines, reducing opportunities for in-person collaboration and interaction (Rožman *et al.*, 2021; Mitchell, 2023; Syvänen & Loppela, 2022). On the other hand, some cases showed that the pandemic had minimal impact on job satisfaction and work engagement (Giménez-Espert *et al.*, 2020; Yildiz *et al.*, 2022). This stability can be linked to factors like strong internal support systems, effective leadership, and proactive communication that helped employees stay engaged and informed, even with remote work arrangements. In industries recognised for their resilience and adaptability, especially those with high-stakes environments, senior staff may have been well-prepared with skills for managing change, resulting in relatively stable levels of engagement and satisfaction despite the disruptions (Newman & Ford, 2021; Lee *et al.*, 2021; Benitez *et al.*, 2023).

The fourth step is to determine the sample size. The current study aims to have the minimum sample size possible, yet allowing for a thorough quantitative data analysis. A certain minimum sample size is required by the statistical methods used in data analysis (Siddiqui, 2013). Confirmatory factor analysis, and structural equation modelling, for example, need a sufficient sample size in order to execute data analysis (Wolf *et al.*, 2013). A certain sample size is critical in determining the analytical procedures that may be applied (Barr *et al.*, 2006; Reynolds *et al.*, 2003). The study's sample size was mostly determined by the data processing method employed. The main data analysis tool employed in the current study was "Structural Equation Modelling" (SEM). There are differing views on the optimal sample size for SEM (Kock & Hadaya, 2018). Model complexity, missing data, and multivariate normality are all aspects that influence sample size needs for SEM (Iacobucci, 2010). Simple models containing full and normally distributed data typically require less samples than sophisticated models with incomplete or non-normally distributed data (Hair *et al.*, 2010). A minimum sample size of five observations for each evaluated variable is suggested for SEM estimation (Lei & Wu, 2007; Hair

et al., 2021). Because 59 parameters were evaluated in the current study, more than 295 observations must be valid for analysis.

The fifth step is concerned with collecting data. The researcher did not need to conduct a pilot study, because in preparing and designing the questionnaire form and composing its variables, he relied on standards that had been used in previous studies (e.g., Worku, 2019, Saravanan *et al.,* 2017, Tetteh, 2018; Yeh, 2013), and their stability and validity were verified. If there are scales that have been widely used and have been validated, the researcher may choose to use these measures directly without conducting a pilot study (Kimberlin & Winterstein, 2008).

The actual collecting of data from the specified respondents is the final step in the sample selection procedure. The main target of the researcher is to invite three companies working in the oil and gas fields in Qatar to participate in the survey. Therefore, the researcher contacted the department managers of five oil and gas companies over the phone to explain the objective of the research and who are the potential staff who may participate in the survey and to obtain their initial approval to participate in the study. The reason behind approaching five companies instead of three, as stated in the main target, is to avoid any delay in finding another company in case any of the selected companies declines to participate in the survey. This is exactly what happened when two companies declined to cooperate with the researcher and to distribute the questionnaires due to their policies and regulations which prevent this. On the other hand, three companies agreed to cooperate with the researcher and distribute the questionnaires to the senior staff through the department manager.

The researcher encountered obstacles when attempting to directly access the data of senior staff members for communication purposes. These obstacles stemmed from a variety of factors, including the need to uphold data privacy and security standards, protect intellectual property rights, adhere to data governance and control policies, maintain competitive

advantage, navigate resource constraints (such as limitations in personnel and time availability), address concerns related to trust and confidentiality, and ensure compliance with legal and regulatory requirements. As a result of these considerations, the researcher was compelled to establish contact with the department manager as an alternative approach to gather the necessary information. After the researcher was sure that each departmental manager of selected companies understood the objective of the survey and confirmed his agreement, an email with a brief introduction about the objectives of the survey, with the link to the survey, was sent to the department manager, in order to forward the survey to their potential participants (senior staff). The participant information sheet was included in the first page of the survey (see Appendix A and G) to give a clear picture about the objective of the survey and all information that may come to the participants' mind. This was to ensure that the participant read it before requesting them to provide their consent to take a part in this survey and agree how their data will be managed by ticking the box at the bottom of the same page. Otherwise, the participant would be unable to participate in the survey.

The online questionnaire via the JISCUCLAN-based survey tool was used to disseminate the questionnaire and collect data from participants. The online questionnaire was conducted using a participation link for participants to gain access to the online survey. This online survey provider has facilities to allow anonymous completion of the survey as the answers to the questionnaire are aggregated by the software without the researcher knowing the source of the answers. The researcher has sole access to the survey's progress through the JISC survey tool.

The researcher found it difficult to get a large number of responses because the questionnaire link was sent to senior staff through their department manager during the summer vacation, and they travelled for their holidays. That is why they did not respond as quickly as the researcher expected. The researcher had to opt either for delaying disseminating the

survey for almost two months until most of the employees had come back from their leave, which would delay the researcher's whole study, or proceeding with disseminating the survey, which would require close monitoring of the progress through the response rating in the JISC online survey tool. Hence, the researcher took the decision to proceed with the survey although it was the summer holidays. This meant the researcher needed to follow up with the department managers over the phone every other day, based on the response rating in the JISC online survey tool, and request them to send a reminder to their staff to participate in the survey.

The questionnaire was prepared and two weeks were specified as an initial period to obtain the targeted responses (at least 300). Due to not obtaining the targeted responses, the period was extended for an additional week. During the three weeks, the researcher was able to obtain the targeted responses. At the same time, the researcher was prepared to extend the period for more than three weeks if he did not obtain the targeted responses. The researcher hoped to reach a large number of responses in order to be more representative of the study population. The researcher requested the department managers of the three companies to send a questionnaire link to 600 senior staff, with 200 questionnaires for each company. In fact, the researcher found out that the department managers did not send the required number of questionnaires as requested by the researcher due to unknown reasons. The total number of questionnaires sent was only 494 (the first company = 164 questionnaires, the second company = 171 questionnaires, the third company = 159 questionnaires) as confirmed verbally by each department manager. Only 337 responded out of a total of 494 senior staff, while 157 of them did not respond. The response rate was 68.2%. The researcher also found that 26 senior staff indicated that they were not rotated before, and therefore their responses were excluded from the survey. In the end, the final number to be examined and analysed was only 311 responses. The data used for the research project would all be stored on a password protected laptop, to which only the researcher has access. Data was also stored in the OneDrive of

UCLAN office 365, which only the researcher, principal researcher and second supervisor have access to.

3.6. COMMON METHOD BIAS

Common method bias is also known as “common method variance” (Malhorta *et al.*, 2017). It refers to the statistical variation induced by the measuring procedure rather than the variables represented by the measure (Podsakoff *et al.*, 2003; Siemsen *et al.*, 2010). One of the primary causes of common method bias is measuring the independent and dependent variables from the same source (Jordan & Troth, 2020; Kammeyer-Mueller *et al.*, 2010). Researchers generally agree that common method bias is a severe problem in organisational and behavioural studies (Spector & Brannick, 2009). It is a main source of measurement error that jeopardises the validity of findings about the links between measurements (Spector, 2006; Podsakoff *et al.*, 2012). To control the common method bias, the variables should derive from separate sources (Chang *et al.*, 2020).

The current study used several procedures offered by Podsakoff *et al.* (2012) and Podsakoff *et al.* (2003) to control common method bias. Firstly, the measuring scales used in the study were developed to promote, simplify, and boost speedy responses from the respondents by reducing task complexity. These measures adopted simplicity and clarity in wording to allow the participants to easily grasp their meaning. In addition, the items of each variable were drawn from separate sources. Secondly, efforts have been made to ensure participants’ confidentiality and to alleviate respondent worry. Participants were promised that their replies would remain secret and that there were no correct or incorrect answers. Thirdly, the objective of the study was explicitly conveyed to the respondents in order to increase their motivation and the possibility of correct replies. The respondents were informed how the data will be utilised and how the research may assist their companies. Fourthly, the scale items were designed with care. Vague concepts, unknown items, and double-barrelled queries were eliminated. This can diminish or remove the impacts of

dispositional states, social desirability concerns, and themes for consistency, as well as respondent dispositions to respond in a tolerant, moderate, or severe manner, resulting in bias (Podsakoff *et al.*, 2012).

3.7. QUESTIONNAIRE DEVELOPMENT PROCESS

A number of authors (e.g., Tehseen *et al.*, 2017; Craighead *et al.*, 2011; Saunders *et al.*, 2009; Hsu & Sandford, 2007; Spector & Brannick, 2010; Sekaran & Bougie, 2016) state that the most often utilised method for collecting data needed for the study is the questionnaire. It is critical to construct a questionnaire to guarantee that it can be utilised to collect the precise data needed to answer the study questions and achieve the research objectives, since it is not possible to return to participants and collect more data using a different questionnaire (Brace, 2018; Nardi, 2018). The response rate, validity and reliability of the data collected are influenced by the efficiency of the questionnaire design (Gearhardt *et al.*, 2009). This impact might be improved by carefully drafting each question, having a decent questionnaire layout, providing a clear description of the questionnaire's objective, and properly planning and implementing its administration (Bradburn *et al.*, 2004; Saunders *et al.*, 2009).

The current study's information requirements were based mostly on the hypothesised linkages outlined in the conceptual framework. The measurement scale was particularly constructed to elicit answers for the variables described in the literature review. Demographic questions were also included in the questionnaire to acquire a better grasp of the overall profile of the respondents. In terms of questionnaire type and administration technique, structured questionnaires were utilised to gather data in the present study. Questionnaires might be self-administered or administered by an investigator (Mahler *et al.*, 2007). In the absence of the researcher, participants complete self-administered questionnaires (Sierles, 2003).

In contrast, investigator-administered surveys are completed in the presence of the researcher (Mahler *et al.*, 2007). Many participants can be questioned at the same time using both self-administered and investigator-administered surveys (de Leeuw & Hox, 2012). Self-administered surveys often allow participants to remain anonymous, but investigator-administered surveys typically reduce perceived anonymity (Tripathi *et al.*, 2022). Allowing participants to remain anonymous frequently aids in obtaining honest responses to highly personal or sensitive questions (Mitchell & Jolley, 2010). As a result, the current study depends on self-administered surveys by providing the survey link to the department manager, who distributed it to the respondents in the researcher's absence (Burns & Kho, 2015).

The practice of phrasing questionnaire items in a positive manner is widely adopted for several reasons and has numerous advantages, as indicated by several authors (e.g., Salazar, 2015; Sonderen *et al*., 2013; Sauro & Lewis, 2011; Patten, 2016). By framing items positively, respondent bias or acquiescence bias can be minimised. Acquiescence bias refers to the tendency of respondents to agree or endorse items regardless of their actual beliefs or attitudes. Utilising positive items reduces the likelihood of defaulting to agreement, resulting in more accurate and meaningful responses. Moreover, positive items are often easier for respondents to comprehend and interpret. They tend to be clearer, more straightforward, and less ambiguous compared to negatively framed items. This enhances the overall clarity of the questionnaire and reduces the potential for misinterpretation or confusion among respondents (Valencia, 2020; Sonderen *et al.*, 2013; Sauro & Lewis, 2011; Patten, 2016).

Furthermore, negative items have the potential to elicit social desirability bias, wherein respondents provide answers that align with societal norms or what they perceive as socially desirable. In contrast, employing positive items can alleviate this bias, as respondents feel less pressured to conform and can offer more honest and authentic responses. Positive items are

often accompanied by positive response options on the Likert scale, ensuring coherence and consistency between the item content and available response choices. This alignment facilitates respondents in matching their perceptions or attitudes to the provided response options (Sonderen *et al.,* 2013; Helmes *et al.,* 2015; Lee & Sargeant, 2011; Lee *et al.,* 2022).

Additionally, researchers should be mindful of acquiescence bias when administering surveys, as it represents a potential concern (Vannette & Krosnick, 2014). Acquiescence bias entails respondents agreeing or acquiescing with survey questions irrespective of their actual beliefs or opinions (Dykema *et al*., 2022; Saris *et al*., 2010). This bias can stem from several factors, including a desire to please the researcher, confusion about the question, or a tendency to agree with statements presented (Kuru & Pasek, 2016; Subedi, 2016). However, it's important to recognise that the presence and impact of acquiescence bias in surveys are not universally definitive. Its effects can vary depending on factors such as survey design, respondent characteristics, and cultural context (Walters, 2021; Kam & Meyer, 2015; Baumgartner & Steenkamp, 2001).

Depending on how questions are answered, there are two types of questions that are widely used: open-ended and closed questions (Zhou *et al.*, 2017). The open question has no predefined answers and allows responders to react in their own terms; this implies that responders must record their responses in their entirety, while the closed types of questions present responders with other options from which to pick (Fowler & Cosenza, 2009). Moreover, open-ended questions are infrequently utilised in surveys due to various factors. Firstly, they tend to be time-consuming as respondents are required to provide detailed and thoughtful responses. This can be burdensome for both participants and researchers, particularly when working with a large sample size (Holland & Christian, 2009). Secondly, the use of open-ended questions enables respondents to offer varied and individualised answers, posing challenges when it comes to

comparing and quantifying responses among participants. This lack of standardisation can impede the ability to derive significant insights from the data (Story & Tait, 2019). Thirdly, open-ended questions impose a cognitive load on respondents, demanding them to generate their own responses without any predefined options. This can result in respondent fatigue and potentially reduce the overall completion rates of the survey (Willis, 2015).

The current study's questionnaire included closed-ended questions with preset response categories, with the exception of the fourth question in part one, which inquired regarding *"Through how many departments have you rotated in your company?"*. Closed-ended questions are simple to code and analyse. They also generate better response rates than open-ended questions because respondents find them easier to answer (Barrios *et al.*, 2011). The following sections explain how the study's constructs were operationalised. The study relied on scales that were addressed in previous studies, and were developed and modified for the following reasons:

- Sometimes, questionnaire scales may include items that are very similar or measure the same underlying concept (Bowling, 2005). These redundant items can add unnecessary noise to the questionnaire data and place an additional burden on respondents. By removing redundant items, the questionnaire can be streamlined and made more efficient, all while maintaining the reliability of the measurement (Ruel *et al*., 2015; Zillich *et al*., 2005).
- Due to cultural, social, or contextual differences, certain items in questionnaires may not be relevant or suitable for all participants, especially when questionnaires are administered in diverse populations (Harkness *et al*., 2010). Deleting these items helps ensure that the questionnaire is inclusive and applicable to the specific characteristics and needs of the target population (Blair *et al*., 2013).

- The researcher has the option to remove items from a survey that do not align with the specific focus or research objectives of the study. This ensures that the questionnaire effectively measures the intended constructs and generates relevant data for the research questions or hypotheses. By eliminating unrelated or extraneous items, the clarity and coherence of the questionnaire instrument are maintained (Bryman, 2003; Mallinckrodt *et al*., 2016).

The questionnaire was divided into four main parts. The first part deals with job rotation. This part has been divided into three sub-parts. The first sub-part included four questions to find out if the employees had been rotated before or not; the number of times they rotated, how they rotated, and the number of departments they were rotated in. The questions in this part are: *"Have you been rotated within the company ever?", "If yes, How many times have you been rotated?",* "*How was your job rotated?"*, "*Through how many departments have you rotated in your company?"*. These questions are aimed to identify senior staff who had already been rotated to distribute the survey to them, and to know the number of times they were rotated, to determine whether employees are rotated more than once or whether it is a discontinuous process. These questions also aimed to determine the type of rotation: whether it is within the department, between departments, or both types. This is to ensure realistic answers to the following sections of the survey, especially the effects of job rotation.

The second sub-part dealt with the effects of job rotation. Within the framework of the Job Demands-Resources (JDR) model, incorporating job rotation measures is highly relevant because it addresses the balance between job demands and resources in the workplace. According to the JDR model, job resources such as social support, autonomy, and task variety can buffer the negative effects of job demands, enhancing work engagement and job satisfaction (Taipale *et al.*, 2011; Han *et al.*, 2020). In this study, the focus was placed on the positive effects of job rotation, such as reducing monotony, fostering better social interactions, and expanding

knowledge. This aligns with the JDR model's core idea that job resources alleviate stress and foster positive work outcomes. Job rotation, by introducing variety into tasks, helps to minimise the adverse impacts of repetitive work, which in turn lowers stress levels and boosts employees' sense of competence and motivation (Saravanan *et al.*, 2017). This helps explain why job rotation, through its beneficial effects, positively influences both work engagement and job satisfaction. From a JDR model perspective, these positive outcomes serve as critical job resources, enabling employees to better manage job demands and enhancing both satisfaction and engagement. Thus, even though the measures in the study emphasised the results of job rotation rather than its frequency or effectiveness, they still reflect the key principles of the JDR model by showing how job resources like task diversity and social interaction contribute to employee well-being and performance. These influences are divided into five main effects.

Decrease Monotony: this was measured by five items adopted from Worku (2019).

Preparation for Management: this was measured from six items prepared through Worku (2019).

Determining Optimal Job: this was assessed by seven items prepared through Worku (2019), Saravanan *et al.* (2017) and Eltahir (2018).

Developing Social Relation: this was evaluated by four items developed from Worku (2019).

Increasing Knowledge: this was measured by 10 items adopted from Zin *et al.* (2013). Increased knowledge was divided into a) administrative knowledge that includes three items, b) technical knowledge that includes three items, and c) business knowledge that includes four items (see Table 3.1.).

The answer to the statements in this part is designed using a five-point Likert scale as 1= strongly disagree, and 5= strongly agree. The Likert scale was used because it is the most common and easiest answer format. Furthermore, Likert scales are often used in business and management

research (Hair *et al.*, 2010). The utilisation of a five-point Likert scale is a widely adopted approach in survey research, primarily due to several reasons and associated advantages. Scholars such as Saunders *et al*. (2009), Edmondson (2005), Chimi *et al*. (2009), and Ambrose *et al*. (2003) have highlighted the following benefits of using a five-point Likert scale:

- Balanced Response Range: A five-point Likert scale offers a balanced range of response options, allowing respondents to express their opinions or attitudes with a moderate level of granularity. This enables them to provide nuanced and differentiated responses.
- Comprehensibility: Respondents find the five-point scale easy to comprehend and utilise. It strikes a good balance between simplicity and providing enough response options for respondents to accurately convey their opinions or attitudes. This ease of understanding reduces cognitive burden and contributes to data quality.
- Statistical Analysis: A five-point Likert scale provides a sufficient number of response categories to perform meaningful statistical analyses to derive insights from the collected data.
- Flexibility in Response Options: The five-point Likert scale allows researchers to customise the scale endpoints based on the specific constructs being measured. This flexibility in labelling the scale endpoints enables customisation while maintaining the consistency of a standardised response format.

Table 3.1 Measurement Scale – effect of job rotation

Scale items
Decrease Monotony
The application of rotation reduced the monotony experienced in my work
It reduced my work stress
Job rotation reduced the boredom in my work
Job rotation decreased turnover rates
Job rotation positively affected my personal life
Preparation for Management
Job rotation helped me to know about various roles in my company and make me well skilled for the next step
Job rotation provided me a chance for promotion
The application of rotation supported my preparation for higher-level management
It contributed to organisational development and change
Job rotation contributed in reducing financial costs of training
Job rotation motivated me to deal with new challenges in my work

Determine Optimal Job
The application of rotation facilitated the determination of which job can be more productive
I am well informed about job rotation
Job rotation used by the company was effectively-known
All job positions I have been rotated in were well fitted with my qualifications
The company has a uniform system of getting feedback for improvement during job rotation practice
It increased my productivity
It helped to explore my interests and hidden potential
Develop Social Relation
Colleagues in different jobs within the company supported me when I was assigned to their departments for practice and learning
The application of rotation developed my social relationships
I am willing to work cooperatively with my colleagues and supervisors
During job rotation, my communication with colleagues and supervisors from other positions was satisfactory.
Increase Knowledge
Administrative knowledge
Job rotation improved my interpersonal skills
Job rotation enhanced my leadership skills
Job rotation increased my self-improvement
Technical knowledge
Job rotation enhanced my knowledge of company policies, procedures, and practices
Job rotation improved my production knowledge
Job rotation improved my knowledge of business contact and network
Business knowledge
Job rotation improved my knowledge of general/current issues
Job rotation improved my knowledge of other departments' roles
Job rotation improved my knowledge of the external environment of business
Job rotation supported my understanding of the organisational goals

Sources: The Author, based on Worku, 2019: 66-68, Saravanan *et al.,* 2017: 2331, Eltahir,2018: 293-294, and Zin *et al.*,2013: 141-142.

The third sub-part dealt with the challenges of implementing job rotation. Eight main challenges to the application of job rotation were identified through a study by Tetteh (2018) (see Table 3.2.). The answers to the items in this part are designed through a five-point Likert scale.

Table 3.2 Measurement Scale- challenges of job rotation

Scale items
Experienced workers do not want to learn new types of work
The rotating employee would be reluctant to return to their original position after being exposed to new ideas or responsibilities
Physical problems of moving from one job to another
Unsuitable compensation policy
Education and training of employees in the requirements and tasks of new jobs
Inappropriate use of job rotation by management
Differences in skill levels among staff may be significant resulting in additional expense in upgrading staff or loss of productivity for some period
Difficulty of identifying appropriate jobs for each person in the company in the process of rotating

Source: Tetteh, 2018: 89.

Part Two: job satisfaction is used to measure performance, as Chao *et al*. (2015) indicated that job satisfaction is a predictor of performance, and satisfied employees perform better and contribute significantly to the organisation's overall success (Asbari *et al.*, 2020). Job satisfaction is assessed by nine items adopted from Hirschfeld (2000) (see Table 3.3.). The answers to the items in this part are designed through the five-point Likert scale.

Table 3.3 Measurement Scale- job satisfaction

Scale items
I am satisfied with my job
I receive adequate training to do my job well
I have a good feeling that my efforts will be appreciated
Using a compensation system increases my motivation
Performance evaluation induces my justice perceptions
The payment of salary is very close to my expectations
I use new technology to facilitate my works
The relationship between my supervisors and me is very friendly
I have family-friendly policies to support my family

Source: Hirschfeld, 2000; 258.

Part Three: job engagement is used to measure performance, as it is identified as an important driver of desirable performance (Sonnentag *et al.*, 2021). Moreover, work engagement has sparked interest as a significant predictor of employee performance (Barnes & Collier, 2013). Job engagement is measured by 10 items developed from Schaufeli *et al.* (2006) (see Table 3.4.). The answers to the items in this part are designed through the five-point Likert scale.

Table 3.4 Measurement Scale- work engagement

Scale items
I feel engaged with the work I do in my workplace
At my work, I feel bursting with energy
At my job, I feel strong and vigorous
I am enthusiastic about my job
My job inspires me
When I get up in the morning, I feel like going to work
I feel happy when I am working intensely
I am proud of the work that I do
I am immersed in my work
I get carried away when I am working

Source: Schaufeli *et al.*, 2006: 714.

Part Four: This part was designed to collect information about the participants regarding their approximate age, their highest educational level, and their work experience.

All measures were preserved in English only with no local language translation because the majority of senior staff in Qatar's oil and gas companies can readily understand English. Furthermore, the participating senior staff of these companies, from whom the data was obtained, all had a minimum degree of university graduation, allowing them to readily understand the meaning of each item within the questionnaire. Thus, a standardised back translation of the questionnaire into the native language was not necessary. Additionally, every attempt was made to employ well-established measures with plain terminology that is straightforward to grasp.

3.8. STRUCTURAL EQUATION MODELLING

This study used the "Structural Equation Modelling" (SEM) method with Analysis of Moment Structures (AMOS) v. 28 to fit best to the study data and to test the hypotheses and effectiveness of the proposed conceptual framework. When considering the analysis of mediation models, distinctions exist between AMOS (Analysis of Moment Structures) and alternative software such as OLS (Ordinary Least Squares), logit-probit, or other statistical models. Firstly, AMOS is tailored for structural equation modelling, offering a framework for exploring intricate relationships and testing theoretical models. On the other hand, OLS, logit-probit, and other regression models primarily focus on predicting a dependent variable based on independent variables, lacking the explicit modelling of mediating relationships. Secondly, AMOS is capable of accommodating both observed variables (indicators) and latent variables, providing researchers with the ability to evaluate measurement error and estimate latent constructs. In OLS models, variables are usually observed and treated as directly measured, without accounting for measurement error or latent constructs. Thirdly, AMOS permits the concurrent estimation of

measurement models (reflective or formative) and structural models, allowing researchers to evaluate the connections between latent variables and their indicators. Conversely, OLS and other regression models generally concentrate on estimating relationships between observed variables. Fourthly, OLS models assume linear relationships between variables, which may be inadequate when studying mediation in the presence of expected nonlinear relationships. In such instances, logit-probit models or other nonlinear models might be more suitable. AMOS can also manage nonlinear relationships by allowing for the specification and estimation of nonlinear structural models (Hair *et al.*, 2021; Lewis-Beck & Lewis-Beck, 2015; Fox (2015).

A structural equation model incorporates two types of models: the measurement model, often known as Confirmatory Factor Analysis (CFA), and the structural model (Hair *et al.*, 2010). CFA is a statistical method that works best when the researcher has some prior knowledge of the underlying latent variable structure (Byrne, 2013). The structural model, on the other hand, is concerned with the supposed links between the variables. The researcher hypothesises correlations between observable measurements and underlying causes based on theory and empirical study, and then statistically tests them (Byrne, 2013). The sections below detail the CFA results and the structural model for this study.

3.9. CONFIRMATORY FACTOR ANALYSIS (CFA)

Prior to the main analysis, CFA was undertaken on all questions that measured the independent variable (*job rotation*), mediating variable (*job satisfaction*), and dependent variable (*work engagement*).

CFA is a well-known method for determining the construct adequacy of a measurement tool (Jackson *et al.*, 2009). Having at least 300 samples for confirmatory factor analysis is reassuring as Tabachnick & Fidell (2007) proposed. A sample size of 100 samples is adequate, while a sample size of more than 200 samples is preferred (Coakes *et al.*, 2010). CFA was

performed on data obtained from 296 samples in this study, and AMOS v. 28 was used to evaluate the measurement model. The validity of the CFA should be examined in two phases, as proposed by Hair *et al.* (2021): (1) goodness-of-fit indices, and (2) validity. As a result, this study takes these two steps into account while validating its CFA.

3.10. ETHICAL CONSIDERATIONS

Research ethics are concerned together with essential issues such as how the study subject is developed and explained, the study is planned and respondents will be contacted, method of data collection, treatment and data analysing and documenting study results in an ethical and responsible manner (Connelly, 2014; Saunders *et al.*, 2009). There are main ethical concerns that emerged whilst carrying out the study, as Saunders *et al.* (2009) identified. Firstly, the confidentiality of potential and current participants. Secondly, the nature of voluntary participation and the opportunity to withdraw from participating in part or whole. Thirdly, participants' consent and possible deceit. Fourthly, the confidentiality of data submitted by persons or identified participants, as well as their anonymity. Fifthly, participants' responses to the method of data collection, include harm, anxiety, pain, and discomfort. Sixthly, the impact on participants of how the data are utilised, analysed, and disclosed. Seventhly, the researcher's objectivity and behaviour (Saunders *et al.*, 2009).

Prior to data collection, ethical permission for the research was acquired from the University of Central Lancashire's Ethical Panel to verify that it adheres to these moral guidelines. Furthermore, approval from the relevant companies to distribute the questionnaire through department managers was received. The researcher confirmed that participation in the current study was entirely optional, and that the data obtained would be utilised solely for the sake of the study, which were designed to satisfy the criteria of a DBA thesis.

In terms of ethics, the study does not entail any issues concerning cultural sensitivities, sensitive personal data, or participant weaknesses. Before delivering the questionnaire link, the researcher supplied extensive information about the study to department managers whilst seeking for consent from their companies. The researcher additionally assured all respondents of total anonymity and confidentiality and explained respondents' rights to decline to participate in the study or withdraw from the study at any moment during the course of the survey without giving any explanation. It was also emphasised that the researcher is obligated by the "Code of the University of Central Lancashire" which requires strict confidentiality, and that no information given in this questionnaire will be shared under any conditions. The researcher emphasised how the data would be handled and preserved once they were collected, and that only the researcher would have access to them and maybe the principal researcher and second supervisor. However, the training course of General Data Protection Regulation (GDPR) has been attended by the researcher, principal researcher and second supervisor.

Before beginning data collection, a "Participant Information Sheet" was included in the first page of the survey, notifying participants about the objective of the survey, importance of anonymity and confidentiality to preserve their reputation. The researcher discussed data collection management, accessibility, and storage. During the survey, no method of pressure or coercion was used on the participants to compel them to participate in the survey or to change their answers. The participants have been asked to tick the box on the first page of the survey to affirm their awareness of the nature of the study and their rights as study participants. To preserve total confidentiality and anonymity, no questions in the survey can be traced back to any of the respondents, no question in the surveys asked for any information that may be used to accurately pinpoint a respondent, and instead of focusing on a single responder, all analysis was done for all respondents. Furthermore, respondents were informed that the obtained data would be utilised purely for academic study and that

releasing their data to a third party would cause them no harm. Respondents were informed who to contact if they needed further information about the research.

CHAPTER 4: DATA ANALYSIS

4.1 INTRODUCTION

The survey results are examined in this chapter. The first step in data analysis is data preparation and screening, which includes checking for data inputting errors, avoiding missing data, outliers, and data normality. The sample data were used to generate descriptive statistics. To guarantee the consistency of the measures, confirmatory factor analysis, reliability, and validity were conducted. In the final section, hypotheses are tested using Structural Equation Modelling (SEM) in AMOS software. The data were extracted from the JISC online survey tool and input into an Excel sheet. Then a unique code was allocated for each component (items) to differentiate between components (items) within each of the three variables as stated in the distributed questionnaires (see Appendix B). These codes not only distinguish individual components (items) within their respective variable but also ensure that items are recognisable and distinct from those in other variables. Then the same Excel sheet with the collected data were inputted into the “Statistical Package for the Social Sciences” (SPSS) software. Data were entered in the order in which they were presented in the questionnaire. The agree/disagree scores for the five-point Likert scale were replaced with numbers, each number correlating to each statement as follows: strongly agree to 5, agree to 4, neutral to 3, disagree to 2, and strongly disagree to 1. It was ensured that no numbers were given higher than 5 on all statements measured, using a five-point Likert scale (See Appendix F). The SPSS computed the mean response for each component (items) individually, considering all participant responses, enabling the data to be used for hypothesis testing.

4.2 OVERALL RESPONSE RATE

A set of 494 questionnaires were distributed among three companies, with 337 questionnaires collected, resulting in a response rate of 68.2%. A small number of questionnaires (26) were excluded because respondents

answered “No” to the first question in part one related to whether he/she has ever been rotated within the company. Consequently, 311 questionnaires were used in the process of data screening, during which 15 questionnaires were classified as outliers after data screening using SPSS software. Thus, the final total sample was 296 questionnaires.

4.3 DATA PREPARATION AND SCREENING

Data preparation and screening entail verifying the errors in collected data before analysing it (Pallant, 2020). Data assessment is a critical first step in any multivariate data analysis (Hair *et al.*, 2010; Mertler *et al.*, 2021). Data assessment entails checking for errors, missing values, outlier detection, and normality (Pallant, 2007). The most common concerns encountered following data collection are missing values and data normality, both of which should be addressed (Hair *et al.*, 2021). The following data screening stages are performed in this study following Pallant’s (2007) guidelines.

4.3.1 Checking for Data Inputting Errors

The first stage in data preparation and screening is to look for values that are outside a variable’s range of probable values. Values that lie outside the probable range of values might influence statistical analysis, thus, these values must be corrected before data analysis (Pallant, 2007). SPSS v. 28 was used to check all individual items for all variables (both categorical and continuous). Generally, no values were detected that were beyond the variables’ probable range of values.

4.3.2 Lowering the Non-Response Risk and the Missing Data Risk

The collected data were checked for missing values. Missing data are one of the common problems in quantitative research (Cox *et al.*, 2014). Missing data issues usually arise when questionnaires are employed to collect data, according to De Leeuw *et al.* (2003). In a variety of ways, data might be missing. It might be missing completely at random, missing at

random, or not missing at random (Little *et al.*, 2014; De Leeuw *et al.*, 2003). If the missingness of a response to a question is unrelated to its unknown value and unrelated to the values of other question replies, the data is said to be Missing Completely At Random (MCAR). If the missingness is connected to the observed data value but not to the value of the question, the data is deemed Missing At Random (MAR). Finally, if the missingness is connected to the answer to the query, the data is Not Missing At Random (NMAR) (De Leeuw *et al.*, 2003).

Missing data often causes two significant issues. Firstly, missing data lowers statistical power (the capacity of an analytical approach to discover significant effects in a dataset). Secondly, missing data have a detrimental impact on the accuracy of estimating parameters (Dodeen, 2003; Tsikriktsis, 2005). Missing data can be caused by a variety of factors, including data entry mistakes, participants' reluctance to respond to specific items, or participants lacking the information needed to answer a query (Cheema, 2014). This problem cannot be prevented totally, but it can be considerably reduced (De Leeuw, 2001). To deal with the possibility of missing data, while designing the questionnaire in electronic form, the researcher made the answer to all the questions obligatory, so that the participant answered all the questions without skipping a question or leaving it blank. Therefore, there were no missing data after examining the data collected in this study.

4.3.3 Outliers

Outliers are data points that differ considerably from the rest of the sample's data points (Kriegel *et al.*, 2009). The existence of outliers in data can be caused by a variety of factors, as Hair *et al.* (2010) mentioned. Firstly, it might be the result of a genuine but unusual reaction. Such outliers must be managed in accordance with the study objectives. Secondly, it might be the result of inaccurate input during data entry. During the data screening, these excessive values must be reviewed and removed. Thirdly, it might arise as a result of a programming error, such as

while recording or manipulating a variable or not appropriately recognising missing data. Such outliers can be dealt with throughout the debugging phase. Furthermore, outliers can occur for a variety of causes, including mistakes in data gathering or input, sampling errors, purposeful or motivated misreporting by participants, or genuinely from the actual population being surveyed (Osborne & Overbay, 2008).

The Mahalanobis Distance metric was used in the current study to determine multivariate outliers. The Mahalanobis Distance calculates the distance between each observation and the mean centre of all observations on a collection of variables, producing a single result for each variable regardless of the number of variables analysed (Taguchi & Jugulum, 2002; Hair *et al.*, 2010). If the probability associated with the Mahalanobis Distance is 0.001 or below, observations are typically considered multivariate outliers, and this level will be used in this study (Gallagher *et al.*, 2008; Kline, 2015). Mahalanobis Distance was assessed using SPSS (N= 311), and a number of outliers were discovered. The Mahalanobis Distance test results identified 15 outliers. Getting rid of outliers is the best strategy to deal with them according to Leys *et al.* (2019). Consequently, the outliers were eliminated. As a result, the final number of usable questionnaires in the next steps was 296.

4.3.4 Normality Test

Before doing statistical tests, it is critical to examine the normality of the data distribution (Saunders *et al.*, 2009). Understanding the nature of a variable can be aided by characterising its distribution shape (Hair *et al.*, 2010). The degree to which the sample data distribution adheres to the normal distribution is referred to as normality (Hair *et al.*, 2010). Examining the data normality is a fundamental prerequisite for regression analysis and other multivariate data analysis approaches. However, it is proposed that if the equal distribution assumption is violated, an alternate technique be used (Henseler *et al.*, 2009). Skewness and Kurtosis are two measurements used to assess data normality (Hair *et al.*, 2021). There are

no severe deviations of the normality condition if the skewness value is less than 2 and the kurtosis value is less than 7, as proposed by Curran *et al.* (1996). The skewness and kurtosis tests were used in the current study to check data normality. The skewness findings reveal that the values of skewness are fewer than 2, and the kurtosis values are less than 5. As a result, the findings reflect a normal distribution of data (see Table 4.1).

In addition, utilising graphical tools to comprehend what the statistics are showing in terms of distribution and what characteristics such distributions do have is important. Normal (P-P) plots are one example of such graphical tools (Benneyan et al., 2003; Harpe, 2015). It makes logical sense to utilise normal p plots as a starting point for data analysis (Hothorn & Everitt, 2009). When compared to the look of other more arcane distributions, statisticians and non-statisticians are fully conversant with the bell-shaped curve associated with the normal distribution. Nevertheless, recognising deviations from a certain curved form might be more challenging than judging deviations from a straight line. Accordingly, using normal P-P plots allows the examination of data rapidly and efficiently in ways that help understand how the data links to, or deviates from, a normal distribution. Regardless of the reasons for using normal P-P plots, it provides a straight line that represents the data distribution relative to the normal distribution (Boylan & Cho, 2012) (see Appendix H).

Table 4.1 Assessment of Normality (N= 296)

Constructs	Items	Minimum	Maximum	Skewness	Kurtosis
Decrease Monotony (DM)	The application of rotation reduced the monotony experienced in my work	1	5	-0.757	-0.768
	It reduced my work stress	1	5	-0.628	-0.459
	Job rotation reduced the boredom in my work	1	5	-0.517	-0.217
	Job rotation decreased turnover rates	1	5	-0.074	-0.746
	Job rotation positively affected my personal life	1	5	-1.191	0.581
Preparation for Management (PM)	Job rotation helped me to know about various roles in my company and make me well skilled for the next step	1	5	-1.788	3.280
	Job rotation provided me a chance for promotion	1	5	-0.603	0.429

Table 4.1. *Continued*

Constructs	Items	Minimum	Maximum	Skewness	Kurtosis
	The application of rotation supported my preparation for higher-level management	1	5	-0.419	-0.195
	It contributed to organisational development and change	1	5	-1.313	2.355
	Job rotation contributed in reducing financial costs of training	1	5	-0.638	-0.443
	Job rotation motivated me to deal with new challenges in my work	1	5	-1.676	2.859
Determine Optimal Job (DJ)	The application of rotation facilitated the determination of which job can be more productive	1	5	-0.732	0.582
	I am well informed about job rotation	1	5	-1.108	0.631
	Job rotation used by the company was effectively-known	1	5	-0.849	-0.150
	All job positions I have been rotated in were well fitted with my qualifications	1	5	-1.281	0.949
	The company has a uniform system of getting feedback for improvement during job rotation practice	1	5	-0.653	-0.782
	It increased my productivity	1	5	-0.528	0.196
	It helped to explore my interests and hidden potential	1	5	-0.093	-0.317
Develop Social Relation (DR)	Colleagues in different jobs within the company supported me when I was assigned to their departments for practice and learning	1	5	-1.433	1.852
	The application of rotation developed my social relationships	1	5	-1.535	2.720
	I am willing to work cooperatively with my colleagues and supervisors	1	5	-2.000	4.115
	During job rotation, my communication with colleagues and supervisors from other positions was satisfactory.	1	5	-1.689	3.312
Increase Knowledge (IK)	Job rotation improved my interpersonal skills	1	5	-1.642	2.333
	Job rotation enhanced my leadership skills	1	5	-1.141	0.740
	Job rotation increased my self-improvement	1	5	-1.244	1.305
	Job rotation enhanced my knowledge of company policies, procedures, and practices	1	5	-1.657	2.893

Table 4.1. *Continued*

Constructs	Items	Minimum	Maximum	Skewness	Kurtosis
	Job rotation improved my production knowledge	1	5	-1.496	2.058
	Job rotation improved my knowledge of business contact and network	1	5	-1.255	1.038
	Job rotation improved my knowledge of general/current issues	1	5	-1.499	2.000
	Job rotation improved my knowledge of other departments' roles	1	5	-1.832	3.037
	Job rotation improved my knowledge of the external environment of business	1	5	-1.476	1.932
	Job rotation supported my understanding of the organisational goals	1	5	-1.111	0.466
Challenges to Implementing Job Rotation (CH)	Experienced workers do not want to learn new types of work	1	5	0.867	0.002
	The rotating employee would be reluctant to return to their original position after being exposed to new ideas or responsibilities	1	5	0.079	1.209
	Physical problems of moving from one job to another	1	5	0.552	-0.635
	Unsuitable compensation policy	1	5	0.453	-0.845
	Education and training of employees in the requirements and tasks of new jobs	1	5	-0.139	0.950
	Inappropriate use of job rotation by management	1	5	0.619	-0.772
	Differences in skill levels among staff may be significant resulting in additional expense in upgrading staff or loss of productivity for some period	1	5	0.327	-0.976
	Difficulty of identifying appropriate jobs for each person in the company in the process of rotating	1	5	0.137	0.431
Job satisfaction (JS)	I am satisfied with my job	1	5	-1.782	2.929
	I receive adequate training to do my job well	1	5	-1.789	2.771
	I have a good feeling that my efforts will be appreciated	1	5	-1.720	2.462
	Using a compensation system increases my motivation	1	5	-1.714	2.778
	Performance evaluation induces my justice perceptions	1	5	-1.711	2.768
	The payment of salary is very close to my expectations	1	5	-1.784	2.822
	I use new technology to facilitate my works	1	5	-1.885	3.096

Table 4.1. *Continued*

Constructs	Items	Minimum	Maximum	Skewness	Kurtosis
	The relationship between my supervisors and me is very friendly	1	5	-2.000	3.344
	I have family-friendly policies to support my family	1	5	-1.952	3.437
Work engagement (WE)	I feel engaged with the work I do in my workplace	1	5	-1.513	2.302
	At my work, I feel bursting with energy	1	5	-1.592	2.509
	At my job, I feel strong and vigorous	1	5	-1.472	2.085
	I am enthusiastic about my job	1	5	-1.701	2.446
	My job inspires me	1	5	-1.759	2.815
	When I get up in the morning, I feel like going to work	1	5	-1.674	2.441
	I feel happy when I am working intensely	1	5	-1.574	2.349
	I am proud of the work that I do	1	5	-1.795	3.318
	I am immersed in my work	1	5	-1.806	3.352
	I get carried away when I am working	1	5	-1.653	2.397

Notes: DM= Decrease Monotony; PM= Preparation for Management; DJ= Determine Optimal Job; DR= Develop Social Relation; IK= Increase Knowledge; CH= Challenges of Implementing Job Rotation; JS= Job Satisfaction; WE= Work Engagement.

Source: *The Author*.

4.4 DEMOGRAPHIC PROFILE

This section presents the demographic profile of respondents in order to analyse their individual characteristics using descriptive statistics. There were three demographic characteristics, containing information on respondents' demographic characteristics. These include age, their highest level of education, and work experience. Each variable's frequency and percentage are supplied (see Table 4.2).

Table 4.2 Profile of survey respondents (N= 296)

	Freq.	%
Age		
< 30 years	10	3.4%
> 30 and < 40 years	51	17.2%
> 40 and < 50 years	156	52.7%
> 50 years	79	26.7%
Total	296	100
Highest Educational Level		
Bachelor	178	60.1%
Diploma	28	9.5%
Master	77	26%
PhD	13	4.4%
Total	296	100

Table 4.2. *Continued*

	Freq.	%
Work experience		
< 5 years	5	1.7%
> 5 and < 10 years	17	5.7%
> 10 and < 15 years	36	12.2%
> 15 years	238	80.4%
Total	296	100

Source: The Author.

4.4.1 Age

To collect information about the respondents' ages, the range value of the respondent's age was separated into four groups. According to the above-mentioned statistics, around 52.7% of respondents were between the ages of 40 and 50 years, while approximately 26.7% of the respondents were over the age of 50. The remaining senior staff are from the remaining age groups, with around 17.2% being between the ages of 30 and 40 years, and the remaining 3.4% being under the age of 30.

4.4.2 Highest Educational Level

The table describes the frequency and percentages of the highest educational level. It is worth noting that nearly 60.1% of all respondents had a bachelor's degree. 26% have a masters' degree, 4.4% have a PhD degree, and 9.5% have a diploma degree.

4.4.3 Work Experience

According to Table 4.2 more than two-thirds of the sample (80.4%) have work experience more than 15 years, followed by 12.2% of respondents who have work experience between 10 and 15 years, then 5.7% of respondents who have work experience between 5 and 10 years, and 1.7% of respondents who have 5 years work experience.

4.5 SUMMARY OF DESCRIPTIVE ANALYSIS

This section indicates how participants responded to survey questions relevant to the study model's variables (*job rotation*, *job satisfaction*, *work*

engagement). Participant responses were described using Frequencies, Percentage (%), Mean, and Standard Deviation (SD).

Table 4.3 The number of rotated senior staff, No. of rotations, type of rotation, No. of departments rotated in

Questions	Answer	Freq.	%
Have you been rotated within the company ever? (N= 322)	Yes	296	91.9
	No	26	8.1
	Total	**322**	**100**
If yes, how many times have you been rotated? (N= 296)	One	54	18.2
	Two	100	33.8
	Three	84	28.4
	Four	31	10.5
	Five	6	2
	More than five	21	7.1
	Total	**296**	**100**
How was your job rotated? (N= 296)	Within the same department	82	27.8
	Different department	107	36.1
	Both	107	36.1
	Total	**296**	**100**
How many departments have you rotated in your company? (N= 296)	One	73	24.7
	Two	151	51
	Three	53	17.9
	Four	9	3
	Five	5	1.7
	More than five	5	1.7
	Total	**296**	**100**

Source: *The Author*.

The results in the table 4.3 indicated that senior staff have been rotated for a number of times, ranging from 1 to more than 5 times *(18.2% "one time", 33.8% "two times", 28.4% "three times", 10.5% "four times", 2% "five times", and 7.1% "more than five times")*.

Companies resort to rotating their employees more than once in order to provide them with more skills, experience, and knowledge about a greater number of roles (Campion *et al*., 1994; Baro, 2012), as well as form a comprehensive view of the company to benefit from their employees in the future, whether in promotions or to bridge the deficit in the number of employees in a job or a department (Otto & Battaïa, 2017; Eriksson & Ortega, 2006).

In the same way, employees are rotated between more than one job as part of a career development plan for them (Järvi & Uusitalo, 2004). Significantly, companies rotate employees between a number of jobs as a requirement to adapt to the requirements of the work environment that

requires employees with diverse skills and the ability to perform more than one task, which enhances their performance (Campion *et al*., 1994).

In addition, this table indicated that there is a group of senior staff rotated within their department (27.8%). Relatedly, rotation between jobs or tasks within a department represents the first type of job rotation (within-functional rotation). Employees can be rotated between different jobs with a similar level of responsibility, or between similar jobs, or in the same specialty within the same department (Iluk & Iluk, 2017; Jassim, 2018).

In a similar manner, this table depicted that there is a group of senior staff rotated between departments (36.1%). Rotation between jobs or tasks between different departments represents the second type of job rotation (cross-functional rotation). This type of employee rotates between a number of jobs with different responsibilities or in different specialisations in different departments (Casad, 2012; Bennett, 2003).

Job rotation, *job satisfaction* and *work engagement* items are scored on a 5-point Likert scale as strongly disagree, disagree, neutral, agree, and strongly agree. Ranges and criteria of the 5-point Likert scale were illustrated (see Table 4.11).

Table 4.4 Ranges and criteria of 5-point Likert scale

Range	Criteria
4.20 – 5.00	Strongly agree
3.40 – 4.19	Agree
2.60 – 3.39	Neutral
1.80 – 2.59	Disagree
1.00 – 1.79	Strongly disagree

Source: Santos-Feliscuzo & Himang, 2011: 109.

4.5.1 Effects of Job Rotation

The results showed in the table 4.5 that rotating senior staff between different jobs, whether within the same department or between different departments, achieves many benefits, such as increasing senior staff's knowledge (administrative, technical, business) *(Mean= 4.26 "strongly agree")*, as well as supporting social relations *(Mean= 4.21 "strongly agree")* as a result of interaction and cooperation between different

employees, and expanding the circle of relationships due to senior staff's work with other colleagues after rotating them.

As well, the results showed that job rotation contributes to preparing senior staff for management in the future *(Mean= 3.99 "agree")* by providing them with many different skills and greater knowledge and placing the senior staff in the appropriate place for them *(Mean= 3.82 "agree")*, in addition to reducing boredom and monotony that result from repeating daily tasks for long periods *(Mean= 3.67 "agree")*.

Regarding job rotation and its role in reducing monotony, the results showed that job rotation leads to a reduction in monotony in work *(Mean= 3.75 "agree")*, as well as a reduction in job stress *(Mean= 3.58 "agree")*. This result is in line with Saravanan *et al.* (2017) who highlighted the relationship between job rotation, reducing monotony at work, and increasing work motivation, which leads to improving employees' performance and increasing productivity. Furthermore, avoiding roles with highly repetitive daily tasks contribute to increasing the individual's comfort and reducing stress and boredom at work (Aryanezhad *et al.*, 2009). In this vein, job rotation is considered an alternative method that organisations use to deal with repetitive work tasks to reduce monotony (Natalia *et al.*, 2020). As well, job rotation is sometimes used to deal with feelings of monotony and routine among employees as a result of the simplicity of the job or the repetition of the same work daily (Hsieh & Chao, 2004). Subsequently, job rotation plays a vital role in relieving the employees' monotony by assigning them new tasks and duties that release them from the routine tasks they are accustomed to daily (Azizi *et al.*, 2010).

As for job rotation and its role in preparing senior staff for management, the results indicated that job rotation enabled senior staff to become familiar with a number of jobs within companies *(Mean= 4.27 "strongly agree")*, develop their skills, reduce the need for holding specific and special training programs on new tasks, and thus reduced costs *(Mean= 3.80 "agree")*. The results revealed that the rotation contributed to motivating senior staff to

deal with new challenges at work *(Mean= 4.25 "strongly agree")* and to provide the opportunity for promotion *(Mean= 3.68 "agree")*, as well to supporting organisational development and change *(Mean= 3.96 "agree")*. This is reinforced in the senior staff's acquisition of new skills and knowledge that will enable them to assume management positions in the future.

This result was explained by Jassim (2018) and Seibert *et al.* (2001), who considered that job rotation gives employees the opportunity to grow, develop and acquire new skills and knowledge in a number of jobs that qualify them for advancement in the future. Job rotation is used to build employees, develop their skills and abilities, and motivate them for self-growth, which makes them more able to assume managerial positions. Meanwhile, job rotation is one of the important mechanisms through which employees can form a comprehensive view of the company, its departments, and its functions, which qualifies them for advancement as managers (Eguchi, 2005). Moreover, the acquisition of more technical, administrative, and business knowledge leads to the development of the employees' capabilities, which enhances their success in assuming positions within the organisation (Mohan & Gomathi, 2015).

Technical and administrative knowledge contributes to developing the future career of senior staff (Zin *et al.*, 2013). When employees perform a variety of tasks and exercise greater responsibilities through rotation, they gain many of the skills required to take up other positions in their organisation (Dhanraj & Parumasur, 2014; Ondiba *et al.*, 2021).

Relatedly, potential leaders see job rotation as an important tool for acquiring the skills needed for a promotion, as rotation contributes to enhancing their capabilities, experience, and knowledge (Goff, 1999; Baro, 2012). With regard for the relationship between job rotation and career development for employees, job rotation not only provides rotated employees with some managerial skills, and more familiarity with the organisation's activities but also provides them with the skills necessary to

perform many tasks during the rotation period between various jobs within the organisation. Therefore, job rotation is a way to build an employee's future career (Zin *et al.*, 2021). With this in mind, job rotation contributes to improving the skills and capabilities of employees, which leads to a clear improvement in their performance of tasks (Saravanan *et al.*, 2017). Job rotation also helps in increasing experiences, developing their career path, acquiring new skills and knowledge, increasing effectiveness, supporting job development, and providing improved levels of performance, which supports opportunities for promotion and management positions (Campion *et al.*, 1994).

As for job rotation and its role in determining the optimal job, the results of this study highlighted that the senior staff have knowledge of job rotation *(Mean= 3.93 "agree")* and that the jobs they were rotated to match their abilities and qualifications *(Mean= 4.07 "agree")*. In addition, the companies in which they work receive feedback from them for the future development of job rotation processes and practices *(Mean= 3.58 "agree")*, which helps to put senior staff in jobs that suit their abilities, so that they are more effective and productive, and their performance levels develop. The success of the organisation also depends on the employee's productivity at work, with the possibility of increasing employee productivity if they are properly placed in jobs that match their skills. If they are not appointed to jobs in which they are competent, it will cause a problem for both the employees and the organisation (Adu-Oppong *et al.,* 2019).

Importantly, job rotation can be used to obtain information related to the capabilities and skills of employees who have been rotated to their new jobs, and they can then benefit from this by being placed in appropriate jobs (Jassim, 2018; Bennett, 2003). Relatedly, an organisation can monitor the performance of rotated employees and assign them to appropriate jobs determined by their skills and abilities, where they will be more productive (Eguchi, 2005; Eriksson & Ortega, 2006). Evaluating the employees'

performance during their rotation helps determine roles in which they can achieve high performance (Jaturanonda *et al.,* 2006).

Regarding job rotation and its role in supporting social relations, the results of this study depicted that job rotation helped develop social relations *(Mean= 4.03 "agree")* among senior staff by increasing their willingness to work cooperatively with their colleagues and supervisors *(Mean= 4.37 "strongly agree")*, and effective communication with colleagues and supervisors in other jobs *(Mean= 4.26 "strongly agree")*, in addition to the support that senior staff who were rotated received from senior employees within the department *(Mean= 4.16 "agree")*. Organisations adopt job rotation to provide employees with opportunities to support each other, which enhances human relations between them (Hsieh & Chao, 2004).

Regarding job rotation and its role in increasing knowledge; the results of this study reported that job rotation contributes to enhancing the knowledge of senior staff by developing their interpersonal skills *(Mean= 4.37 "strongly agree")*, leadership skills *(Mean= 4.14 "agree")*, and self-development *(Mean= 4.20 "strongly agree")*, as well as enhancing technical knowledge by developing senior staff's knowledge of production *(Mean= 4.29 "strongly agree")*, company policies and practices *(Mean= 4.31 "strongly agree")*, and knowledge of business contacts and network *(Mean= 4.20 "strongly agree")*. Furthermore, job rotation has contributed to enhancing business knowledge by enhancing employees' knowledge of current issues *(Mean= 4.30 "strongly agree")*, tasks of other departments *(Mean= 4.39 "strongly agree")*, and the external environment *(Mean= 4.29 "strongly agree")*, as well as increasing understanding of organisational goals *(Mean= 4.09 "agree")*.

Job rotation leads to increasing the employees' knowledge by forming a broad view of the activities and tasks of the organisation, knowledge of different aspects of work, work mechanisms, work problems and how to treat them (Allwood & Lee, 2004; Mohan & Gomathi, 2015). As well, new knowledge can be acquired in a number of jobs within the organisation by

working in more than one job or in more than one department (Bennett, 2003). Similarly, job rotation provides knowledge of multiple aspects of work (de Weerd-Nederhof *et al.,* 2002). It leads to increasing the employees' knowledge of working conditions in different jobs and departments, and the effects of internal and external factors at work (Adomi, 2006). For instance, the transfer of employees between different jobs and tasks within the organisation gives them the opportunity not only to acquire new knowledge but also to create, exchange, and apply knowledge at work, which supports the organisation's ability to achieve its goals (Faegri *et al.,* 2010). Significantly, job rotation is one of the development policies within organisations, which aims to provide employees with knowledge and skills that help them perform their tasks efficiently, and adapt to changes in the work environment (Whittington, 2004). It is used as a training tool to provide employees with more knowledge that allows them to work efficiently and develop their job performance (Al-Nashmi & Almoayed, 2015). Besides, job rotation supports the education process by allowing employees to acquire diverse knowledge and skills, which contributes to the presence of multi-skilled employees, who can be used in more than one job, to ensure that they perform better in these jobs (Zin *et al*., 2013).

Table 4.5. shows the descriptive statistics of the five main effects of *job rotation*.

Table 4.5 Descriptive statistics of effects of job rotation items (N= 296)

Items	Mean	Criteria	Standard deviation
Decrease Monotony	**3.67**	**Agree**	**1.13**
The application of rotation reduced the monotony experienced in my work	3.75	Agree	1.38
It reduced my work stress	3.58	Agree	1.18
Preparation for Management	**3.99**	**Agree**	**0.748**
Job rotation helped me to know about various roles in my company and make me well skilled for the next step	4.27	Strongly agree	0.968
Job rotation provided me a chance for promotion	3.68	Agree	0.953
It contributed to organisational development and change	3.96	Agree	0.891
Job rotation contributed in reducing financial costs of training	3.80	Agree	1.08

Table 4.5. *Continued*

Items	Mean	Criteria	Standard deviation
Job rotation motivated me to deal with new challenges in my work	4.25	Strongly agree	0.966
Determine Optimal Job	**3.82**	**Agree**	**0.954**
I am well informed about job rotation	3.93	Agree	1.08
Job rotation used by the company was effectively-known	3.71	Agree	1.17
All job positions I have been rotated in were well fitted with my qualifications	4.07	Agree	1.11
The company has a uniform system of getting feedback for improvement during job rotation practice	3.58	Agree	1.33
Develop Social Relation	**4.21**	**Strongly agree**	**0.858**
Colleagues in different jobs within the company supported me when I was assigned to their departments for practice and learning	4.16	Agree	1.01
The application of rotation developed my social relationships	4.03	Agree	0.963
I am willing to work cooperatively with my colleagues and supervisors	4.37	Strongly agree	0.962
During job rotation, my communication with colleagues and supervisors from other positions was satisfactory.	4.26	Strongly agree	0.907
Increase Knowledge	**4.26**	**Strongly agree**	**0.875**
Administrative knowledge	***4.24***	***Strongly agree***	***0.917***
Job rotation improved my interpersonal skills	4.37	Strongly agree	0.934
Job rotation enhanced my leadership skills	4.14	Agree	1.03
Job rotation increased my self-improvement	4.20	Strongly agree	0.952
Technical knowledge	***4.27***	***Strongly agree***	***0.902***
Job rotation enhanced my knowledge of company policies, procedures, and practices	4.31	Strongly agree	0.919
Job rotation improved my production knowledge	4.29	Strongly agree	0.940
Job rotation improved my knowledge of business contact and network	4.20	Strongly agree	1.00
Business knowledge	***4.27***	***Strongly agree***	***0.884***
Job rotation improved my knowledge of general/current issues	4.30	Strongly agree	0.932
Job rotation improved my knowledge of other departments' roles	4.39	Strongly agree	0.967
Job rotation improved my knowledge of the external environment of business	4.29	Strongly agree	0.947
Job rotation supported my understanding of the organisational goals	4.09	Agree	1.08
Effect of job rotation	**3.99**	**Agree**	**0.697**

Source: *The Author*.

4.5.2 Challenges to Implementing Job Rotation

Table 4.6. depicts the descriptive statistics of the challenges of implementing job rotation. Table 4.6. clarifies that respondents' answers range from 'Neutral (3.22) on "Education and training of employees on the requirements and tasks of new jobs" to disagree (2.16) on "Experienced workers do not want to learn new types of work". The results revealed that there are three challenges that could hinder the rotation of employees in the oil and gas companies in Qatar to some extent. The first challenge

represented educating and training senior staff on the requirements and tasks of new jobs *(Mean= 3.22 "neutral")*. This challenge was identified by Jonsson (1988) who indicated that there are some organisations that have faced relative difficulty in training the employees who will be rotated, on how to perform and accomplish the tasks required of them in their new jobs. Therefore, there is a difficulty in providing employees with new skills and knowledge to perform the tasks relating to their new work, which hinders the successful implementation of job rotation.

The second challenge is the difficulty of identifying suitable jobs for each individual in the company during the rotation process *(Mean= 3.12 "neutral")*, which was determined according to Salih & Al (2017) and Triggs & King (2000). They stated that the organisation might face difficulty in determining the most suitable jobs for the employees to be rotated, due to the lack of knowledge of the skills and capabilities of the senior staff and their compatibility with the jobs to which they will be transferred. Meanwhile, the requirements of the new jobs that the senior staff will move to may not be commensurate with their specialisation, which leads to their failure to complete the new tasks.

The third challenge is the senior staff's reluctance to return to his original job after being exposed to new ideas or responsibilities *(Mean= 3.04 "neutral")*. This challenge was explained by Eltahir (2018) who revealed that, when employees are rotated, they acquire new skills, experience, and knowledge that makes them not want to return to their previous jobs. Rather, they prefer to continue in new jobs in which they have adapted to the requirements and become more able to perform their tasks efficiently. Furthermore, employees may not want to return to their previous jobs due to their desire for promotion after they have formed a broad vision of the organisation’s activities and tasks and acquired skills and experiences that distinguish them from employees who have not been rotated.

Table 4.6 Descriptive statistics of challenges of implementing job rotation items (N= 296)

Items	Mean	Criteria	Standard deviation
Experienced workers do not want to learn new types of work	2.16	Disagree	1.12
The rotating employee would be reluctant to return to their original position after being exposed to new ideas or responsibilities	3.04	Neutral	0.820
Physical problems of moving from one job to another	2.23	Disagree	1.09
Unsuitable compensation policy	2.32	Disagree	1.20
Education and training of employees in the requirements and tasks of new jobs	3.22	Neutral	0.796
Inappropriate use of job rotation by management	2.26	Disagree	1.25
Differences in skill levels among staff may be significant resulting in additional expense in upgrading staff or loss of productivity for some period	2.51	Disagree	1.19
Difficulty of identifying appropriate jobs for each person in the company in the process of rotating	3.12	Neutral	0.873

Source: *The Author*.

4.5.3 Job Satisfaction

Table 4.7. reveals the descriptive statistics of *job satisfaction*. In terms of *job satisfaction*, Table 4.7. shows that respondents' answers range from Agree,4.35, on "The relationship between my supervisors and me is very friendly" to 4.16 on "Using a compensation system increases my motivation".

Table 4.7 Descriptive statistics of job satisfaction items (N= 296)

Items	Mean	Criteria	Standard deviation
I am satisfied with my job	4.17	Agree	1.05
I receive adequate training to do my job well	4.19	Agree	1.08
I have a good feeling that my efforts will be appreciated	4.18	Agree	1.08
Using a compensation system increases my motivation	4.16	Agree	1.02
Performance evaluation induces my justice perceptions	4.21	Strongly agree	1.00
The payment of salary is very close to my expectations	4.23	Strongly agree	1.04
I use new technology to facilitate my works	4.32	Strongly agree	1.03
The relationship between my supervisors and me is very friendly	4.35	Strongly agree	1.07
I have family-friendly policies to support my family	4.31	Strongly agree	1.04
Level of job satisfaction	4.23	Strongly agree	0.931

Source: *The Author*.

4.5.4 Work Engagement

Table 4.8. shows the descriptive statistics of *work engagement*. For *work engagement*, Table 4.8. indicates that participants have answers ranging from Agree, 4.22, on "I am proud of the work that I do" to 4.10 on "At my work, I feel bursting with energy".

Table 4.8 Descriptive statistics of work engagement items (N= 296)

Items	Mean	Criteria	Standard deviation
I feel engaged with the work I do in my workplace	4.11	Agree	0.971
At my work, I feel bursting with energy	4.10	Agree	0.997
At my job, I feel strong and vigorous	4.11	Agree	0.974
I am enthusiastic about my job	4.17	agree	1.07
My job inspires me	4.22	Strongly agree	1.03
When I get up in the morning, I feel like going to work	4.20	Strongly agree	1.03
I feel happy when I am working intensely	4.19	agree	0.968
I am proud of the work that I do	4.22	Strongly agree	0.983
I am immersed in my work	4.21	Strongly agree	0.990
I get carried away when I am working	4.18	Agree	1.05
Level of work engagement	4.17	agree	0.876

Source: *The Author*.

4.6 MEASUREMENT MODEL ASSESSMENT

4.6.1 CONFIRMATORY FACTOR ANALYSIS (CFA)

The initial CFA was carried out on the default (proposed) model, which consisted of three variables with 51 items (See appendix C – initial model). These three variables are: job rotation, job satisfaction, and work engagement. The initial model is the starting point of the SEM analysis. It is typically based on prior theoretical knowledge, existing literature, or initial hypotheses. The initial model represents the researcher's initial conceptualisation of the relationships among variables in the study. It specifies the directional paths and associations between latent variables and observed variables, as well as the proposed relationships between latent variables themselves. The initial model is estimated and tested to assess its fit to the data and to identify potential issues, including model misspecification or poor fit. CFA analysis was used to examine each variable once it had been loaded with its measurement item. For CFA and the structural model, at least four model fit tests should be performed as recommended by Hair *et al*. (2010).

4.6.1.1 Goodness-of-Fit Indices

The following goodness-of-fit indices were used in this study: 1) Normed Chi-square (CMIN/DF), 2) Goodness-of-Fit Index (GFI), Adjusted

Goodness-of-Fit Index (AGFI), 3) Incremental Fit Index (IFI), Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), and 4) Root Mean Square Error of Approximation (RMSEA). As shown in Table 4.9., CMIN/DF had an acceptable fit of 3.124, which was greater than 1.0 and less than 5.0. The findings show that GFI (0.615), AGFI (0.576), IFI (0.830), TLI (0.819), and CFI (0.829) provided a poor fit. A good fit is recognisable when the values of GFI, AGFI, IFI, TLI, and CFI are ≥ 0.90 (Hair *et al.*, 2010). The required criterion of ≤ 0.080 is not satisfied by RMSEA, which yields a poor-fit result of 0.085.

Generally, the results of the initial CFA show that several model fit indices have insufficient values since they fall below the lowest required threshold. As a result, further clarification of the model is necessary. Clarification of the model can be accomplished by assigning the indicators to new factors or eliminating them, as well as by tying the indicator to numerous factors or employing correlated measurement errors (Byrne, 2013).

Table 4.9 Model-fit indices for initial CFA (N= 296)

Model-fit indices	Recommended	Default Model
CMIN/DF	≥ 1.0 and ≤ 5.0	3.124
GFI	≥ 0.90	0.615
AGFI	≥ 0.90	0.576
IFI	≥ 0.90	0.830
TLI	≥ 0.90	0.819
CFI	≥ 0.90	0.829
RMSEA	≤ 0.080	0.085

Notes: CMIN/DF=Normed chi-square, GFI= Goodness-of-Fit Index, AGFI= Adjusted Goodness-of-Fit Index, IFI= Incremental Fit Index, TLI= Tucker-Lewis Index, CFI= Comparative Fit Index, RMSEA= Root Mean Square Error of Approximation.

Source: *The Author*.

Additionally, the goodness-of-fit model may be improved by examining the modification indices, specification searches, and standardised residuals (Hair *et al.*, 2010). This study established the model fit by performing these steps and removing certain items from the constructs: *decrease monotony*, *preparation for management*, and *determine optimal job*. Another test was performed after the problematic items were eliminated from the initial model. The final CFA findings were good (see Table 4.10.).

Table 4.10 Model-fit indices for final CFA (N= 296)

Model-fit indices	Recommended	Default Model
CMIN/DF	≥ 1.0 and ≤ 5.0	1.785
GFI	≥ 0.90	0.917
AGFI	≥ 0.90	0.909
IFI	≥ 0.90	0.952
TLI	≥ 0.90	0.947
CFI	≥ 0.90	0.952
RMSEA	≤ 0.80	0.052

Notes: CMIN/DF= Normed chi-square, GFI= Goodness-of-Fit Index, AGFI= Adjusted Goodness-of-Fit Index, IFI= Incremental Fit Index, TLI= Tucker-Lewis Index, CFI= Comparative Fit Index, RMSEA= Root Mean Square Error of Approximation.

Source: *The Author*.

The final model (Appendix D) is the refined and modified version of the initial model (Appendix C). It is developed through a series of model modifications and iterations based on statistical analyses and theoretical considerations. The modifications aim to improve the model fit by adjusting the relationships among variables, including adding or removing paths, allowing for correlated errors, or incorporating additional variables. The final model is the result of an iterative process of model evaluation, modification, and re-evaluation until an acceptable fit to the data is achieved. The final CFA model, which included 44 items after deleting 7 items from the first part of the survey the addressed effects of job rotation as follows: three items from decrease monotony (DM3, DM4, DM5), one item from preparation for management (PM3), and three items from determine optimal job (DJ1, DJ6, DJ7) (See appendix D), showed that all of the values were a satisfactory fit for the measurement model. All variables included at least four components (items) apart from DM which included two components (items). Research indicates that having two components in a variable (in SEM) is considered sufficient in exploratory research (Little, *et al*, 1999). The CMIN/DF findings indicated a value of 1.785, which satisfied the specified requirements of ≥ 1.0 and ≤ 5.0. The GFI rose to 0.917, indicating a good fit. AGFI, likewise, produced a satisfactory fit of 0.909, exceeding the minimal criteria. The IFI, TLI, and CFI readings are 0.952, 0.947, and 0.952 respectively, and all are above the required threshold of ≥ 0.90. With a number of 0.052, RMSEA met the desired value of ≤ 0.080.

4.6.1.2 Reliability

Reliability is described as the degree to which a construct or a group of constructs are consistent with what it/they are designed to assess (Hair *et al.*, 2010). Thus, reliability is also known as consistency, and it is associated with the questionnaire's robustness, specifically whether or not it delivers consistent findings at different times and under varied conditions. As a result, reliability is a measure of stability. Internal consistency, which requires that the separate items or indicators of the scale measure the same construct, is widely used to assess the reliability. The replies should have the same general meaning for each question, making them strongly inter-correlated (Saunders *et al.*, 2009). The instrument's internal consistency was evaluated by using the alpha value, also known as Cronbach's alpha (Shrestha, 2021). The Cronbach's alpha values are considered outstanding if they are more than 0.90, while the values between 0.70 and 0.90 are considered high. The values between 0.50 and less or equal to 0.70 are considered moderate, then the values which are less or equal to 0.50 are considered low (El-Haddadeh, 2020). All of the variables have Cronbach's alpha values more than the suggested threshold of 0.70, showing good levels of internal consistency reliability (Vinzi *et al*., 2010; Hair *et al*., 2021) (see Table 4.11.).

Table 4.11 Internal consistency reliability (N= 296)

Constructs	Cronbach's Alpha
DM	0.714
PM	0.827
DJ	0.823
DR	0.915
IK	0.974
JR	0.952
JS	0.966
WE	0.964

Notes: DM= Decrease Monotony; PM= Preparation for Management; DJ= Determine Optimal Job; DR= Develop Social Relation; IK= Increase Knowledge; JR= Job Rotation; JS= Job Satisfaction; WE= Work Engagement.

Source: The Author.

4.6.1.3 Validity

In research, validity is crucial. Validity is about more than just measurement accuracy. It has a substantial impact on the effectiveness of the findings

(Yilmaz, 2013). The validity of an instrument relates to its capacity to assess what is intended to be assessed, i.e., whatever is revealed using a scale accurately represents the actuality of what the study is assessing (Heale & Twycross, 2015; Saunders *et al.*, 2009). Convergent and discriminant validity were employed in this study to validate the variable measurements.

4.6.1.3.1 Convergent Validity

Convergent validity is the extent to which the items of a construct are connected to one another. When the construct's items are substantially correlated, the scale has high convergent validity (Voorhees *et al.*, 2016). Three tests are required to assess convergent validity: factor loading, Average Variance Extracted (AVE), and composite reliability (Shrestha, 2021). All standardised regression weights for factor loading should be greater than 0.50, and all critical ratios (t-values) should be greater than 1.96, as recommended by Hair *et al.* (2010). AVE computes the total amount of variation in the signs that the latent construct accounts for. The AVE value should be more than 0.5 as a general rule (Shrestha, 2021).

Furthermore, Composite Reliability (CR) is the degree to which a group of indicators shares in the assessment of a construct (Götz *et al.*, 2010). It is a measure of the scale's homogeneity and internal consistency (Streiner, 2003). Internal consistency is measured by CR, which should be more than 0.70. (Bagozzi & Yi, 1988). Table 4.12. demonstrates that the factor loadings of all components (items) in the final measurement model reached the minimal cut-off value of 0.50, suggesting that internal consistency was achieved (Hair *et al.*, 2021). In terms of convergent validity, all CR values were more than the 0.70 cut-off point, and all AVE values were greater than the 0.50 cut-off point (Fornell & Larcker, 1981). As a consequence, the measurement model was found to be sufficient in terms of reliability and convergent validity.

Table 4.12 Convergent validity (N= 296)

Constructs/Items	Factor loading	Average Variance Extracted (AVE)	Composite reliability (CR)
DM		0.564	0.721
DM1	0.784		
DM2	0.716		
PM		0.513	0.838
PM1	0.801		
PM2	0.614		
PM4	0.724		
PM5	0.574		
PM6	0.833		
DJ		0.536	0.822
DJ2	0.714		
DJ3	0.723		
DJ4	0.803		
DJ5	0.683		
DR		0.737	0.918
DR1	0.832		
DR2	0.808		
DR3	0.924		
DR4	0.865		
IK		0.794	0.975
IK1	0.909		
IK2	0.883		
IK3	0.917		
IK4	0.937		
IK5	0.918		
IK6	0.873		
IK7	0.893		
IK8	0.899		
IK9	0.913		
IK10	0.752		
JS		0.731	0.961
JS1	0.861		
JS2	0.856		
JS3	0.840		
JS4	0.835		
JS5	0.815		
JS6	0.864		
JS7	0.872		
JS8	0.877		
JS9	0.877		
WE		0.711	0.961
WE1	0.828		
WE2	0.843		
WE3	0.835		
WE4	0.847		
WE5	0.850		
WE6	0.809		
WE7	0.847		
WE8	0.871		
WE9	0.863		
WE10	0.836		

Notes: DM= Decrease Monotony; PM= Preparation for Management; DJ= Determine Optimal Job; DR= Develop Social Relation; IK= Increase Knowledge; JS= Job Satisfaction; WE= Work Engagement; AVE= Average Variance Extracted; CR= Composite Reliability.

Source: *The Author*.

4.6.1.3.2 Discriminant Validity

The extent to which a construct is actually distinct from other constructs is referred to as discriminant validity (Hair *et al.*, 2021). The square root of the AVE values is compared to the estimated link between constructs to determine discriminant validity (Franke & Sarstedt, 2019). If the square root of the AVE for a construct is greater than the estimated link between that construct and all other constructs, evidence of discriminant validity is provided (Henseler *et al.*, 2015). AVE was larger than the squared correlation estimates for all constructs, indicating a significant level of discriminant validity (see Table 4.13.).

Table 4.13 Discriminant validity (N= 296)

	DM	PM	DJ	DR	IK	JS	WE
DM	***0.751***						
PM	0.481	***0.717***					
DJ	0.523	0.494	***0.732***				
DR	0.415	0.702	0.525	***0.858***			
IK	0.536	0.695	0.568	0.670	***0.891***		
JS	0.145	0.101	0.118	0.319	0.169	***0.855***	
WE	0.150	0.112	0.106	0.239	0.122	0.703	***0.843***

Notes: DM= Decrease Monotony; PM= Preparation for Management; DJ= Determine Optimal Job; DR= Develop Social Relation; IK= Increase Knowledge; JS= Job Satisfaction; WE= Work Engagement.

Source: *The Author*.

Similarly, “a new HeteroTrait-MonoTrait ratio (HTMT) criteria for measuring discriminant validity is based on the multitrait-multimethod matrix, that is the average of the heterotrait-hetero method correlations (i.e., the correlations of indicators across constructs measuring different phenomena), relative to the average of the monotrait-hetero method correlations (i.e., the correlations of indicators within the same construct)” (Henseler *et al.*, 2015; 121). A correlation value less than 0.85 has been proposed by the new HTMT criteria for proving discriminant validity (Roemer *et al.*, 2021). A threshold value of 0.90, on the other hand, has been proposed to demonstrate discriminant validity (Ab Hamid *et al.*, 2017). The HTMT values displayed are less than the threshold value of 0.90, indicating that discriminant validity has been established (see Table 4.14.).

Table 4.14 The HeteroTrait-MonoTrait ratio (HTMT) values

	DM	PM	DJ	DR	IK	JS	WE
DM							
PM	0.520						
DJ	0.533	0.516					
DR	0.418	0.713	0.505				
IK	0.542	0.691	0.549	0.681			
JS	0.152	0.121	0.099	0.330	0.174		
WE	0.158	0.131	0.097	0.242	0.122	0.680	

Notes: DM= Decrease Monotony; PM= Preparation for Management; DJ= Determine Optimal Job; DR= Develop Social Relation; IK= Increase Knowledge; JS= Job Satisfaction; WE= Work Engagement.

Source: *The Author*.

4.6.2 Test of Multicollinearity

Multicollinearity is the evaluation of "the extent to which a variable can be explained by the other variables in the analysis" (Hair *et al.,* 2010: 93). The objective of measuring multicollinearity is to look for significant levels of collinearity among predictor variables (in this study, *job rotation* is considered as an independent variable for *job satisfaction* and *work engagement,* and *job satisfaction* is considered as an independent variable for *work engagement*), that might occur when two variables in the model are highly linked, causing a bias in the path coefficient (Hair *et al.*, 2021). This means that multicollinearity limits the magnitude of the regression value and makes understanding the explanation of each independent variable harder (Field, 2009). Assessing multicollinearity involves separate examination of each set of predictor constructs for each subpart of the structural model, and Variance Inflation Factors (VIF) values should be less than 5, as recommended by Hair *et al.*, (2021). The VIF estimation of the structural model suggests that all VIF values are below the value of 5 (see Table 4.15.). Thus, no collinearity is found in the structural model.

Two approaches were used to assess multicollinearity. First, looking for links between independent variables that are greater than 0.80. Second, the VIF and tolerance levels for the variables are calculated (TOL) (Tabachnick & Fidell, 2007). Tolerance refers to "an indicator of how much of the variability of the specified independent variable is not explained by the other independent variables in the model, whereas VIF is the inverse of the tolerance effect" (Pallant, 2010: 158). VIF values should be less than

5 indicating that there are no collinearity problems between a specific variable with other variables (Hair *et al*., 2021). The regression model yielded VIF values ranging from 1.127 to 2.225, which were less than 5, and TOL values ranging from 0.449 to 0.887, which were greater than 0.1. As a result, there is no collinearity in the structural model (see Table 4.15.).

Table 4.15 Test of multicollinearity (N= 296)

Variables	Collinearity Statistics	
	Tolerance	VIF
DM	0.728	1.373
PM	0.502	1.993
DJ	0.692	1.446
DR	0.455	2.198
IK	0.449	2.225
JS	0.887	1.127

Notes: DM= Decrease Monotony; PM= Preparation for Management; DJ= Determine Optimal Job; DR= Develop Social Relation; IK= Increase Knowledge; JS= Job Satisfaction.

Source: *The Author*.

4.7 TEST OF HYPOTHESES

The structural model in SEM identifies the connections between latent (unobserved) variables. As a result, the structural method enables defining how specific latent variables impact changes in the values of other latent variables in the model, either directly or indirectly (Byrne, 2013). SEM has been regarded as the most acceptable analytical approach for this sort of analysis (Becker *et al.*, 2012; Hair *et al.*, 2012). SEM is a statistical modelling technique (multivariate technique) that analyses complicated interactions between numerous variables or structures using path analysis (Schreiber *et al.*, 2006). SEM is a statistical technique for defining and evaluating linear connection models between variables (Heck & Thomas, 2020). To assess the study's hypotheses, SEM incorporates path analysis (Violato & Hecker, 2007). SEM is very useful for analysing inferential data and testing hypotheses where the pattern of interconnections between the study's variables is predetermined and based on existing theory (Nyhan, 2000). SEM is commonly used to examine the causal connections between variables. It enables the simultaneous measurement of a variety of variables and their interrelationships (Lei & Wu, 2007). This section will investigate the relationships between the study's variables using the

AMOS v. 28 software programme and maximum likelihood estimation. Firstly, the hypotheses regarding the variables' direct relationships are estimated. Secondly, the role of *job satisfaction* in mediating the relationship between *job rotation* and *work engagement* is investigated.

4.7.1 Hypotheses Testing of Direct Relationship

The study hypotheses are tested by analysing the path coefficient of each association. All hypotheses were tested using the standardised estimate, critical ratios, and p-value. The Crucial Ratio (CR, t- value) is calculated by dividing the Regression Weight Estimate by the Standard Error (SE). The link is 'Not significant' when P > 0.05; "Significant" when P < 0·05, and "highly significant" when P < 0·01 (Lieber, 1990). Path estimates for the hypotheses in this study are presented below (see Table 4.16., 4.17., and 4.18.).

H1: Job rotation has a positive relationship with work engagement

The first hypothesis investigated the relationship between *job rotation* and *work engagement*. It was hypothesised that *job rotation* would have a positive relationship with *work engagement*. According to the findings, the paths from *job rotation* to *work engagement* were both positive and statistically significant (Estimate (β) = 0.191, p < 0.01) (see Table 4.16). As a result, Hypothesis 1 was supported.

Table 4.16 The relationship between job rotation and work engagement measured using path coefficient (N= 296)

Path	Estimate	Standard Error	Critical Ratio t-value	P value	Result
Job rotation → work engagement	0.191	0.074	2.581	0.003	Highly significant

Source: *The Author*.

H2: Job rotation has a positive relationship with job satisfaction

The second hypothesis evaluated the direct relationship between *job rotation* and *job satisfaction*. *Job rotation* was thought to have a positive relationship with *job satisfaction*. The findings revealed positive and significant paths from *job rotation* to *job satisfaction* (Estimate (β) = 0.236, p < 0.01) (see Table 4.17). Hence, Hypothesis 2 was supported.

Table 4.17 The relationship between job rotation and job satisfaction measured using path coefficient (N= 296)

Path	Estimate	Standard Error	Critical Ratio t-value	P value	Result
Job rotation → job satisfaction	0.236	0.082	2.878	0.001	Highly significant

Source: *The Author*.

H3: Job satisfaction has a positive relationship with work engagement

The third hypothesis looked into the relationship between *job satisfaction* and *work engagement*. It was predicted that *job satisfaction* would have a positive relationship with *work engagement*. The findings showed that the path from *job satisfaction* to *work engagement* was both highly positive and statistically highly significant (Estimate (β) = 0.668, p <0.01) (see Table 4.18). So, Hypothesis 3 was supported.

Table 4.18 The relationship between job satisfaction and work engagement measured using path coefficient (N= 296)

Path	Estimate	Standard Error	Critical Ratio t-value	P value	Result
Job satisfaction → work engagement	0.668	0.050	13.360	0.001	Highly significant

Source: *The Author*.

4.7.2 Testing of Mediation

Mediation is described as a process that represents a chain reaction that begins with an independent variable and leads to a mediator variable, which leads to a dependent variable (Fiedler *et al.*, 2011). Statistical approaches for testing mediation have recently gained prominence (Rasoolimanesh *et al.*, 2021). Mediation analysis is significant because it provides extensive interpretations of the causal linkages between groups of variables (Wu & Zumbo, 2008), and advances beyond a purely descriptive knowledge of the interactions between variables to a more functional understanding of the interaction between variables (Craver, 2006). The mediation relationship model can help to answer important questions that cannot always be answered by analysing the direct relationship (Bollen, 1989). This is significant in this study, which intends to

examine the function of a mediator in investigating the link between independent and dependent variables in order to give a more accurate description and explanation of relationships.

The successful usage of the mediation approach is best done when there is a strong association between the predictor and the dependent and the mediator variables (Baron & Kenny, 1986). The mediation approach is outlined in order to test mediation hypotheses. This approach determines if the independent variable has a link with the dependent variable as a result of one or more intervening variables or mediators (Rucker *et al.*, 2011; Preacher & Hayes, 2008). In other words, mediation or indirect relationships emerge when an independent variable has a specific relationship with a dependent variable through the use of a mediator variable (Preacher & Kelley, 2011). In this regard, mediator variables are critical in mediating the link between two variables (MacKinnon & Fairchild, 2009).

When examining the mediator, there are two relationships to consider: direct relationship and indirect relationship. The direct relationship is the link that occurs directly from the independent variable to the dependent variable, whereas the indirect relationship is the link that occurs indirectly through the mediating variable (Awang, 2012).

To know if the mediator variable plays a role in the relationship between the independent variable and the dependent variable, Awang (2012) revealed that the independent variable has a significant direct relationship with the dependent variable and that the independent variable has a significant direct relationship with the mediator variable. Furthermore, the mediator variable has a significant direct relationship with the dependent variable. When the mediator variable is introduced into the model, the direct relationship between the independent variable and the dependent variable is decreased since part of the relationship has been moved through the mediator. If the mediation relationship is decreased but remains significant, it is referred to as “partial mediation”. However, if the direct relationship is

decreased and no longer significant, the mediation is referred to as “complete/full mediation”. Table 4.16. shows the simple relationship between the independent variable (*job rotation*) and the dependent variable (*work engagement*). Table 4.16. demonstrates that the Estimate is 0.191 and that *job rotation* has highly significant relationship with *work engagement* (p-value < 0.05).

The mediator variable was then included in the model. Estimate is lowered from 0.191 to 0.034 when the mediator variable is included in the model, as seen in Table 4.19. The direct relationship with *work engagement* is no longer significant (p-value = 0.495). Furthermore, *job rotation* has a significant relationship with the mediator variable (*job satisfaction*), and the mediator variable (*job satisfaction*) has a significant relationship with the dependent variable (*work engagement*) (see Table 4.16). The type of mediation here is known as “complete/full mediation,” because the direct relationship between *job rotation* and *work engagement* is no longer significant when *job satisfaction* is included in the model (see Table 4.19). Thus, *job rotation* has an indirect relationship with *work engagement* via the mediator variable of *job satisfaction*. So, Hypothesis 4 was supported. Table 4.20 summarises the hypotheses testing.

Table 4.19 Results of the mediation model (N= 296)

Path	Estimate	Standard Error	Critical Ratio t-value	P value	Result
Job rotation → work engagement	0.034	0.058	0.586	0.495	Not Significant

Source: *The Author*.

Table 4.20 Results of hypotheses test

Hypotheses	Result
H1: Job rotation has a positive relationship with work engagement	Supported
H2: Job rotation has a positive relationship with job satisfaction	Supported
H3: Job satisfaction has a positive relationship with work engagement	Supported
H4: Job satisfaction mediates the relationship between job rotation and work engagement	Supported

Source: *The Author*.

4.7.3 Control Variables

Prior studies have shown that age, education, and work experience are connected to *job satisfaction* (e.g., Hickson & Oshagbemi, 1999) and *work engagement* (e.g., Pitt-Catsouphes & Matz-Costa, 2008). Accordingly, the relationship of the three control variables was tested on the path coefficients. The model's control variables were added to the model by linking them to *job satisfaction* and *work engagement*. However, age has no relationship with *job satisfaction*, according to the findings. This finding is in line with Sarker *et al.* (2003) who clarify that there is no significant relationship between age and *job satisfaction*, while Chileshe & Haupt (2010), Hickson & Oshagbemi (1999), Ang *et al.* (1993) and Gyekye & Haybatollahi (2015) show the opposite result, as they demonstrate that age has a significant relationship with *job satisfaction*. Furthermore, our findings indicated that age has no significant relationship with *work engagement*, which is in line with Goštautaitė & Bučiūnienė (2015) who found that there was no link between age and *work engagement*. However, it does not agree with many previous studies (e.g., Pitt-Catsouphes & Matz-Costa, 2008; Kim & Kang, 2017; James *et al.*, 2011; Douglas & Roberts 2020; Saks, 2006) who illustrate the significant relationship between age and *work engagement*.

Additionally, the findings indicate that there is no significant relationship between educational level and *job satisfaction*, which is consistent with González *et al.* (2016) who depict that there is no significant relationship between educational level and *job satisfaction*. On the contrary, education significantly links with *job satisfaction as* Lee & Wilbur (1985), Gürbüz (2007) and Fabra & Camisón (2009) reported. Similarly, the educational level has no significant relationship with *work engagement*. This finding does not agree with Lawrence (2021) who affirmed the significant relationship between education and *work engagement.* The findings also reveal that work experience does not significantly link with *job satisfaction*. That finding is not consistent with Sarker *et al.* (2003), Muntazeri *et al.* (2018), and Lee & Wilbur (1985), who clarify that work experience has a

significant relationship with *job satisfaction*. Furthermore, the findings highlight the non-significant relationship between work experience and *work engagement*, which was confirmed by Topchyan & Woehler (2021), who stated that years of experience did not link with *work engagement* (see Table 4.20., and Fig. 4.1.).

Table 4.21 The relationship between control variable, job satisfaction and work engagement (N= 296)

Control variable effect	Estimate	Standard Error	Critical Ratio t-value	P value	Result
Age → job satisfaction	-0.046	0.101	-0.559	0.576	Not Significant
Age → work engagement	0.109	0.070	1.730	0.084	Not Significant
education → job satisfaction	-0.015	0.055	-0.249	0.804	Not Significant
education → work engagement	-0.011	0.038	-0.236	0.814	Not Significant
experience → job satisfaction	0.039	0.117	0.484	0.629	Not Significant
experience → work engagement	-0.071	0.081	-1.136	0.256	Not Significant

Source: *The Author*.

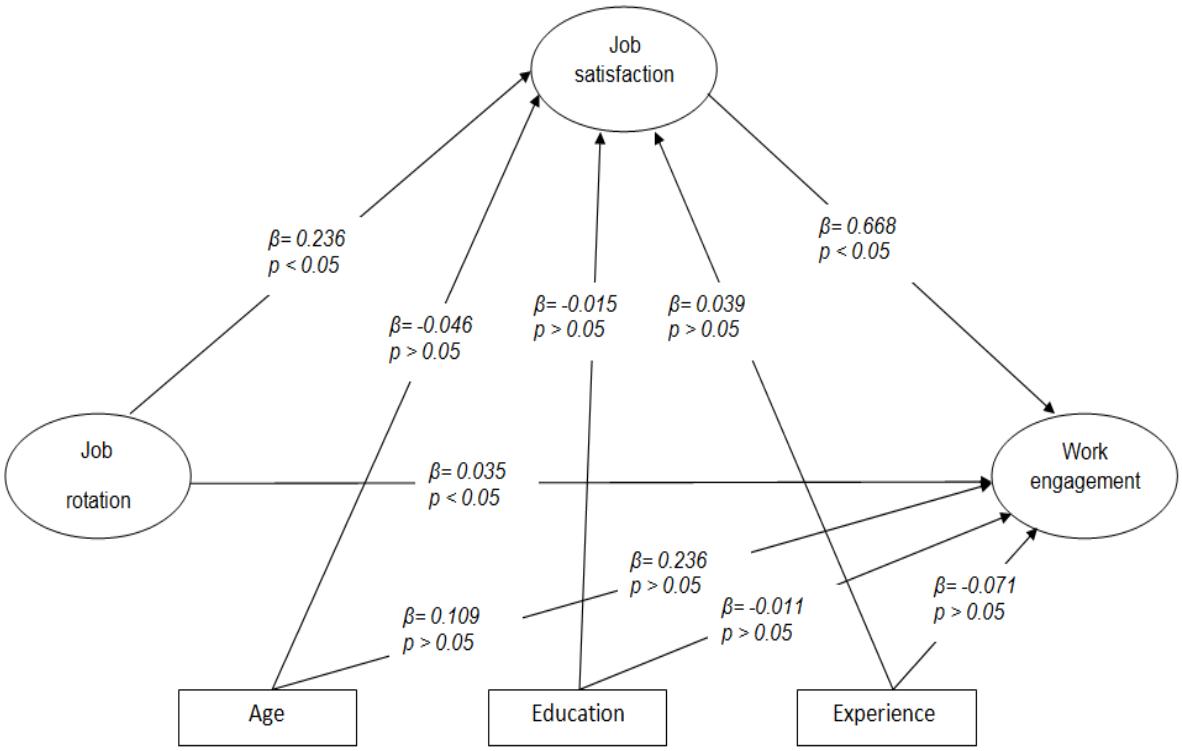

Fig. 4.1 The Relationship between control variable, job satisfaction, and work engagement

CHAPTER 5: DISCUSSION AND CONCLUSION

5.1. INTRODUCTION

The survey data were statistically analysed, and results reported in Chapter 4. The researcher developed results through statistical data analysis and interpretation. The aim of this chapter is to discuss the results of this research as well as discuss the results in relation to other research outlined in the literature review and provide implications for effective job rotation implementation.

Four hypotheses were developed for the relationship between job rotation, job satisfaction, and work engagement. A hypothesis was proposed that deals with the mediating role of job satisfaction in the relationship between job rotation and work engagement. To achieve these objectives, statistical data analysis was carried out.

These four hypotheses were:

H1: Job rotation has a positive relationship with work engagement,

H2: Job rotation has a positive relationship with job satisfaction,

H3: Job satisfaction has a positive relationship with work engagement.

H4: Job satisfaction mediates the relationship between job rotation and work engagement.

To the best of the researcher's knowledge, the current study is the first attempt to explore the link between job rotation, job satisfaction and work engagement in the oil and gas sector and, more specifically, in the State of Qatar. This study contributes to closing that gap by examining the relationship between job rotation and work engagement through the mediating role of job satisfaction in the oil and gas companies in Qatar.

5.2. THE EFFECTS OF JOB ROTATION

The study's findings indicate numerous benefits of job rotation for senior employees, showing that shifting between various roles within an organisation deepens employees' technical, administrative, and business expertise. Through rotation, employees acquire a broad set of skills, gain a thorough understanding of the organisation's operations, and interact more frequently with colleagues, which strengthens their social relationships and expands professional networks. Additionally, job rotation alleviates job monotony by minimising repetitive tasks, thereby reducing stress and boredom, consistent with the research of Saravanan et al. (2017) and Aryanezhad et al. (2009), which demonstrates that rotation can boost motivation and productivity. Furthermore, job rotation equips senior staff for future managerial roles by diversifying their skills and enhancing their readiness for leadership, in line with the views of Jassim (2018) and Seibert et al. (2001), who recognise job rotation as fostering skill development and adaptability. Rotation also allows employers to better align employees' strengths with suitable roles, promoting both productivity and job satisfaction, as highlighted by Adu-Oppong et al. (2019). This practice strengthens teamwork and interpersonal connections, creating a collaborative environment where senior staff can support one another. By advancing interpersonal, leadership, and self-development capabilities, job rotation helps develop a versatile, multi-skilled workforce that can effectively respond to evolving organisational needs, supporting the conclusions of Zin et al. (2013) and Whittington (2004).

5.3. CHALLENGES TO IMPLEMENTING JOB ROTATION

The study identified three key challenges to employee rotation in oil and gas companies in Qatar. First, there is difficulty in educating and training senior staff on the requirements and tasks of new jobs, as noted by Jonsson (1988), who pointed out that organisations struggle to equip employees with the necessary skills and knowledge for new roles. The second challenge is the difficulty in identifying suitable jobs for employees

during rotation, as highlighted by Salih & Al (2017) and Triggs & King (2000), who observed that organisations often lack sufficient knowledge about employees' skills and how they align with potential roles, hindering effective job placement. The third challenge involves senior staff's reluctance to return to their original jobs after gaining new responsibilities, a tendency explained by Eltahir (2018), who found that employees, having acquired new skills and experiences, often prefer to stay in new roles and seek further promotion, making it difficult to revert to their previous positions.

5.4. THE RELATIONSHIP BETWEEN JOB ROTATION, WORK ENGAGEMENT AND JOB SATISFACTION

This section deals with examining the relationship between job rotation with work engagement and job rotation with job satisfaction as well as the relationship between job satisfaction and work engagement in the oil and gas companies in Qatar.

5.4.1 The Relationship between Job Rotation and Work Engagement

The results of the study showed that job rotation has a highly significant and positive relationship with work engagement *(Estimate (β)= 0.191, p= 0.003)* (see Table 4.16 – Chapter 4). This result is in agreement with some previous studies, such as Zehra (2015) and Platis *et al.* (2021), where they demonstrated the significant and positive relationship between job rotation and work engagement. The positive link between job rotation and work engagement has been emphasised by Shin & Yu (2017). Likewise, senior management in organisations use job rotation as a tool through which to meet the needs of employees and make them more involved in their work (Mohan & Gomathi, 2015). Furthermore, employees who are rotated learn a wider range of talents, are more resilient to changes in jobs and tasks, and are more engaged in their jobs (van Wyk *et al.*, 2018). Job rotation is an important system that increases employees' engagement and commitment to job tasks, which improves organisational performance,

supports effectiveness and efficiency, and ultimately leads to improved work productivity (Khan & Jalees, 2017). When an employee is fully engaged at work, he/she is aware of his/her position in the company's goals and motivates his/her co-workers to assist the organisation to achieve its goals. This suggests that, when an employee is engaged at work, he/she performs well, as further demonstrated by Anitha (2014).

In the same way, job rotation makes employees more engaged in their jobs, and, thus, strengthens job performance as Campion *et al.* (1994) and van Prooijen (2009) reported. Likewise, job engagement is one of the key determinants of high levels of employee performance, as indicated by multiple studies that found work engagement to have a significant and positive link with performance (e.g., Carter *et al.*, 2018; Bhatti *et al.*, 2018; Dubbelt *et al.*, 2019; Bakker *et al.*, 2012). This is also confirmed by Syed & Yan (2012) and Zehra (2015), who revealed that job rotation enhances work engagement, and this is required to improve performance for new tasks. In a comparison between the level of job engagement between rotated employees and non-rotated employees, employees who are rotated are more engaged in their jobs than employees who are not rotated (Mohsan *et al.*, 2012).

On the contrary, there is a study which depicted that job rotation does not contribute to high levels of work engagement and performance, but not in the oil and gas companies' context. The study was in the Directorate General of Customs and Excise (DJBC) of the Republic of Indonesia. Job rotation does not achieve high levels of work engagement or job performance among DJBC employees varying in age, who have all completed more than two rotations and have participated in both homebase and non-homebase rotations (Prasetyanto *et al.,* 2020).

5.4.2. The Relationship between Job Rotation and Job Satisfaction

The results of this study highlighted that job rotation has a highly significant and positive relationship with job satisfaction *(Estimate (β)= 0.236, p=*

0.001) (see Table 4.17 – Chapter 4). This result is consistent with several studies that proved the positive relationship between job rotation and job satisfaction (e.g., Muazza & Syarifuddin, 2017; Dawal *et al.*, 2009; Suleman *et al.*, 2022). Moreover, job rotation contributes to increasing the level of employee satisfaction, which leads to improving performance (Al-Romeedy, 2019).

Job rotation contributes to improving the efficiency, motivation, and skills of employees, which leads to improving their satisfaction according to Saravanan *et al.* (2017). Similarly, through job rotation, employees' skills are developed and their efficiency and effectiveness enhanced, which leads to job satisfaction (Adomi, 2006). Moreover, one of the advantages of job rotation is increased satisfaction, as employees prefer to perform a set of tasks rather than specialise in one task. This is reflected in improving their satisfaction, and pushing them to achieve better performance in their jobs (Cosgal & Miceli, 1999). In the same way, job rotation can satisfy employees by diversifying the activities required of them, strengthening social relationships with colleagues, participating in management, and participating in organisational development processes (Arya & Mittendorf, 2004). Organisations seek to improve morale and job satisfaction, which leads to increased levels of performance and effectiveness at work (Ortega, 2000). Meanwhile, job rotation contributes significantly to making the job more attractive to employees as a result of breaking the continued boredom suffered as a result of the repetition of tasks on a daily basis, which is directly reflected in their job satisfaction (Dinis & Fronteira, 2015; Huang, 1999). In short, job rotation not only improves job satisfaction but also enhances high performance in the workplace (Tarus, 2014).

On the contrary, job rotation may reduce employees' satisfaction, due to some of them feeling uncomfortable leaving their jobs, and being assigned to new tasks that require learning new skills and knowledge, and need more work, which negatively affects their job satisfaction (Campion *et al.*, 1994; Friedrich *et al.*,1998). Similarly, the study conducted by Choi & Kang

(2022) concluded that there is no relationship between job rotation and job satisfaction of social employees within social welfare facilities located in Mokpo-si, Jeollanam-do in South Korea.

5.4.3. The Relationship between Job Satisfaction and Work Engagement

The results of this study illustrated that job satisfaction had a highly significant and positive relationship with work engagement *(Estimate (β)= 0.668, p= 0.001)* (see Table 4.18 – Chapter 4). This result is in line with some previous studies (e.g., Park & Johnson, 2019; Pepe *et al.*, 2019; Garg *et al.*, 2018) which showed the existence of a positive relationship between job satisfaction and work engagement. Employees' feeling of satisfaction with the tasks assigned to them, their diversity, and their renewal, enhances their engagement in their work as reported by Yalabik *et al.* (2017). Meanwhile, job satisfaction is an indicator of employees' desire to engage in their jobs and make more efforts to achieve goals (Rabiul *et al*., 2022). Likewise, employees who are more engaged in their work have higher levels of satisfaction with their jobs and new tasks assigned to them, and they undertake additional voluntary activities with the aim of achieving success for the organisation (Yucel *et al.*, 2021; Tokdemir, 2022).

Equally important, is an organisation's keenness to retain employees who are more creative and innovative, as well as more engaged in work, and who have high levels of performance, in order to enhance their survival in the changing work environment, by making them more satisfied with policies, practices, and work objectives (Alzyoud, 2018). While employees who feel satisfied are more flexible will strive to solve work problems, and have the ability to invest their time and effort in performing their work tasks, in addition, there is a significant increase in their enthusiasm and in their full engagement with the tasks in their jobs (Schaufeli *et al.*, 2002). Moreover, satisfied employees are more engaged in their jobs, which is reflected in their positivity at work, their association with their organisations, and their respectful treatment of colleagues and managers (Bakker &

Demerouti, 2014). Those employees provide assistance to their co-workers, improve their skills and job capabilities, and demonstrate high levels of job performance (Lu *et al.*, 2016). Similarly, when employees feel that their organisation is seeking their satisfaction by providing the resources needed for their work, employees display positive attitudes at work such as engagement and effective performance (Zhang *et al.,* 2018).

5.4.4. The Mediating Role of Job Satisfaction in the Relationship between Job Rotation and Work Engagement

The results of this study showed that job satisfaction plays a fully mediating role in the relationship between job rotation and work engagement *(Estimate (β)= 0.034, p= 0.495)* (see Table 4.19 – Chapter 4). Employees who are assigned multiple and varied tasks through job rotation experience a high level of job satisfaction and work engagement (Guglielmi *et al.,* 2016). They added that employees with high levels of satisfaction and engagement in work are more willing and motivated to work, and have the desire to carry out their tasks efficiently and effectively through the high performance they provide. According to the Job Demands-Resources Model (JD-R), job satisfaction is a result of the motivating process, that pertains to the effect that job resources have on positive outcomes such as performance, job satisfaction, and well-being through the mediating role of work engagement (Guglielmi *et al.*, 2016).

Otherwise, most employees are satisfied through job rotation by diversifying their responsibilities, developing connections with co-workers, aiding in management and executive growth, and lessening the impacts on job stability as Arya & Mittendorf (2004) illustrated. In this vein, implementing job rotation, supported by employee incentives based on acquiring skills, not only improves human capital but also frees the organisation from idleness and boredom, resulting in job satisfaction as a consequence of increased efficiency and effectiveness (Adomi, 2006).

5.5. IMPLICATIONS

This study provides theoretical and practical contributions, which will be addressed in this section.

5.5.1. Theoretical Implications

This study aims to add to the body of knowledge on job rotation, job satisfaction and work engagement by combining three unconnected variables in one model and filling some of the research gaps in job rotation, work engagement, and job satisfaction literature. Firstly, although existing research indicates that job rotation is one of the most important techniques that an organisation can use to achieve its objectives (Schultz & Schultz, 2020), as well as its relationship with work engagement (Platis *et al.*, 2021) and job satisfaction (van Wyk *et al.*, 2018; Suleman *et al.*, 2022; Jeon & Jeong, 2013), to the best of the researcher's knowledge the relationship between job rotation and work engagement through job satisfaction as a mediator has not been examined before in Qatar in general, and oil and gas companies in particular.

Secondly, this study finds a highly significant and positive relationship between job rotation and job satisfaction. This suggestion helps boost job satisfaction by requiring employees to rotate between occupations and providing them with new duties to minimise monotony and boredom caused by completing the same tasks for an extended period of time. Job rotation will enhance employee enthusiasm and morale, which will have a good impact on their job satisfaction (Ho *et al.*, 2009; Dinis & Fronteira, 2015; Kaymaz, 2010). This study found a highly significant and positive relationship between job rotation and work engagement. This outcome adds to increased work engagement through the use of job rotation, which is one of the methods for growing employees' abilities, boosting workplace comfort and safety, and lowering job burnout (Yavarzadeh *et al.*, 2015; Mohsan *et al.*, 2012; Chen *et al.*, 2015; Rashki *et al.*, 2014). This is why this study adds to the literature on job rotation and work engagement by

focusing on how job rotation affects strengthening work engagement among employees in oil and gas companies as well as linking such with job satisfaction.

Thirdly, according to the findings of this study, job satisfaction has a strong positive direct relationship with work engagement in oil and gas companies. Furthermore, it shows that individuals with high levels of job satisfaction tend to be more engaged at work and seek to be great performers. Consequently, individual interest in boosting job satisfaction gives a more complete view of the significant positive relationship between job satisfaction and work engagement. Fourthly, this study has added to the JD-R model, which displays the dynamic interaction between distinct work demands and job resources that affect work engagement (Kwon & Kim, 2020; Kattenbach & Fietze, 2018; Gastearena-Balda *et al.*, 2021). Promotion and task variety are examples of job resources (Sun *et al*., 2022). On the other hand, job rotation is a comprehensive strategy for promotion and professional growth (Cohn *et al.*, 2005; Prasetyanto *et al.*, 2020). The employer learning theory of job rotation allows an organisation to explore how much of an employee's success is due to general talents, how much is due to job-specific characteristics unrelated to the person, and how much is due to job-specific abilities. This information might be used to make better promotional selections, as indicated by Eriksson & Ortega (2006).

Furthermore, since job resources act as a motivator by promoting work engagement and positive behaviour (Koroglu & Ozmen, 2021), job rotation motivates employees who might otherwise get bored with the regular repetition of the same duties, according to employee motivation theory (Carreon *et al.*, 2021). As well, job rotation has been shown to help motivate employees by making work more fascinating (Eriksson & Ortega, 2006). One of the benefits of work rotation is increased satisfaction, as mentioned by Cosgel & Miceli (1999). In a similar manner, according to the motivating process, job resources have a significant impact on work

engagement (Bakker & Albrecht, 2018; Katou *et al.*, 2021). Employees are motivated to improve their performance and achieve their goals when they have access to appropriate job resources (Bakker *et al.*, 2014). Similarly, job resources have an important role in improving job satisfaction, work engagement, and performance (Aube *et al.,* 2007; van Prooijen, 2009). This study showed how job rotation affects job satisfaction positively, which can improve job engagement. Job rotation can be utilised to improve not just job satisfaction but also work engagement, which is considered a key component, underpinning crucial workplace outcomes such as performance (Karatepe, 2013; Kovjanic *et al*., 2013; Gupta *et al*., 2015; Smith & Bititci, 2017). Importantly, the current study contributes theoretically to the JD-R model via investigating the mediating role of job satisfaction between job rotation and work engagement. This study concluded that job rotation affects work engagement through job satisfaction. Besides, this study added to prior research on the JD-R model by examining it in a different culture and setting in oil and gas companies in Qatar. As a result, the theoretical underpinnings of this study pointed to a new path for the JD-R model at work, which is a significant theoretical addition.

5.5.2. Practical Implications

Evidence from the analysis of the results of this current study has important implications for oil and gas companies in Qatar, provided that these companies are keen on the effective application of job rotation, and benefit from the important results of its application, whether with regard to senior staff or the companies themselves. In order to maintain the positive effects of job rotation highlighted by the results of the current study, which indicates reducing monotony, preparing senior staff to assume managerial positions in the future, determining the optimal job, strengthening social relations at work, increasing knowledge, as well as increasing job satisfaction and work engagement. Oil and gas companies could continue to apply job rotation through an organised and clear plan and provide all

support to senior staff who are rotated, helping them solve problems that they may encounter during the initial periods of rotation. There is a need for proper planning of job rotation practices, provision of support and continuous performance appraisal as Agustian & Rachmawati (2021) indicated. In addition, job rotation should be well planned before it is implemented to achieve the desired benefits (Eltahir, 2018). Further, providing support to senior staff during the initial periods of rotation will support their success in their new tasks (van Wyk *et al*., 2018). Managers should develop an organisational culture that values the importance of cooperation between management and senior staff, and senior staff with each other, within companies (Triggs & King, 2000). This culture helps the success of applying job rotation by encouraging senior staff to participate in rotation and to be ready to make more efforts to implement new business goals.

Likewise, in order to achieve and implement the job rotation plan successfully and effectively in oil and gas companies, the rotation process could be pre-planned by reviewing the job profile of the senior staff who will be rotated, studying their performance assessments, level of training, skills, and experience, to ensure that the right person is placed in the right place, and to increase the administrative skills and competencies required for senior staff, which enhances their performance and productivity. Furthermore, job rotation plans are built in proportion to the job duties at each job level, so that the senior staff who will be rotated are able to assume the duties and tasks assigned to them in the new job, as it will be commensurate with their capabilities, skills, and competence (Pei, 2009). Therefore, senior staff should be retained after rotation through some measures such as providing job security, training, and rewards (Dhanraj & Parumasur, 2014) because they have acquired many skills and experiences that support the performance of companies, so that their leaving work is a great loss for such companies.

With regards to the time periods for job rotation, job rotation could not be tied to one specific period of time. Job rotation takes place within different periods of time depending on the achievement of a senior staff memeber in his/her new job. The job rotation plan should be linked to a time frame for implementation, according to the goals that companies seek to achieve (Zin *et al*., 2021). Besides, to assess the company's success in applying job rotation, a periodic assessment of the senior staff member's performance could be conducted so as to verify the extent of the senior staff member's competency after their rotation.

Furthermore, the management in oil and gas companies needs to improve the quality of work life (Khan *et al*., 2014) by developing effective work systems and procedures, avoiding conflicts at work, and enhancing trust between management and all senior staff. They could do so by giving senior staff the opportunity to express opinions about work development and job stability, besides adopting organisational justice to ensure a sense of equality among all senior staff, and developing their career path. This, ultimately, leads to the senior staff feeling job satisfaction, more engagement in their work and an increase in their motivation and performance to achieve success at work. Consistent with that, job rotation contributes to work engagement and, therefore, companies should provide a suitable work environment that includes the jobs between which the senior staff will be rotated, the schedule, the targeted skills to be acquired for the senior staff who will be rotated, and implementation mechanisms (Agustian & Rachmawati, 2021). Oil and gas companies' management could ensure that job rotation is applied in an organised and planned manner to provide senior staff with the targeted skills, have a comprehensive vision of the company, and increase their ability to solve problems, which improves their satisfaction and engagement (Suleman *et al*., 2022).

Interestingly, it is possible to apply the job rotation policy at the beginning of a senior staff member's career to provide him/her with all the skills and

knowledge required in various jobs (Ondiba *et al*., 2021) so that he/she is qualified to fill the shortage of senior staff at any time.

Oil and gas companies could spread and strengthen the concept of job rotation among all senior staff, thereby convincing them of embracing it, so as to reduce their resistance to the application of job rotation, and focus on the importance of rotation in developing skills and experience and increasing job satisfaction, work engagement, and productivity (Ondiba *et al*., 2021; Khan *et al*., 2014).

Equally importantly, senior staff participation in job rotation programmes can be supported through better job redesign and placing the appropriate senior staff member in a job that is commensurate with his/her abilities and skills (Attridge, 2009), which is one of the goals of job rotation (Choudhary, 2016). Senior staff engagement can be supported by creating flexible work schedules, balancing workload distribution, clarifying roles and decision-making authority, and strengthening social relationships at work (Attridge, 2009). Moreover, the management could prepare the senior staff to accept the policy of job rotation through continuous dialogue between management and senior staff, ensuring that they take ownership of the new responsibilities (van Wyk *et al*., 2018), and by holding workshops, lecturers, seminars, and case studies to explain this policy as one of the methods of developing expertise and skills (Dhanraj & Parumasur, 2014).

In addition, the management could adopt an open-door policy during the application of job rotation in order to hear the problems of senior staff with regard to rotation, work to solve such problems, and pay attention to enhancing the motivation, satisfaction, and engagement of senior staff at work, which is reflected in their performance positively and increases the chances of job rotation success. Besides, adopting participatory leadership and an open-door policy to listen to the opinions and complaints of senior staff, and involving them in decision-making related to their job rotation, could reduce their resistance to rotation, which enhances the company's ability to achieve rotation goals (Al-Romeedy, 2019).

5.6. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

In terms of future research directions, some suggestions are as follows.

Firstly, this study is conducted on the oil and gas companies in the State of Qatar. As mentioned before, which at the time of writing this thesis and to the best of the researcher's knowledge there has not been previous studies on job rotation in the State of Qatar in general nor in the Qatari oil and gas companies in particular. This study addressed the proposed model (the mediating role of job satisfaction in the relationship between job rotation and work engagement) in Qatari oil and gas companies. This study also provides an idea for future research and can be replicated in different companies or other industries in Qatar, as well as using different samples to examine different effects of applying job rotation on job satisfaction and work engagement.

Secondly, the researcher does not have access to the companies' database, such as employee email addresses, and relied instead on the department managers to disseminate the questionnaire, which meant that the reach of the questionnaire may have been slower / subdued. The data of the study were collected through the electronic questionnaire, due to the difficulty in distributing the questionnaire on paper caused by the restrictions and precautionary measures imposed by Covid-19 and this is one of the reasons that prompted the researcher to use the quantitative method instead of the qualitative method. Future studies can rely on personal interviews to collect data on how job rotation is applied, application problems, and the effects of applying job rotation. The results of the personal interviews can be compared with the results of this study. Future studies can use more than one method (mixed method) to compare the results of employees and senior staff on the effectiveness of job rotation.

Thirdly, this study examined the relationship between job rotation and job satisfaction and work engagement in the oil and gas companies in Qatar.

Future studies on the relationship between job rotation and other organisational and employee outcomes such as work-life balance, organisational agility, organisational flexibility, competitive advantage, and organisational sustainability in the oil and gas companies in Qatar are suggested.

Fourthly, although this study evaluated the function of job satisfaction as a mediator in the relationship between job rotation and work engagement in Qatari oil and gas companies, other mediator or moderator factors other than job satisfaction might be investigated in future studies, such as perceived organisational support, quality of work life, job security, motivation, human resource practises, and leadership style.

Fifthly, this study only examined a sample of three oil and gas companies in Qatar, as well as just senior staff. As a result, the results could not be generalised to other companies in different industries or to companies in other countries. Therefore, if this study were to be reproduced using samples from other sectors (e.g., engineering services industries, infrastructure and construction, and logistics and transportation services) in Qatar or other developed or developing countries, the possibility of generalising the results would be expanded, and comprehension of the study's concerns may be increased and developed.

Additionally, the survey was conducted in English in Qatar. And although all participants were proficient in English, this thesis may have benefited from small pilot study to generate questions and language related challenges. Future research is encouraged to pilot test this study and explore options of translating to the Arabic language especially when conducting research among Arabic participants; this may improve ecological validity.

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APPENDICES

Appendix A: Questionnaire

Dear Respondent,

REF: INVITATION TO PARTICIPATE IN THE SURVEY

I would be grateful if you could kindly provide your consent to participate in this survey by clicking on the box below.

I have read the Participant Information Sheet, and I consent to take a part in this survey and agree with how my data will be managed. ☐

==========

Part one: Job Rotation

Job rotation is defined as "viewed as the technique of shifting employees among technical and managerial positions within an organisation for a set period of time and at regular intervals, allowing them to gain expertise, skills, proficiencies, and work know-how to use in their careers and improve organisational effectiveness**"**

Have you been rotated within the company ever?

- *Yes*
- *No*

If yes, how many times have you been rotated?

- *One*
- *Two*
- *Three*
- *Four*
- *Five*
- *More than five*

How was your job rotated?

- Within the same department
- Different department
- Both

Through how many departments have you rotated in your company?

Effects of job rotation

Please indicate the extent to which you agree/disagree with the following items

1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree

	Items	1	2	3	4	5
1	**Decrease Monotony**					
	The application of rotation reduced the monotony experienced in my work					
	It reduced my work stress					
	Job rotation reduced the boredom in my work					
	Job rotation decreased turnover rates					
	Job rotation positively affected my personal life					
2	**Preparation for Management**					
	Job rotation helped me to know about various roles in my company and make me well skilled for the next step					
	Job rotation provided me a chance for promotion					
	The application of rotation supported my preparation for higher-level management					
	It contributed to organisational development and change					
	Job rotation contributed in reducing financial costs of training					
	Job rotation motivated me to deal with new challenges in my work					
3	**Determine Optimal Job**					
	The application of rotation facilitated the determination of which job can be more productive					
	I am well informed about job rotation					
	Job rotation used by the company was effectively-known					
	All job positions I have been rotated in were well fitted with my qualifications					
	The company has a uniform system of getting feedback for improvement during job rotation practice					
	It increased my productivity					
	It helped to explore my interests and hidden potential					
4	**Develop Social Relation**					
	Colleagues in different jobs within the company supported me when I was assigned to their departments for practice and learning					
	The application of rotation developed my social relationships					
	I am willing to work cooperatively with my colleagues and supervisors					
	During job rotation, my communication with colleagues and supervisors from other positions was satisfactory.					
5	**Increase Knowledge**					
	Administrative knowledge					
	Job rotation improved my interpersonal skills					
	Job rotation enhanced my leadership skills					
	Job rotation increased my self-improvement					
	Technical knowledge					
	Job rotation enhanced my knowledge of company policies, procedures, and practices					
	Job rotation improved my production knowledge					
	Job rotation improved my knowledge of business contact and network					
	Business knowledge					
	Job rotation improved my knowledge of general/current issues					

	Job rotation improved my knowledge of other departments' roles					
	Job rotation improved my knowledge of the external environment of business					
	Job rotation supported my understanding of the organisational goals					

Challenges to Implementing Job Rotation

Please indicate the extent to which you agree/disagree with the following items

1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree

	Items	1	2	3	4	5
1	Experienced workers do not want to learn new types of work					
2	The rotating employee would be reluctant to return to their original position after being exposed to new ideas or responsibilities					
3	Physical problems of moving from one job to another					
4	Unsuitable compensation policy					
5	Education and training of employees in the requirements and tasks of new jobs					
6	Inappropriate use of job rotation by management					
7	Differences in skill levels among staff may be significant resulting in additional expense in upgrading staff or loss of productivity for some period					
8	Difficulty of identifying appropriate jobs for each person in the company in the process of rotating					

Part two: Job satisfaction

Please indicate the extent to which you agree/disagree with the following items

1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree

	Items	1	2	3	4	5
1	I am satisfied with my job					
2	I receive adequate training to do my job well					
3	I have a good feeling that my efforts will be appreciated					
4	Using a compensation system increases my motivation					
5	Performance evaluation induces my justice perceptions					
6	The payment of salary is very close to my expectations					
7	I use new technology to facilitate my works					
8	The relationship between my supervisors and me is very friendly					
9	I have family-friendly policies to support my family					

Part three: Work engagement

Please indicate the extent to which you agree/disagree with the following items

1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree

	Items	1	2	3	4	5
1	I feel engaged with the work I do in my workplace					
2	At my work, I feel bursting with energy					
3	At my job, I feel strong and vigorous					
4	I am enthusiastic about my job					
5	My job inspires me					
6	When I get up in the morning, I feel like going to work					
7	I feel happy when I am working intensely					
8	I am proud of the work that I do					
9	I am immersed in my work					
10	I get carried away when I am working					

Part four: About you

Your age

- < 30 years
- > 30 and < 40 years
- > 40 and < 50 years
- > 50 years

Highest Educational Level

- Bachelor
- Diploma
- Master
- PhD
- Others (please mention it)

Work experience

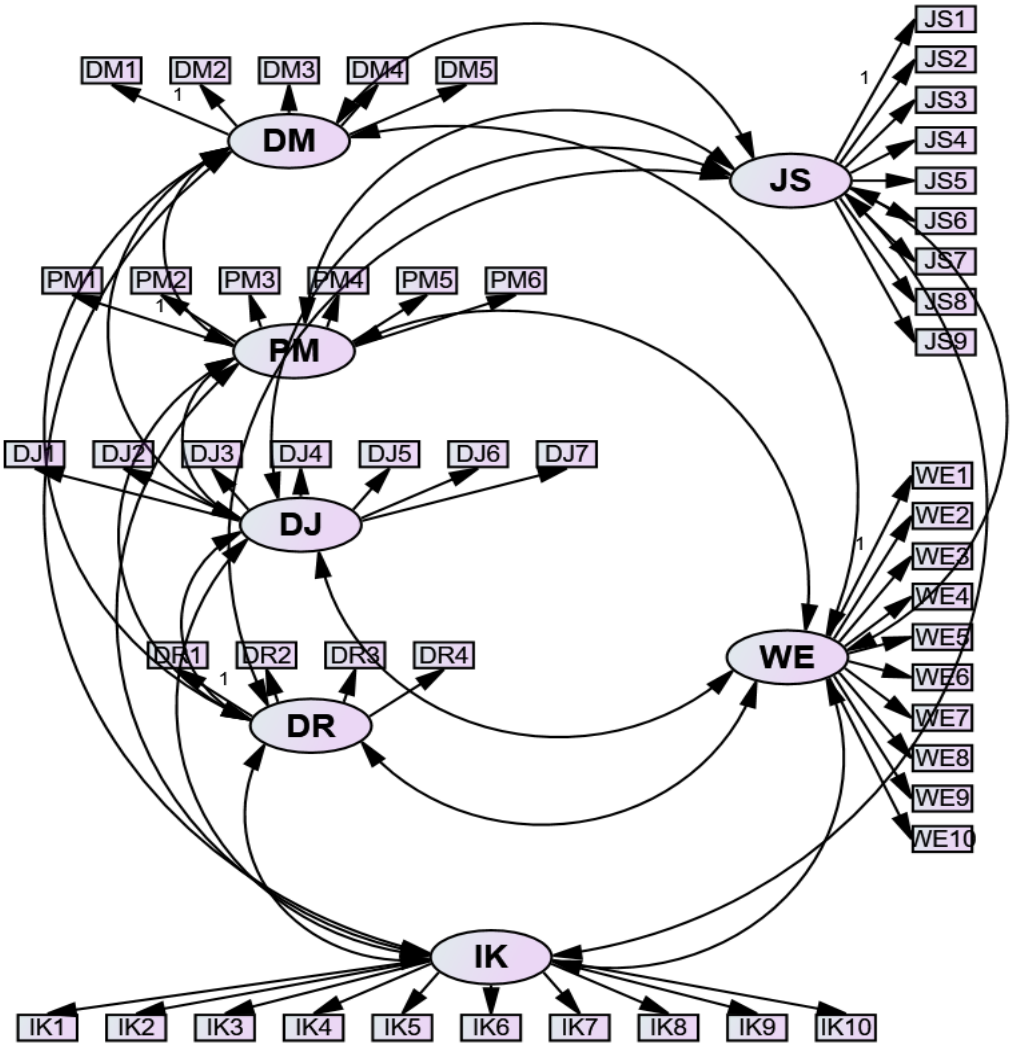
- < 5 years
- > 5 and < 10 years
- > 10 and < 15 years
- > 15 years

Appendix B: Components (Items) Coding

Constructs	Code	Items
Decrease Monotony (DM)	DM1	The application of rotation reduced the monotony experienced in my work
	DM2	It reduced my work stress
	DM3	Job rotation reduced the boredom in my work
	DM4	Job rotation decreased turnover rates
	DM5	Job rotation positively affected my personal life
Preparation for Management (PM)	PM1	Job rotation helped me to know about various roles in my company and make me well skilled for the next step
	PM2	Job rotation provided me a chance for promotion
	PM3	The application of rotation supported my preparation for higher-level management
	PM4	It contributed to organisational development and change
	PM5	Job rotation contributed in reducing financial costs of training
	PM6	Job rotation motivated me to deal with new challenges in my work
Determine Optimal Job (DJ)	DJ1	The application of rotation facilitated the determination of which job can be more productive
	DJ2	I am well informed about job rotation
	DJ3	Job rotation used by the company was effectively-known
	DJ4	All job positions I have been rotated in were well fitted with my qualifications
	DJ5	The company has a uniform system of getting feedback for improvement during job rotation practice
	DJ6	It increased my productivity
	DJ7	It helped to explore my interests and hidden potential
Develop Social Relation (DR)	DR1	Colleagues in different jobs within the company supported me when I was assigned to their departments for practice and learning
	DR2	The application of rotation developed my social relationships
	DR3	I am willing to work cooperatively with my colleagues and supervisors
	DR4	During job rotation, my communication with colleagues and supervisors from other positions was satisfactory.
Increase Knowledge (IK)	IK1	Job rotation improved my interpersonal skills
	IK2	Job rotation enhanced my leadership skills
	IK3	Job rotation increased my self-improvement
	IK4	Job rotation enhanced my knowledge of company policies, procedures, and practices
	IK5	Job rotation improved my production knowledge
	IK6	Job rotation improved my knowledge of business contact and network
	IK7	Job rotation improved my knowledge of general/current issues
	IK8	Job rotation improved my knowledge of other departments' roles
	IK9	Job rotation improved my knowledge of the external environment of business
	IK10	Job rotation supported my understanding of the organisational goals
	CH1	Experienced workers do not want to learn new types of work

Challenges to Implementing Job Rotation (CH)	CH2	The rotating employee would be reluctant to return to their original position after being exposed to new ideas or responsibilities
	CH3	Physical problems of moving from one job to another
	CH4	Unsuitable compensation policy
	CH5	Education and training of employees in the requirements and tasks of new jobs
	CH6	Inappropriate use of job rotation by management
	CH7	Differences in skill levels among staff may be significant resulting in additional expense in upgrading staff or loss of productivity for some period
	CH8	Difficulty of identifying appropriate jobs for each person in the company in the process of rotating
Job satisfaction (JS)	JS1	I am satisfied with my job
	JS2	I receive adequate training to do my job well
	JS3	I have a good feeling that my efforts will be appreciated
	JS4	Using a compensation system increases my motivation
	JS5	Performance evaluation induces my justice perceptions
	JS6	The payment of salary is very close to my expectations
	JS7	I use new technology to facilitate my works
	JS8	The relationship between my supervisors and me is very friendly
	JS9	I have family-friendly policies to support my family
Work engagement (WE)	WE1	I feel engaged with the work I do in my workplace
	WE2	At my work, I feel bursting with energy
	WE3	At my job, I feel strong and vigorous
	WE4	I am enthusiastic about my job
	WE5	My job inspires me
	WE6	When I get up in the morning, I feel like going to work
	WE7	I feel happy when I am working intensely
	WE8	I am proud of the work that I do
	WE9	I am immersed in my work
	WE10	I get carried away when I am working

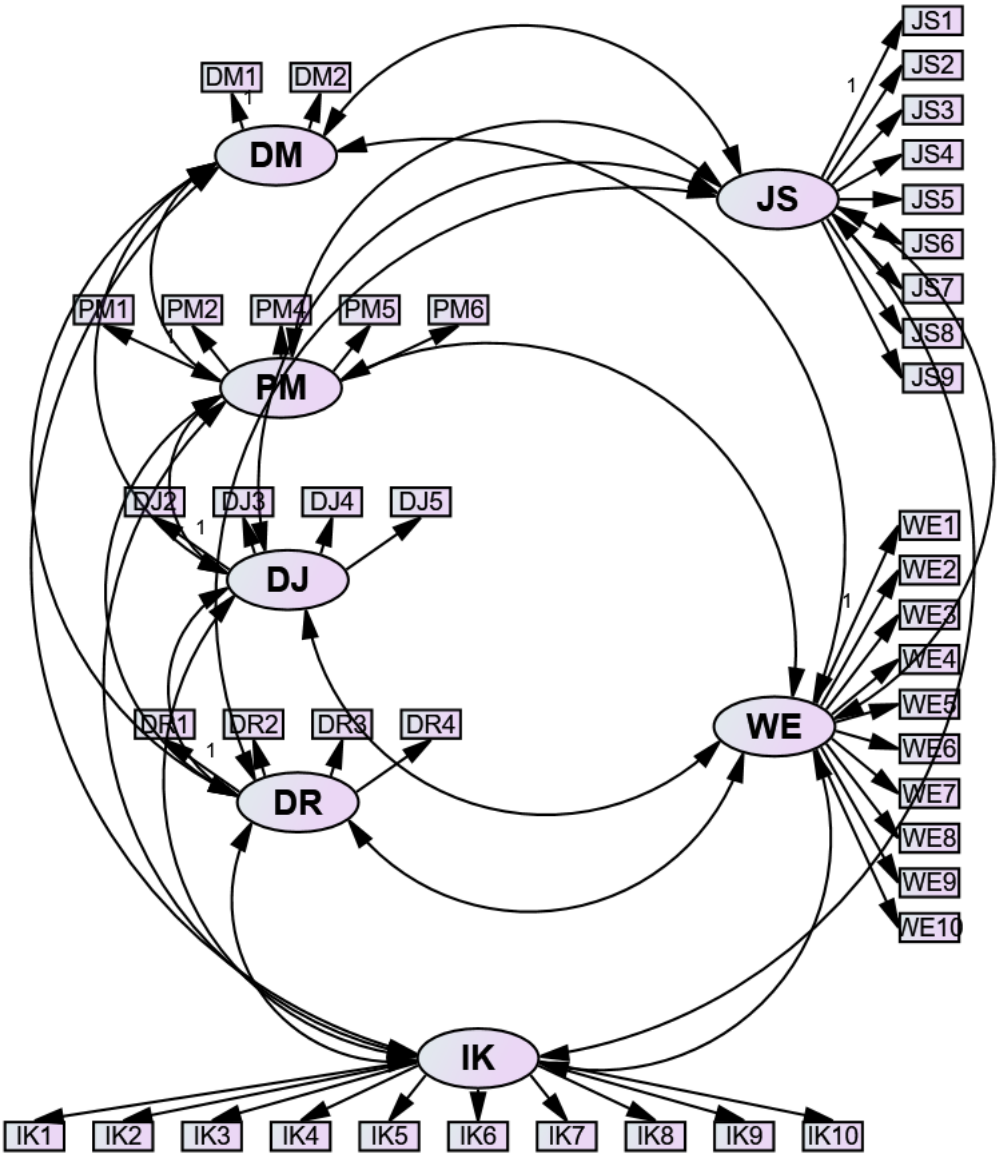
Appendix C: Initial Model



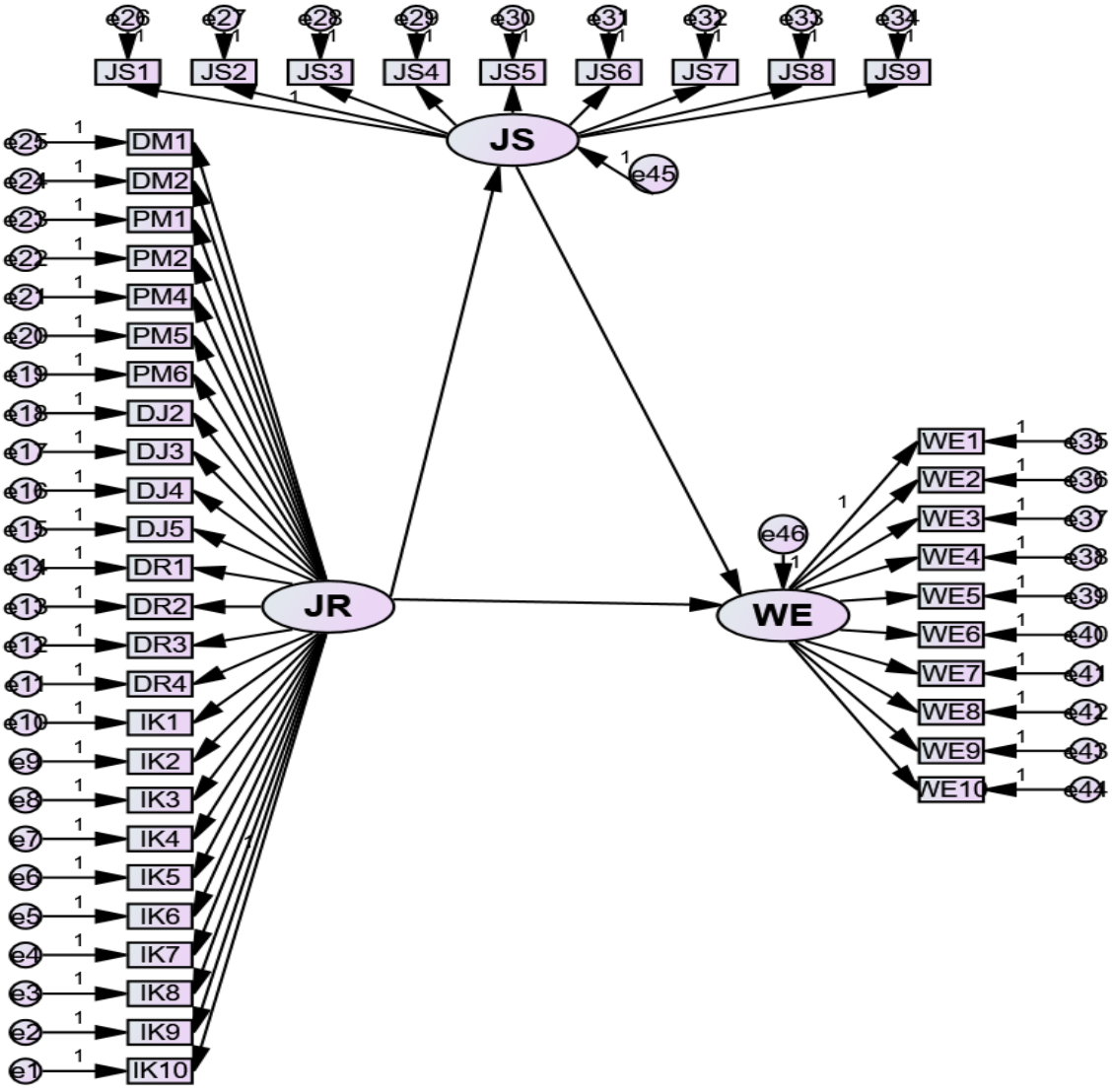
Observed Variable: A rectangle icon is utilised to depict observed variables, which are directly measured from the sample through survey questions or other forms of direct measurement.

Covariance: A double-headed arrow is employed. This double-headed arrow indicates the covariance or correlation between the variables in the structural equation model.

Appendix D: Final Model



Appendix E: Study Model



Appendix F: Job rotation, job satisfaction and work engagement areas, and subareas analysed in this study

Areas	Subareas	Code	Items	Case when item takes value 1	Case when item takes value 2	Case when item takes value 3	Case when item takes value 4	Case when item takes value 5	Mean	Standard deviation
Job rotation	Decrease Monotony	DM1	The application of rotation reduced the monotony experienced in my work	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	3.75	1.38
		DM2	It reduced my work stress	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	3.58	1.18
	Preparation for Management	PM1	Job rotation helped me to know about various roles in my company and make me well skilled for the next step	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.27	0.968
		PM2	Job rotation provided me a chance for promotion	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	3.68	0.953
		PM4	It contributed to organisational development and change	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	3.96	0.891
		PM5	Job rotation contributed in reducing financial costs of training	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	3.80	1.08
		PM6	Job rotation motivated me to deal with new challenges in my work	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.25	0.966
	Determine Optimal Job	DJ2	I am well informed about job rotation	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	3.93	1.08
		DJ3	Job rotation used by the company was effectively-known	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	3.71	1.17
		DJ4	All job positions I have been rotated in were well fitted with my qualifications	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.07	1.11
		DJ5	The company has a uniform system of getting feedback for improvement during job rotation practice	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	3.58	1.33

Develop Social Relation	DR1	Colleagues in different jobs within the company supported me when I was assigned to their departments for practice and learning	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.16	1.01
	DR2	The application of rotation developed my social relationships	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.03	0.963
	DR3	I am willing to work cooperatively with my colleagues and supervisors	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.37	0.962
	DR4	During job rotation, my communication with colleagues and supervisors from other positions was satisfactory.	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.26	0.907
Increase Knowledge	IK1	Job rotation improved my interpersonal skills	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.37	0.934
	IK2	Job rotation enhanced my leadership skills	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.14	1.03
	IK3	Job rotation increased my self-improvement	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.20	0.952
	IK4	Job rotation enhanced my knowledge of company policies, procedures, and practices	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.31	0.919
	IK5	Job rotation improved my production knowledge	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.29	0.940
	IK6	Job rotation improved my knowledge of business contact and network	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.20	1.00
	IK7	Job rotation improved my knowledge of general/current issues	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.30	0.932
	IK8	Job rotation improved my knowledge of other departments' roles	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.39	0.967
	IK9	Job rotation improved my knowledge of the external environment of business	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.29	0.947

	IK10	Job rotation supported my understanding of the organisational goals	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.09	1.08
Job satisfaction	JS1	I am satisfied with my job	If strongly disagree	If disagree	If neutral	If agree		4.17	1.05
	JS2	I receive adequate training to do my job well	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.19	1.08
	JS3	I have a good feeling that my efforts will be appreciated	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.18	1.08
	JS4	Using a compensation system increases my motivation	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.16	1.02
	JS5	Performance evaluation induces my justice perceptions	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.21	1.00
	JS6	The payment of salary is very close to my expectations	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.23	1.04
	JS7	I use new technology to facilitate my works	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.32	1.03
	JS8	The relationship between my supervisors and me is very friendly	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.35	1.07
	JS9	I have family-friendly policies to support my family	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.31	1.04
Work engagement	WE1	I feel engaged with the work I do in my workplace	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.11	0.971
	WE2	At my work, I feel bursting with energy	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.10	0.997
	WE3	At my job, I feel strong and vigorous	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.11	0.974
	WE4	I am enthusiastic about my job	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.17	1.07
	WE5	My job inspires me	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.22	1.03
	WE6	When I get up in the morning, I feel like going to work	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.20	1.03
	WE7	I feel happy when I am working intensely	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.19	0.968
	WE8	I am proud of the work that I do	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.22	0.983

WE9	I am immersed in my work	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.21	0.990
WE10	I get carried away when I am working	If strongly disagree	If disagree	If neutral	If agree	If strongly agree	4.18	1.05

Appendix G: Template Participant Information Sheet

1. Title of Study

The effect of job rotation on employees' performance.

2. Version Number and Date

Version 1.1 – 01May 2022

3. Invitation Paragraph

REF: INVITATION TO PARTICIPATE IN THE SURVEY

I am a postgraduate student studying for a Doctor of Business Administration (DBA) at the University of Central Lancashire, United Kingdom. To complete my studies, I have to submit a thesis. My topic of choice is: "The effect of job rotation on employees' performance". The reason I am undertaking this research is to obtain a clearer understanding of the impact of Job Rotation on employees' performance in the Oil and Gas industry.

You have been selected to take part of this study. Therefore, I kindly request you to help me in collecting the required data by completing a questionnaire. The information you provide will be used for academic purposes only, thus it will be treated with the utmost confidentiality. The survey will not ask you any personal details such as name, telephone number, email address, etc. However, if you are interested in receiving the results of this research, please send your email address by email to the researcher that I can send you the conclusion page of my dissertation once completed.

The survey will ask you to provide your consent to participate in this survey by clicking on the box, which is on the front page of the survey, otherwise you will be unable to continue the survey.

Thank you for reading this.

4. What is the purpose of the study?

The purpose of this study is to study the effect of job rotation on employees' performance. The researcher has noticed that the use of job rotation. with companies is not systematic, generally applying job rotation in an unplanned way. In the other words, the use of job rotation is based on business needs and the employee's desire. As well, the researcher did not find any studies examining the impact of the job rotation in Oil and Gas sector or any of the organisations in the state of Qatar in general, and its impact on employees' performance in particular. Therefore, this study is studying the effect of job rotation on employees' performance in the Oil and Gas sector. The main aim of this study is exploring the current job rotation practices in the Qatari Oil and Gas sector, and the influence of such practices on employees' overall performance.

To achieve this aim, the study seeks to fulfil the following objectives:

1. What are the factors determining job rotation in the Qatari Oil and Gas sector?

2. What are the factors limiting job rotations in the Qatari and Gas sector?

3. Does Job rotation lead to better employee performance?

4. What are the key recommendations that could improve the application of job rotation practices?

5. Why have I been invited to take part?

You are being invited to take part in this research study on "The effect of job rotation on employees' performance" because you are working in this sector and you have been exposed to job rotation. Before you decide whether you wish to participate, it is important for you to understand why the study is being conducted and what it will involve. Please take some time to read the information provided. Please ask if there is anything that is not clear, or if you would like more information.

6. Do I have to take part?

Taking part is entirely voluntary. If you decide to take part of the survey, then you will be asked to provide your consent in this online survey and agree with how your data will be managed by clicking on the box on the first page of the survey. Otherwise, you will be unable to participate in the survey. This survey is anonymous. In other words, the survey will not ask you any personal details such as name, telephone number, email address, etc. Therefore, once the survey is complete, it will be not possible for your form to be withdrawn as your data will be anonymised and aggregated with the other results by the online survey software.

7. What will happen if I take part?

Once you have agreed to take part in the study, please note that you would be required to access to the online questionnaire and provide your answer to each question. The data that would be collected from you would relate to the expressions of your experience with job rotation and how the job rotation affected your performance either positively or negatively. As an employee, your participation may result in future decisions in job rotation, by employers being improved, more effective and more focused. The survey is designed to be a one-time survey and it will not be repeated. The questionnaire has been designed in a simple way, is easy to understand, and unambiguous. You will also have the researcher's contact details such as an email address for any inquiries or clarification, that they may have during the survey. Your responsibility will be only to complete the survey, if it is your wish to participate in the survey, and there are no other responsibilities imposed on the participant.

8. Covid-19

Not applicable in this study.

9. How will my data be used?

The University processes personal data as part of its research and teaching activities in accordance with the lawful basis of ‘public task’, and

in accordance with the University's purpose of "advancing education, learning and research for the public benefit".

Under UK data protection legislation, the University acts as the Data Controller for personal data collected as part of the University's research. The University's privacy notice for research participants can be found on the attached link https://www.uclan.ac.uk/data_protection/privacy-notice-research-participants.php

Further information on how your data will be used can be found in the table below.

How will my data be collected?	*The data will be collected by using online survey tools.*
How will my data be stored?	*All electronic questionnaires will be stored on a password protected laptop to which only the principal researcher has access.*
How long will my data be stored for?	*Seven years as per the University requirements.*
What measures are in place to protect the security and confidentiality of my data?	*All electronic data will be stored on a password protected laptop to which only the principal researcher has access.*
Will my data be anonymised?	*Yes, the data will be anonymised.*
How will my data be used?	*The results from this study will be used in the following ways.* *The data will be used as part of a research thesis.* *In due course, it might be decided that the content of the final study format may then published in the form of a book. Parts of the content may also contribute to t of a journal publications.*
Who will have access to my data?	*The researcher will be the only person who will have access to the data.*
Will my data be archived for use in other research projects in the future?	*The data will be available for use in other research after obtaining a formal approval from the researcher.*
How will my data be destroyed?	*The electronic data will be destroyed by deleting all data from the researcher's computer after seven years asper the University requirements.*

Transferring data outside the EU

Not Applicable

Contact Tracing

Not Applicable.

10. Are there any risks in taking part?

No disadvantages or risks are expected due to the nature of the study and the field it undertakes. The data used for the research project would all be stored on a password protected laptop which only the principal researcher has access. After the completion of the research project, the data would temporarily be stored and secured in secure electronic files and eventually would be deleted.

11. Are there any benefits from taking part?

The information obtained from this study will be used for scientific research purposes only. As an employee, your participation is may result in future decisions in job rotation by employers being improved, more effective and more focused. *In due course, it might be decided that the content of the thesis would be then published in the form of a book. Data from the thesis may also contribute to future journal publications.*

12. Expenses and / or payments

Not Applicable. The online survey tool will be free of charge and no payments will be made to volunteers.

13. What will happen to the results of the study?

The results from this study will be used in the following ways. The results will form part of a research thesis. It might be decided that the content of the thesis may then contribute to a book contribute to journal publications. Since the results will not include any personal data, and the participants are anonymous, the subsequent use of this data is allowable.

If you are interested in receiving the results of this research, then please send your email address by email to the researcher, so that the conclusion page of my dissertation can be sent to you once completed.

14. What will happen if I want to stop taking part?

The survey is designed to be one-time survey and it will not be repeated. Therefore, the survey does not require more than one process. The survey doesn't include any personal data and it it's anonymous. You are fully aware that once the survey is complete, forms cannot be withdrawn as the data will be aggregated with the other results. You will be able to withdraw from completing this survey once you have started the survey by not completing the survey.

15. What if I am unhappy or if there is a problem?

If there are any problem or any concerns, please feel free to let me know by contacting Ali Al-Yafei, AAl-yafei@uclan.ac.uk *and we will try to help.*

16. Who can I contact if I have further questions?

If you have any questions about this study or any possible involvement then please contact me using the contact details below:

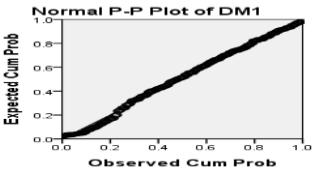
My Name: Ali Al-Yafei

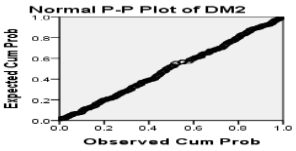
E-mail Address: AAl-yafei@uclan.ac.uk

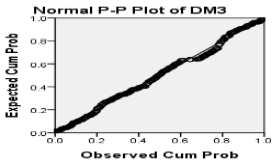
Contact details of investigatory team

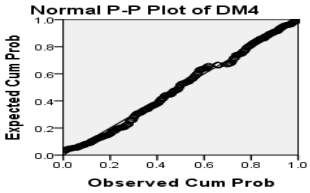
This research is not being undertaken by a research team but is only being undertaken by a sole researcher. (Ali Al- Yafei email address – AAl-yafei@uclan.ac.uk).

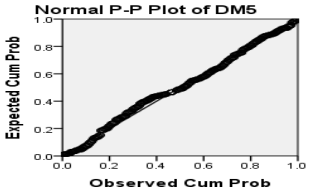
Appendix H: Test of Normality (Normal P-P Plot)

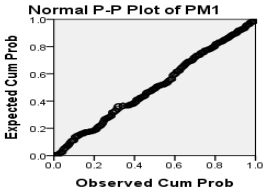


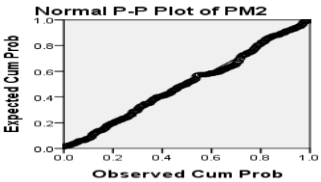


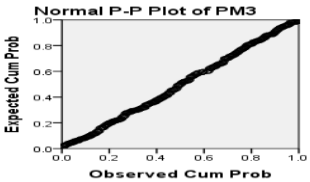


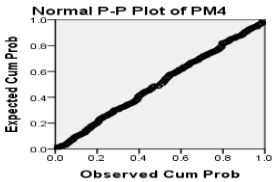


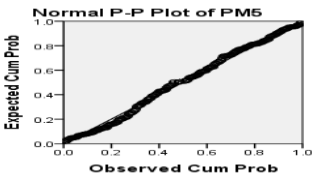


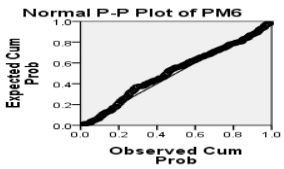


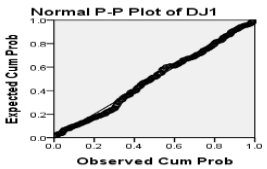


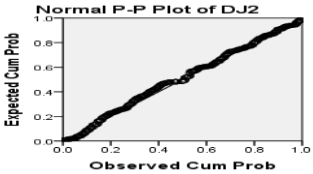


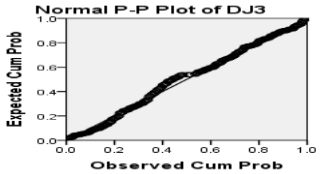


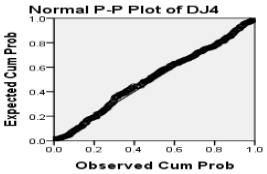


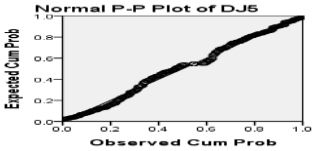


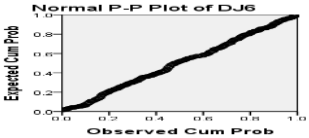


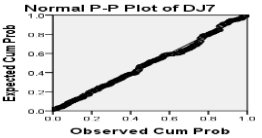


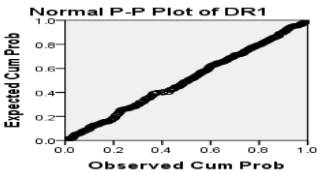


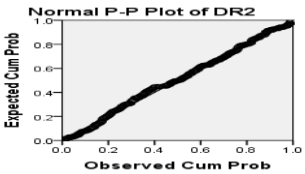


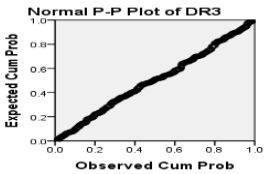


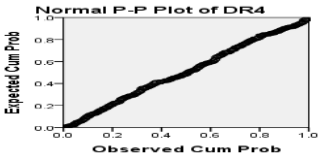


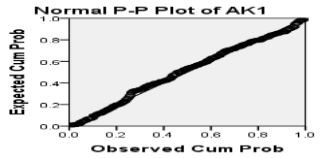


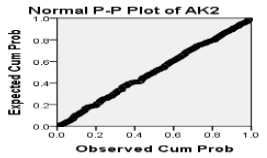


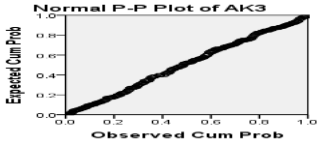


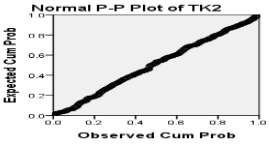


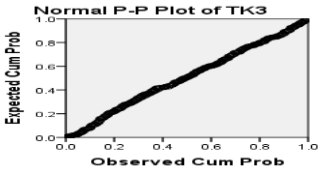


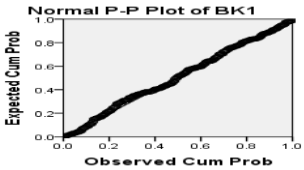


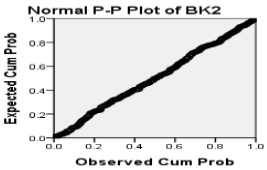


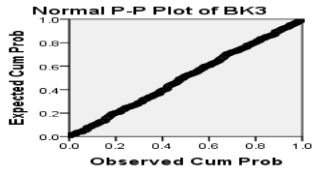


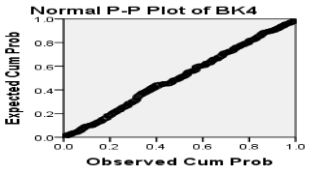


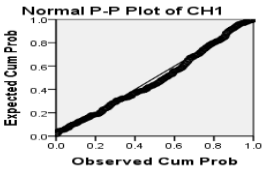


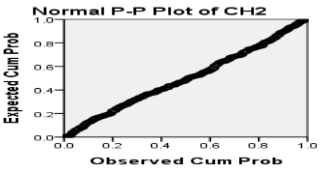


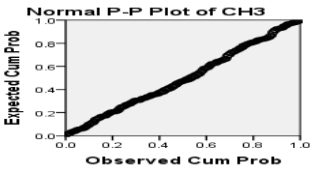


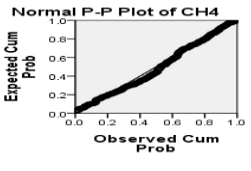

Normal P-P Plot of BK3
Expected Cum Prob
Observed Cum Prob

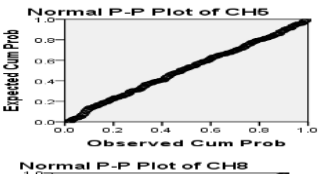

Normal P-P Plot of BK4
Expected Cum Prob
Observed Cum Prob

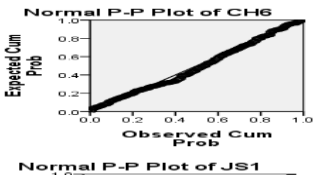

Normal P-P Plot of CH1
Expected Cum Prob
Observed Cum Prob

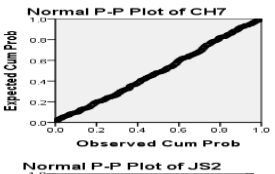

Normal P-P Plot of CH2
Expected Cum Prob
Observed Cum Prob

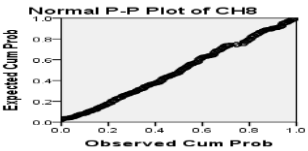

Normal P-P Plot of CH3
Expected Cum Prob
Observed Cum Prob

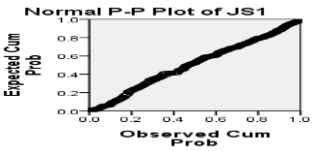

Normal P-P Plot of CH4
Expected Cum Prob
Observed Cum Prob

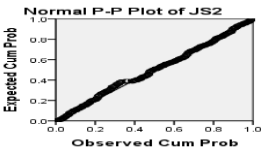

Normal P-P Plot of CH5
Expected Cum Prob
Observed Cum Prob

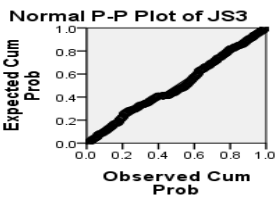

Normal P-P Plot of CH6
Expected Cum Prob
Observed Cum Prob

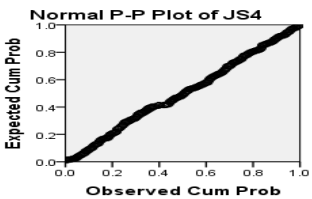

Normal P-P Plot of CH7
Expected Cum Prob
Observed Cum Prob

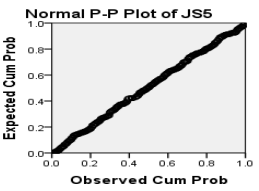

Normal P-P Plot of CH8
Expected Cum Prob
Observed Cum Prob

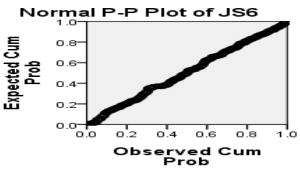

Normal P-P Plot of JS1
Expected Cum Prob
Observed Cum Prob

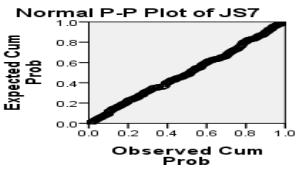

Normal P-P Plot of JS2
Expected Cum Prob
Observed Cum Prob

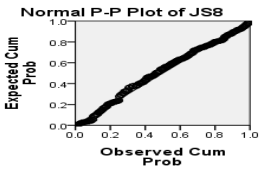

Normal P-P Plot of JS3
Expected Cum Prob
Observed Cum Prob

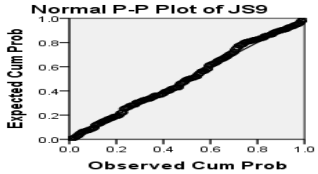

Normal P-P Plot of JS4
Expected Cum Prob
Observed Cum Prob

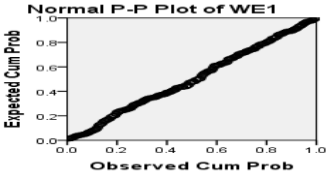

Normal P-P Plot of JS5
Expected Cum Prob
Observed Cum Prob

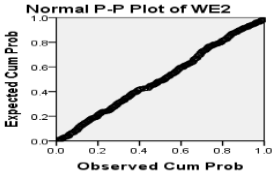

Normal P-P Plot of JS6
Expected Cum Prob
Observed Cum Prob

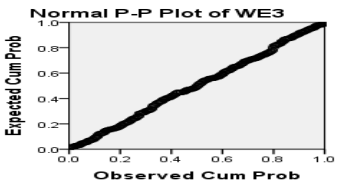

Normal P-P Plot of JS7
Expected Cum Prob
Observed Cum Prob

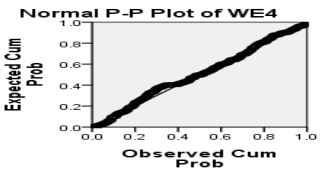

Normal P-P Plot of JS8
Expected Cum Prob
Observed Cum Prob

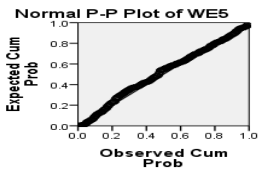

Normal P-P Plot of JS9
Expected Cum Prob
Observed Cum Prob

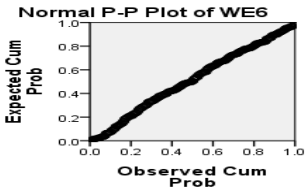

Normal P-P Plot of WE1
Expected Cum Prob
Observed Cum Prob

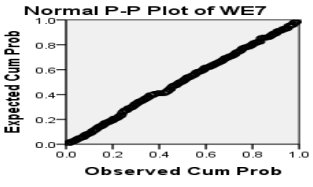

Normal P-P Plot of WE2
Expected Cum Prob
Observed Cum Prob

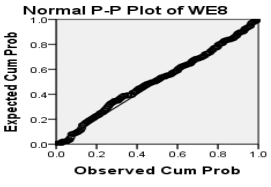

Normal P-P Plot of WE3
Expected Cum Prob
Observed Cum Prob

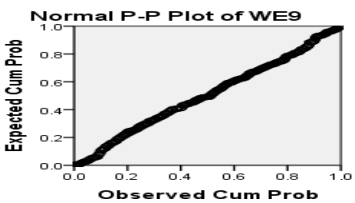

Normal P-P Plot of WE4
Expected Cum Prob
Observed Cum Prob

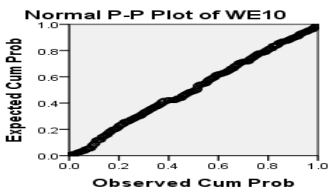

Normal P-P Plot of WE5
Expected Cum Prob
Observed Cum Prob


Normal P-P Plot of WE6
Expected Cum Prob
Observed Cum Prob


Normal P-P Plot of WE7
Expected Cum Prob
Observed Cum Prob


Normal P-P Plot of WE8
Expected Cum Prob
Observed Cum Prob


Normal P-P Plot of WE9
Expected Cum Prob
Observed Cum Prob


Normal P-P Plot of WE10
Expected Cum Prob
Observed Cum Prob