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Intrinsic motivation and employee engagement in manufacturing: moderating effect of organisational justice

Student number: 21819018

A research project proposal submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration.

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Abstract

Employee engagement is a key element for South African manufacturing companies to gain a competitive advantage in the global context. Inherently, an understanding of the drivers of engagement is important. Limited research has been conducted to confirm the effect of intrinsic motivation on engagement in the South African manufacturing industry. Additionally, there has been a call from scholars to add to the understanding of the complex interplay between the antecedents to engagement. The aim of this study is to better understand the potential impact that organisational justice could have on the engagement of intrinsically motivated employees, through the lens of self-determination theory, in the context of the South African manufacturing industry.

A quantitative, explanatory, cross-sectional survey approach was used. A sample of 218 respondents from the South African manufacturing industry participated in the study. The measurement instrument included elements from the Job Engagement Scale (JES), Work Extrinsic and Intrinsic Motivation Scale (WEIMS), and Moorman's (1990) three-factor scale to measure justice perceptions.

The correlation tests found that there is a relationship between intrinsic motivation and employee engagement in the context of the South African manufacturing industry. Furthermore, the moderated regression analysis showed that organisational justice has a moderating effect on the relationship between intrinsic motivation and two dimensions of employee engagement, physical and cognitive engagement, but not emotional engagement. The importance of understanding the dynamics related to how organisational justice affects the engagement of intrinsically motivated employees and leadership style was shown to provide an important perspective for human resource management practitioners.

Keywords

Employee Engagement, Human Resources Management, Intrinsic Motivation, Organisational Justice, Self-Determination Theory

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

Friedrich Wilhelm Hamel

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07 March 2023

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List of Abbreviations

CFA	Confirmatory Factor Analysis
DV	Dependent Variable
ODJ	Organisational Distributive Justice
ECE	Employee Cognitive Engagement
EE	Employee Engagement
EE_CE	EE_Cognitive Engagement
EEE	Employee Emotional Engagement
EE_EE	EE_Emotional Engagement
EE_PE	EE_Physical Engagement
EFA	Exploratory Factor Analysis
EM	Extrinsic Motivation
EPE	Employee Physical Engagement
HRM	Human Resource Practices
IFJ	Informational Justice
IV	Independent Variable
MV	Moderating Variable
OIJ	Organisational Interactional Justice
IM	Intrinsic Motivation
IM_IR	IM_Intrinsic Reward
IPJ	Interpersonal Justice
JES	Job Engagement Scale
OJ	Organisational Justice
OJ_DJ	OJ_Distributive Justice
OJ_IJ	OJ_Interactional Justice

OJ_PJ	OJ_Procedural Justice
PCA	Principal Component Analysis
OPJ	Organisational Procedural Justice
SD	Standard Deviation
SDT	Self-Determination Theory
SPSS	Statistical Package for the Social Sciences
UWES	Utrecht Work Engagement Scale
VIF	Variance Inflation Factor
WEIMS	Work Extrinsic and Intrinsic Motivation Scale

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Chapter 1: Research Problem and Purpose

1.1 Introduction

Employee Engagement (EE) is widely considered a recent most significant management interest (Afrahi et al., 2021; Mackay et al., 2017; Saks, 2019). In manufacturing, EE's importance in gaining a competitive advantage by improvising organisational performance is evident (Albrecht et al., 2015; Saks, 2021). Haraguchi et al. (2017) added importance to the South African context by stating how industrialisation plays a significant role in the growth of developing countries. As such, it is essential to align Human Resource Practices (HRM) to foster EE (Saks, 2021). Consequently, understanding the antecedents that drive EE is critical to enable organisations to implement the correct HRM practices that will foster EE.

Research has suggested that without the antecedents of engagement being in place, organisations would not benefit from having engaged employees (Rich et al., 2010; Saks, 2006). Wollard and Shuck (2011) identified a comprehensive list of more than 20 antecedents for EE on both the individual and organisational levels. This distinction is aimed at understanding the drivers of engagement on two levels. Firstly, from an individual foundational level and, secondly, from a structural or systemic level that fosters the development of EE (Wollard & Shuck, 2011). This distinction is important as the conditions within an organisation which foster the environment for EE are separate from the constructs applied to or by the individual which lead to EE.

Initially, antecedents on an individual level can be considered. Wollard and Shuck (2011) identified employee motivation as one of the antecedents of EE on the individual level. According to Manganelli et al. (2018), motivation can be viewed from two extreme perspectives involving a scale between Intrinsic Motivation (IM) and Extrinsic Motivation (EM). The authors also discussed how IM is more autonomous, while Aldabbas et al. (2022) argued that IM centres on the meaning of the work itself. It can thus be argued that intrinsically motivated employees could be more difficult to influence negatively as there could be a perception of resilience. If such a perception exists, it could be dangerous for HR practitioners and management as the required care in treating these employees may be omitted. In this regard, the role of IM on

EE has received some attention during past research but not yet significantly in the South African context.

In addition, even though the antecedents to EE on the individual level have been shown to be separated from the organisational level and should not be interchanged, it could be argued that there may be relationships between the two levels of antecedents that warrant exploration and understanding. In this regard, various antecedents listed on the organisational level have been linked to Organisational Justice (OJ). Research explores the definition of OJ as involving an employee's perception of fair treatment by an organisation, the linkage between pay-for-performance and monetary incentives for justice and fair pay. In addition, how leadership behaviour influences employee perceptions of trust and justice (.Rahman & Karim, 2022; Visser and Scheepers, 2022; Shuck and Wollard, 2010). Considering this, it is possible that this perception of fair treatment, in the guise of OJ, could have a significant relationship with employee motivation and, resultantly, on EE. Even though the IM to EE association has been researched in the international context, the consideration of the impact of OJ on this relationship has not yet received significant attention in research. This is particularly the case in the South African manufacturing industry. Understanding this relationship could guide management and HR departments in ensuring that intrinsically motivated individuals stay motivated.

1.2 Research Problem

1.2.2. Engagement and Employees

In Kahn's (1990) seminal paper on EE, he argued that employees choose to invest holistically and authentically into their jobs based on their experiences within their area of employment. Mackay et al. (2017) illustrated the theoretical and practical interest that EE has generated in recent times by revealing more than 1,000 search results for the construct. The authors found that EE is potentially more likely to predict how well employees will perform at work than by looking at other predictors like job satisfaction, job involvement and organisational commitment combined. Further underlining the critical role of EE, a magnitude of research has been done to understand its dynamics (Albrecht et al., 2015; Delaney and Royal, 2017; Heyns and

Kerr, 2018; Hurtienne et al., 2021; Mackay et al., 2017; Shuck and Wollard, 2010). Saks (2019) performed a study to validate the results published by Saks (2006), indicating multiple consequences to EE, including job satisfaction, organisational commitment, intention to quit and extra-role performance.

Recent works by Hurtienne et al. (2021) discussed the dearth of literature to understand the more recent drivers of EE in a millennial-dominated workforce. The authors discuss how companies that understand the value of their workforce tend to survive. Furthermore, the authors elaborate on the need for organisations to understand the leadership role of both senior management and direct supervision. Two-way communication is one of the elements found to be necessary on all levels, along with strong support and guidance. Hurtienne et al. (2021) discussed HRM's role in understanding the need for the correct environment to cultivate EE and effectively implement such an environment. This further emphasises the vital link between engagement and employees.

1.2.3. Impact of HRM on Engagement

Bailey et al. (2014) established that EE has a significant association with the products of job satisfaction and organisational commitment. The authors continued to discuss the positive link between constructive forms of leadership and management on levels of EE. Furthermore, Saks (2021) stated that the research on EE demonstrates how HRM directly impacts EE. This is supported by Albrecht et al. (2015), who discussed the importance of including EE in HRM policies to benefit organisations. Thus, the antecedents of EE in the workplace are associated with the employee's experiences in the workplace. HRM policies and practices are aligned to leverage the potential benefits engaged employees can yield.

Saks (2021) discussed how perceptions of HRM practices positively affect EE. The authors elaborated that a lack of caregiving from an organisation to its employees leads to disengagement and, ultimately, an employee leaving the organisation. In contrast, they frame EE as a love resource that results in employees being completely invested in their jobs. This clearly illustrates the vital link between HRM practices and engaged employees. Furthermore, Davis (2015) highlighted the avoidable and expensive staff turnover and investigated the effect of career

opportunities on EE. He found a direct correlation between the constructs and made various recommendations for HRM practitioners on how to effect improvements. Dhanani and LaPalme (2018) added further importance to the need to understand how employees perceive fair treatment by showing how vicarious workplace treatment experiences can affect engagement. As employees form an integral part of an organisation, it stands to reason that EE will significantly impact organisational performance. The vital role that HRM plays in this relationship is evident.

1.2.4. Engagement and Organisational Performance

As the relationship between EE and employee performance and its significant effects on organisational performance has been highlighted, it is essential to unpack the antecedents of EE further. The critical role that EE plays in organisational performance is well known. A study by Bailey et al. (2014) concluded that increased EE leads to higher organisational performance. This sentiment is supported in the manufacturing context in a study by Mariza (2016). Another study by Albrecht et al. (2015) discussed how companies could obtain a competitive advantage by improving EE. This sentiment is echoed by Saks (2021), who elaborated on the strong evidence that EE is closely related to organisational performance.

1.2.5. Antecedents of Employee Engagement

Bailey et al. (2014) discussed the positive link between constructive forms of leadership and management on levels of EE. In another study by Rich et al. (2010), the authors examined the causal relationship between the employee's perceptions of their work situation and its characteristics, and how this affects the inclination to engage in work tasks actively. One of the relationships discussed in their structural model was the effect of the perception of organisational support on job execution and organisational citizenship behaviour, with job engagement and IM as some of the mediators that were considered. The study showed statistically significant evidence of indirect relationships between the antecedents and the outcomes through EE (Rich et al., 2010). It has therefore been demonstrated that EE has various possible influences or drivers.

1.2.6. Intrinsic Motivation

A recent study by Ghosh et al. (2020) discussed IM as involving the performance of a task for the pleasure of doing so and that this derived pleasure serves as an essential antecedent for EE. The authors also discuss how EM is viewed as serving an end separate from the end itself. It can therefore be argued that extrinsically motivated work may not be performed to the extent that intrinsically motivated work will be performed, as intrinsically motivated work will be performed from an engaged perspective. As such, it is essential to understand how IM drives EE.

1.2.7. Organisational Justice

According to Rahman and Karim (2022), OJ involves employees' perceptions about the treatment they receive from the organisation. They elaborate on how trust in the organisation is one of the outcomes of OJ and, in turn, results in employees contributing to organisations beyond their standard field of responsibilities, also referred to as Organisational Citizenship behaviour. A recent study by Visser and Scheepers (2022) discussed the value of good communication between organisational leaders and employees, especially during challenging times. The authors discuss how formal procedures and processes alone are insufficient to ensure employees perceive OJ well. The importance of good communication to build trust and a good relationship between the organisation and employees has been indicated. Hence, it is evident that employees are likely to contribute beyond their expected responsibilities if they perceive fair treatment from their organisation and the significance of clear communication from the organisation to its employees is shown.

A clear link between OJ and EE is demonstrated, but EE is a complex construct influenced by numerous antecedents. The study by Saks (2006) found that some of the elements of OJ influence EE. A more recent study by Saks et al. (2014) supported these results and emphasised the positive outcomes for organisations due to OJ. At least one of the components of OJ, Procedural Justice, predicts EE as an outcome because employees are more likely to apply themselves in the workplace to reciprocate perceived fair treatment.

1.3. Scope and Context of the Study

The importance of understanding the antecedents to EE and the roles of OJ and IM has been discussed. As such, the scope of this research has been conducted within the following defined constructs:

Employee Engagement: A complete and holistic simultaneous investment of an employee's full self and personal resources in the work role (Saks et al., 2021).

Intrinsic Motivation: Motivation applied to an activity seen as its own end (Kruglanski et al., 2018).

Organisational Justice: An employee's perception of the treatment received from the organisation (Mohan, 2018).

Like most other countries, South Africa endured a stringent lockdown due to the COVID-19 pandemic. As development in the manufacturing industries in emerging markets is essential to driving growth (Ndubisi et al., 2021), this presents an opportunity to understand the scope of the study for this research within the context of the South African manufacturing sector.

1.4. Academic Need for the Research

According to Ghosh et al. (2020), the self-determination theory is the most widely used theory to demonstrate the link between IM and EE. The authors elaborate that self-determination theory shows how IM encourages EE by meeting basic psychological needs like autonomy, competence, and relatedness. In addition, they also discuss how the research has not yet explored other drivers that may influence the relationships between IM and EE, which led them to research the role of creativity. It can be argued that different roles, such as OJ, should also be explored.

Liu et al. (2017) provided the impetus to OJ's effect on EE and an organisation by arguing that employees can adapt their internal mental activities and resultant external behaviour based on their perception of fairness within an organisation. Realising the critical role that OJ can play, Kashif Khan et al. (2020) conducted a

study on the moderating effect of OJ on the relationship between the dexterity of training and the development of EE. Their study, however, did not consider IM as an antecedent to EE, leaving a research gap.

1.5. Business Need for the Research

Developing economies need companies to thrive in promoting prosperity for their people. Kowal and Paliwoda-Pękosz (2017) illustrated how developed economies have significant industrialisation and well-developed infrastructure. They contrast emerging economies that typically have a relatively under-developed industrial and commercial base and poor infrastructure. A correlation is indicated between the higher gross domestic product per capita that developed countries can generate and a higher quality of life. Anning-Dorson (2018) discussed how firms operating in emerging markets seek sources of competitive advantage to outperform the competition.

Albrecht et al. (2015) discussed how organisations must take a strategic viewpoint on EE to create a competitive advantage. The growth in understanding the EE construct, its antecedents and consequences has not resulted in good levels of EE. Rastogi et al. (2018) discussed how disengagement at work continues to be a concern for organisations. They elaborate on how various estimates suggest that over 70% of employees are passively or actively disengaged. Albrecht et al. (2015) deliberated on the importance of integrating EE into HRM practices to be directly focused on EE as a strategy. Saks (2021) discussed the role of a caring HRM system in creating an environment of care and concern for employees, as this could lead to a higher level of EE.

As the importance for HRM practitioners to create working environments that promote EE has been shown, it stands to reason that there must be an understanding of the characteristics of such an environment. This need has already been examined. More specifically, the role of the relationship between OJ from an organisational perspective and IM from an individual viewpoint needs to be understood. Arguably, this relationship can potentially affect the level of IM, which is already an antecedent of EE. Fischer and Smith (2006) examined how employees use their perceptions of procedural justice, one of the components of OJ, to evaluate their relationships with

their employers. It can be debated that a diminished perception of this relationship could influence EE. As such, a better understanding of the antecedents of EE, like OJ and IM, can assist in gaining a better understanding of what practices human resource departments should adopt. As the importance of EE has been shown, it is critical for human resource practices and policies to stimulate an environment that fosters EE.

1.6. Purpose Statement

OJ has been known to be a significant driver in employee behaviour, as indicated by Oreg and Berson (2019), where it was discussed that leadership behaviour, in the form of OJ, could significantly affect followers. This is of value to organisations, hence, the importance of understanding this relationship. The purpose of this study is to gain a better understanding of the potential impact that OJ could have on the engagement of intrinsically motivated employees.

This understanding can assist in developing human resource practices aligned with utilising the possible leverage that this controllable influence could have in fostering EE. This relationship was investigated through the theoretical lens of the Self-Determination Theory (SDT) to specifically understand the context of intrinsically motivated employees with regards to EE in the workplace. By adding to the research on the interplay of the different antecedents of EE, a better understanding of its ability to drive performance can be gained.

1.7. The Aim of the Research

This study aims to develop a more in-depth perspective on how IM, as a driver of EE can be affected by OJ. As this is a controllable influence, this understanding could assist HRM practices in understanding the need to prioritise policies and processes that will improve this relationship. Alternatively, the perspective gained could show that resources should be deployed elsewhere as the required effort may not achieve the required or proportionate desired results.

1.8. Layout

The following sections of the research report have been structured as follows:

Chapter 2 – Literature and Theory

This chapter provides insight into the literature on EE, IM and OJ constructs. By understanding what is known and what is not known, the need for research can be illustrated.

Chapter 3 – Research Hypotheses

This section summarises the themes from Chapter 2 and presents the hypotheses tested in the research study.

Chapter 4 – Research Methodology and Design

This chapter explains and defends the research methodology used for the study. It contains sections on the research design, population, sampling method, measurement instrument, time horizon, data collection, data analysis methods and limitations.

Chapter 5 – Results

This section describes the population used for the study and presents the test results of the hypotheses.

Chapter 6 – Discussion of the Results

This chapter discusses the results and builds on Chapter 2, using the results obtained in Chapter 5. The results from the statistical tests used to test the hypotheses are aligned with the literature.

Chapter 7 – Conclusion

This section concludes the research by summarising the findings, implications, contributions, limitations, and recommendations.z

1.9. Conclusion

This study aims to improve the understanding of the effects of IM on EE in the South African manufacturing context and to investigate what role OJ plays in this relationship. This chapter provides a background and overview of the study. It is aimed at exploring the target area of the research. First, understanding what is known about the key constructs and their relationships gives context to the study. In summary, this gave credence to the research methodology on how the data was gathered, who the target population was and how the data was handled, processed, and analysed. By ensuring the data's quality, validity and reliability, the reported results can be trusted and generalised so they can be used to understand the full scope of the study better.

Chapter 2: Literature Review and Theory

2.1. Introduction

According to Snyder (2019), a literature review is the starting point for all research. As such, this chapter aims to provide an overview of the relevant literature available for the constructs that have been discussed. This section summarises understanding EE and how it compares to disengagement. It then unpacks the sub-constructs that make up EE, followed by a look at their antecedents and consequences. The study then looks at work motivation before it narrows down to IM and how it links to EE. It also grounds the concept of IM based on SDT, which will be used as the theoretical lens to frame the study. The focus then moves to OJ as a construct and how it may affect the relationship between IM and EE. Finally, the role of management and HRM practices in relation to the dynamics of the constructs is visited.

2.2. The Importance of Employee Engagement in Manufacturing

Manufacturing organisations are challenged to improve competitiveness globally (Hurtienne et al., 2021). Kwasi Fosu (2017) discussed concerns regarding the sustainability of economic growth in Africa. The authors examined the manufacturing sector's role in economic development. Haraguchi et al. (2017) added further motivation by stating how industrialisation plays a significant role in developing countries' growth. Even though the importance is evident, inadequate research has been done that focuses explicitly on the drivers of performance in the manufacturing context. Most research has focused on organisations as a collective. Due to the demonstrated importance of the manufacturing industry for economic growth, it stands to reason that it deserves individual focus. Understanding the factors that drive performance within the manufacturing sector could help these organisations understand what strategic decisions to take in the quest for competitive advantage. A literature review shows that EE is critical for organisations to gain a competitive advantage and hence, illustrates the importance of understanding EE and its antecedents within the manufacturing context.

2.3. Understanding Employee Engagement

2.3.1 Employee Engagement as a Construct

There has been considerable debate on EE (Holland et al., 2016). In his seminal paper, Kahn (1990, p.694) described EE as "the harnessing of organisation members' selves to their work roles; in EE, people employ and express themselves." More recently, EE was defined by Mackay et al. (2017, p. 1) as a "positive, fulfilling, work-related state of mind that is characterised by vigour, dedication, and absorption". Both definitions show the commonality of the human motivational element. As such, the antecedents and consequences of EE have been widely researched. Wollard and Shuck (2011) investigated 159 studies to refine the definition of engagement. These studies were all published after Kahn's (1990) seminal paper.

Kahn (1990) framed EE within three psychological conditions: meaningfulness, safety, and availability. He set the scene for considering the influences that can affect EE (Afrahi et al., 2021; Saks, 2021). Kahn's (1990) work created discourse on EE, its drivers, and its effects (Bailey et al., 2014). Shuck and Wollard (2010) discussed how some researchers speak of EE in terms of generalities, which could lead to the assumption that EE should only be viewed on an organisational level instead of an individual level. The authors elaborated on how this could mislead HRM practices, as assessing engagement on an organisational level does not understand what drives individuals on a personal level. Even though the three psychological conditions defined by Kahn (1990) might seem like organisational-level interventions, it can be argued that they rely heavily on the individuals' perception of these conditions that could result in engagement. These conditions needed further research to deepen the understanding. May et al. (2004) published the first empirically tested study of the three psychological conditions of EE established by Kahn (1990) and found that all three were significantly related to EE. Saks (2006) built on Kahn's (1990) EE theory by taking a role-specific perspective, creating a distinction between job engagement and organisation engagement, in which the roles are the work-specific and member-specific roles.

Saks (2006) further established empirically tested antecedents and consequences for EE. The study found that job and organisation engagement were related, yet separate constructs. The study still combined the constructs into the original EE construct. In addition, the study's findings showed that, even though distinct, both job and organisational engagement were related to employees' attitudes, intentions and behaviour and were influenced by perceived organisation support. A study done by Shuck et al. (2014) focused on the potential effects of engagement on employees by linking staff turnover to HR practices that affect engagement. In addition, Bailey et al. (2014) added impetus to the work done by Saks (2006) by strongly linking EE with consequences like job satisfaction and organisational commitment, with a moderate correlation to other outcomes, like turnover intention. Saks (2019) further considered the antecedents to be resources that foster EE and are more likely to repay the organisation for providing the resources with holistic investment. The results of these studies demonstrated the complexity of EE, its antecedents and consequences in relation to employee morale and performance.

More recently, Saks (2019) revisited his previous work of validating the results published by Saks (2006) in light of the more recently published studies that use the Utrecht Work Engagement Scale (UWES) to measure work engagement. Generally, the results of the study showed consistency with the original study and added multiple additional consequences and antecedents to EE. Furthermore, this also created the opportunity to understand better the validity and generalisability of the original model in the more recent context.

Anitha (2014) emphasised the importance of EE and its antecedents in driving employee performance. The study found that a healthy work environment facilitated by the antecedents of EE is instrumental in promoting organisational performance. The study further pointed out the importance of the methods taken by the organisation to foster such an environment. This is further emphasised by Albrecht et al. (2015), who discussed how engagement needs to be integrated as a strategic focus for organisations across all facets of the employer-employee relationship and the whole employee lifecycle. The authors stated that the perceived organisational climate created through HRM practices and policies could directly impact employee engagement by influencing individual variables, such as psychological safety. This links back to the seminal study of Kahn (1990), where he establishes the three

psychological conditions as drivers for EE in the form of meaningfulness, safety, and availability.

The antecedents and consequences of EE have been widely researched (Wollard & Shuck, 2011; Bailey et al., 2014; Saks, 2019). Even though there has been some discourse, the narrative linking EE to antecedents that act as drivers and performance-related consequences has largely been maintained. The evolution of EE since the grounding study done by Kahn has been clearly demonstrated. In addition, the literature has shown that the increased understanding of the construct, combined with the ever-changing work environment context, has identified additional antecedents and consequences to EE that need to be understood.

EE drives individual outcomes that drive performance and behaviour, which drive organisational results that affect competitive advantage. A study by Rich et al. (2010) showed that EE accounted wholistically for the relationship between antecedents like job involvement, job satisfaction, intrinsic motivation and performance outcomes. More precisely, Albrecht et al. (2015) deliberated the effects that performance outcomes could have to include downstream variables specifically. The authors unpacked the downstream variables to show a cause-and-effect relationship. From this cascading interdependence between the antecedents of EE and their outcomes, it is evident that the reach extends further upstream and downstream to include the role that HRM practices must play to enhance the success of an organisation.

Rich et al. (2010) discussed how most of the existing measures of engagement do not fully reflect Kahn's (1990) conceptualisation of EE in how individuals invest their physical, cognitive, and emotional energies in the workplace. The authors discuss how the most popular measurement scale of engagement, the Utrecht Work Engagement Scale (UWES) includes items that confound engagement with the antecedent conditions suggested by Kahn. They elaborated that the Job Engagement Scale (JES) they developed, more accurately reflects Kahn's conceptualisation and provides a sound way to measure EE, as defined by Kahn (1990). A study done by Byrne et al. (2016) further tested the Job Engagement Scale (JES) used by Rich et al. (2010) against the more popular UWES. Their findings indicate that the UWES assesses a broader domain of overlapping variables, compared to the JES. Byrne et al. (2016) further recommended that the JES is used

for specifically measuring EE as it has less overlap with associated attitudes than the UWES. As such, the JES seems to be the preferred measurement scale to measure EE in terms of Kahn's (1990) conceptualisation.

2.3.2 Employee Engagement Compared to Employee Disengagement

Although EE has been extensively researched, disengagement is still considered an emerging construct (Rastogi et al., 2018). The authors discussed how the psychological conditions of engagement and disengagement conceptualised by Kahn (1990) had received varied levels of attention in research over the last few decades. Where EE has been pursued from multiple perspectives, disengagement has been comparatively unexplored. This viewpoint was confirmed more recently by Afhaari et al. (2021), where the authors attributed this omission to the misconception that disengagement is the absence of engagement.

This discourse regarding the context of engagement was further explored by Afhaari et al. (2021), who proposed that the distinction should be made to treat disengagement on its own merit and as a distinct construct. The authors suggested that an absence of engagement should rather be classified as a lack of engagement, creating a threefold distinction between engagement, lack of engagement and disengagement. As such, the position of this report is to frame the absence of engagement as a lack of engagement. This will put focus on disengagement as a construct in its own right.

2.3.3 Sub-Constructs of Employee Engagement – Physical, Cognitive, and Emotional

Since 1990 a myriad of studies (Saks, 2019; Brunetto et al., 2012; Wollard & Shuck, 2011; May et al., 2004; Shuck & Wollard 2010; Afrahi et al., 2021; Shuck and Reio, 2013) have built on the seminal work done by Kahn (1990). Accordingly, the merit of using Kahn's original theory to frame EE has been deeply rooted. In essence, Kahn (1990) aimed to understand engagement in terms of the three psychological conditions influencing engaged behaviour. The focus was directly on the nature of the three psychological conditions and the nature of the individual, social and contextual sources that contribute to these conditions. Kahn (1990) discussed how

EE involves the expression of the different dimensions of oneself in the work environment, given the premise that certain conditions are present. The required conditions that Kahn (1990) theorised as drivers for this expression are the three psychological conditions in the form of meaningfulness, safety, and availability. Alternatively, the three manifested engagement dimensions expressed by oneself in the workplace were listed by Kahn (1990) as physical, cognitive, and emotional. This is supported by Bailey et al. (2014), where the authors discussed how EE is based on the three antecedent psychological conditions manifested in the workplace by investing energy physically, emotionally, and cognitively. More recently, Lee et al. (2019) provided a different perspective on the three dimensions of engagement by framing it as a personal resource required for engagement through the lens of the Job Demand Resources model. The authors viewed the three dimensions as antecedents to engagement, but it can be argued that essentially this perspective would still require the expression of these dimensions to ultimately result in engagement.

As the measurement of EE is based on these three physically expressed dimensions of EE, a better understanding of the dimensions and their interaction is needed. From an individual perspective, Kahn (1990) described the physical dimension of EE, Employee Physical Engagement (EPE), as requiring physical energy, strength, and readiness to perform a task. As expected, this implies engaged employees would be more energetic and eager to complete tasks than employees with depleted energy levels. On the side of the emotional dimension, Employee Emotional Engagement (EEE), Kahn (1900) discussed how engaged employees are more likely to invest emotional energy into work relationships to form bonds that exceed what is typically seen between co-workers. Lastly, for the cognitive dimension, Employee Cognitive Engagement (ECE), Kahn (1990) described how engaged employees tend to employ cognitive energies in their work tasks by using experience, reasoning, and memory to add richness to the quality of work produced by oneself or team members interacted with.

Kahn (1990) described these dimensions or energies rather than explicitly defining them and explained them as likely hierarchical. He theorised that different levels of experience, related to the three psychological conditions (meaningfulness, safety, and availability), could bring a threshold point that would lead to EE. This could

trigger the self-investment of the three dimensions of engagement, starting with physical, before moving on to cognitive and then emotional. Building on this, multiple authors (Saks, 2021; Mackay et al., 2017; Bailey et al., 2014; Rich et al., 2010) have used the interplay between the three dimensions of EE discussed by Kahn (1990) in their studies related to EE and how it affected various aspects of EE. This interplay seems to suggest that these dimensions are closely related. This was confirmed by authors discussing how engaged employees use all aspects of themselves, cognitive, emotional, and physical, to immerse themselves in their work roles (May et al., 2004; Saks, 2019; Mackay et al., 2017). The three dimensions of engagement are an effective way to measure EE.

2.3.4 The Complexity of the Sub-Constructs of Employee Engagement

This complexity of EE as a construct was confirmed by Bailey et al. (2014) and Kahn (1990), who discussed how the study is focused on unpacking the larger complexity of EE by reviewing the multiplicity of factors that are constantly relevant to the dynamics of the individual in the workplace. There are many potential relationships and overlaps from the debates regarding the three sub-constructs of EE discussed by Kahn (1990). To gain a deeper understanding of the construct of EE is beyond the scope of this study. EE will be treated as a single construct with the focus instead being on understanding the drivers of this construct.

2.3.5 Understanding the Antecedents to Employee Engagement

Various studies have examined EE's antecedents (Saks, 2006; Woolard & Shuck, 2011; Rich et al., 2010). This shows both consistancy and the importance of understanding and considering the antecedents of EE. Saks (2019) evaluated the antecedents to EE to be resources that foster EE and are more likely to repay the organisation for providing the resources with holistic investment. It can be argued that this relationship between antecedents and EE is aligned with the theory presented by Kahn (1990) and that psychological availability could be directly linked, with psychological meaningfulness and psychological safety indirectly linked.

In the literature, many antecedents to EE have been identified, including self-efficacy, work significance, dedication, employee motivation, perceived organisational

support, autonomy, and timely performance feedback, to name just a few (Mackay et al., 2017). Wollard and Shuck (2011) identified 42 antecedents on an individual and group level. Afrahi et al. (2021) more recently presented a typology of antecedents that had many similarities but also some differences to the study done by Wollard and Shuck (2011). This presents a challenge to gain a holistic understanding of EE and its antecedents. More recently, the revisited EE model Saks (2019) presented included twice as many antecedents and consequences to EE as the original study. It has some commonalities with the antecedents identified by Mackay et al. (2017). This clearly shows the construct's ever-evolving and developing nature, lending itself to the need for further study and understanding.

2.3.6 Consequences of Employee Engagement

The importance and complexity of EE as a construct and the role that the antecedents play as a predictor of EE have been discussed. An understanding of the consequences of EE is as essential as the antecedents. The positive effect of EE has been highlighted by multiple authors (Rich et al., 2010; Bailey et al., 2014; Saks, 2021). The authors show the potential effects that a lack of understanding of the preceding dynamics could have. This justifies the need for studies like this one to build on the existing knowledge base.

The work done by Saks (2019) to revisit the antecedents and consequences of EE not only expanded on the previously identified antecedents, but also on the identified consequences of job satisfaction, organisational commitment, intentions to quit and organisational citizenship behaviour. The other outcomes included task performance, extra-role performance, health and well-being, stress and strain, and burnout. This shows the continued development of EE as a construct, along with what drives and is influenced by it. Very importantly, the influence of these outcomes on organisational competitiveness must be considered. The discussion has included how companies can gain a competitive advantage by improving EE (Albrecht et al., 2015; Saks, 2021).

2.3.7 Employee Engagement Perspective

Saks (2019) discussed the complex relationships between EE, its antecedents, and consequences. This highlights the difficulty in gaining a holistic understanding of the relationships between complex and multi-layered constructs. To narrow the focus, the potential relationships between the three dimensions of EE that have been discussed warrant a deeper perspective. Evaluating the discussions regarding the three psychological conditions that drive the three self-application dimensions highlights a central theme of individual perception. It could be argued that perception is not necessarily reality, as perceptions would differ between individuals. Furthermore, the perception of a context or situation is fundamental to the individual and may be consistent between individuals. The perceptions of the context, as experienced by individuals, need to be understood to see if there are trends when viewing the individuals as a collective. As such, EE and its associated dynamics will be viewed from an individual perspective for this study.

2.4. Work Motivation

Shkoler and Kimura (2020) described work motivation as the forces within employees and their environment that facilitate work-related behaviour and its direction, intensity, and duration dynamics. The authors discussed how work motivation is theoretically underpinned by SDT, which places work motivation on a scale between IM and EM. The use of SDT to frame the relationship between work motivation and EE was a contemporary common practice in various studies (Ghosh et al., 2020; Kruglanski et al., 2018; Fishbach & Woolley, 2021; Chai et al., 2017).

Despite the potential importance, Shkoler and Kimura (2020) discussed how limited research has been on the relationship between work motivation and engagement. They discuss how engagement is driven by perceptions of psychological meaningfulness, safety and availability at work, the basis of the theory developed by Kahn (1990). They elaborated on how the workplace fulfils different intrinsic and extrinsic needs ranging from enjoyment and personal challenge to income and status. This gives impetus to the need to explore this relationship further.

2.5 Intrinsic Motivation as a Construct

Wollard and Shuck (2011) discussed how employees that can find motivation within their job might likely be engaged and channel their efforts towards positive organisational performance. This sentiment is supported by Ghosh et al. (2020), who showed a strong association between IM and EE. Aldabbas et al. (2022) argued that IM centres on the meaning of the work itself, can influence EE and encourages employees to develop their skills and creativity, which all results in positive outcomes for the organisation. Building further impetus for the importance of engagement, Delaney and Royal (2017) placed motivation at the core of any conceptualisation of engagement. The authors discussed how organisations' understanding of their employees could help them strategically invest in employee motivation to yield the maximum return on overall engagement. Derfler-Rozin and Pitesa (2020) discussed the importance for employers to understand the nature of IM and EM for prospective new employees. The authors discussed that employers might be influenced by motivation purity bias, by incorrectly perceiving potential employees with higher levels of EM as having undesirably low levels of IM.

To aid employers with this understanding, specifically related to IM, a sense of what influences IM is needed. The seminal work done by Kahn (1990) on the three psychological conditions necessary for EE relates to the drivers of IM. If these conditions are met, an employee may be more likely to self-regulate motivation, as described by SDT. (Manganeli et al., 2018; Deci et al., 2017). Deci et al. (2017) discussed the importance of autonomy, a theme of SDT, to inspire self-regulation for motivation so that it can be intrinsically motivated. Inducing autonomy, Kruglanski et al. (2018) described IM as being seen as its own end and, conversely, EM to involve an activity distinct from its end. In other words, the source of the IM can be internalised, while the motivation source for extrinsically motivated activities is external to oneself. Further perspective was added by Shkoler and Kimura (2020), who discussed how intrinsic motivation is an internal driver that originates from the sense of satisfaction, accomplishment and joy derived from the activities at work and their results. On the other end of the scale, EM focuses on the function or value of the activity rather than the activity itself and in the form of the work itself, the work environment, and the organisation (Shkoler & Kimura, 2020). This is reiterated by Chai et al. (2017), who asserted that psychological conditions need to be met to

maintain an employee's IM and to promote the internalisation of EM. This results in an employee being more determined in the workplace, aligning with the notion of SDT. Furthermore, Manganelli et al. (2018) discussed how the lens of SDT provides employers with the perspective to understand their employees' motivation modes. This perspective involves understanding which factors preserve IM and which factors regulate EM to promote its internalisation to become IM.

An important distinction made by Shkoler and Kimura (2020) was that IM and EM are mutually independent, each with unique antecedents and outcomes. This distinction uses SDT to explain how motivation can be distinguished based on the level of autonomy. The authors discuss how IM has the highest autonomy that can lead to the best outcomes. EM can be broken down into various levels of autonomy, resulting in various degrees of internalisation. Besides supporting the notion that IM and EM are separate constructs, they also raise the possibility of IM having the potential to lead to more positive outcomes due to the higher level of autonomy, resulting in higher levels of self-determination. This shows the potential importance of stimulating and preserving IM, which is the focus of this study. As such, it needs to be measured separately from EM. Various studies have successfully measured IM and EM in employees using the Work Extrinsic and Intrinsic Motivation Scale (WEIMS) (Ryan & Deci, 2000; Tremblay et al., 2009; Heyns & Kerr, 2018). Studies have shown how IM can be measured separately from EM when using WEIMS (Goodboy et al., 2020; Shkoler & Kimura, 2020). In this study, IM was considered from the internal perspective exclusively. This requires the separation of IM from EM, as it has been positioned on the continuum discussed by Manganeli et al. (2018). In this regard, IM can still be measured utilizing the WEIMS, as Tremblay et al. (2009) did.

IM has been discussed as being influenced by forms of external regulation. Olafsen et al. (2015) studied the effects of OJ, in the form of financial reward, on IM. Through the lens of SDT, the study aimed to better understand how financial reward, justice and need satisfaction influenced IM. The results showed how controlled regulation can integrate with autonomous regulation. The authors called for future research to test various alternative combinations of their model in other working populations. Seeking to explore these dynamics in the South African context specifically, the writer could not find recent studies that exclusively tested the effects of IM on EE in this

context. As the importance of understanding this relationship has been shown, specifically in the South African context, this study will seek a deeper understanding.

The complex dynamics between the antecedents to EE play a significant role in this understanding. Some of the possible antecedents were listed by Saks (2019) when he revisited his previous study in 2006. The study did not clearly distinguish which antecedents relate specifically to IM, but the discussion on motivation regulation, supported by SDT, helps to see the differences. This was supported by various studies that show how some of these antecedents to EE listed by Saks (2019), like perceived organisational and supervisor support, perceptions of fit, procedural and distributive justice have been linked directly or indirectly to IM (Aldabbas et al., 2022; Feng et al., 2016; Woolard & Shuck, 2011; Rich et al., 2010; May et al., 2004). Of these antecedents, procedural and distributive justice form part of a more significant construct, organisational justice. This construct was examined by Moorman (1991) in a three-factor format that included Organisational Procedural Justice (OPJ) and Organisational Distributive Justice (ODJ), the antecedents described above, with the addition of Organisational Interactional Justice (OIJ). The construct of OJ will be indicated later in this study to potentially play a significant role in regulating motivation.

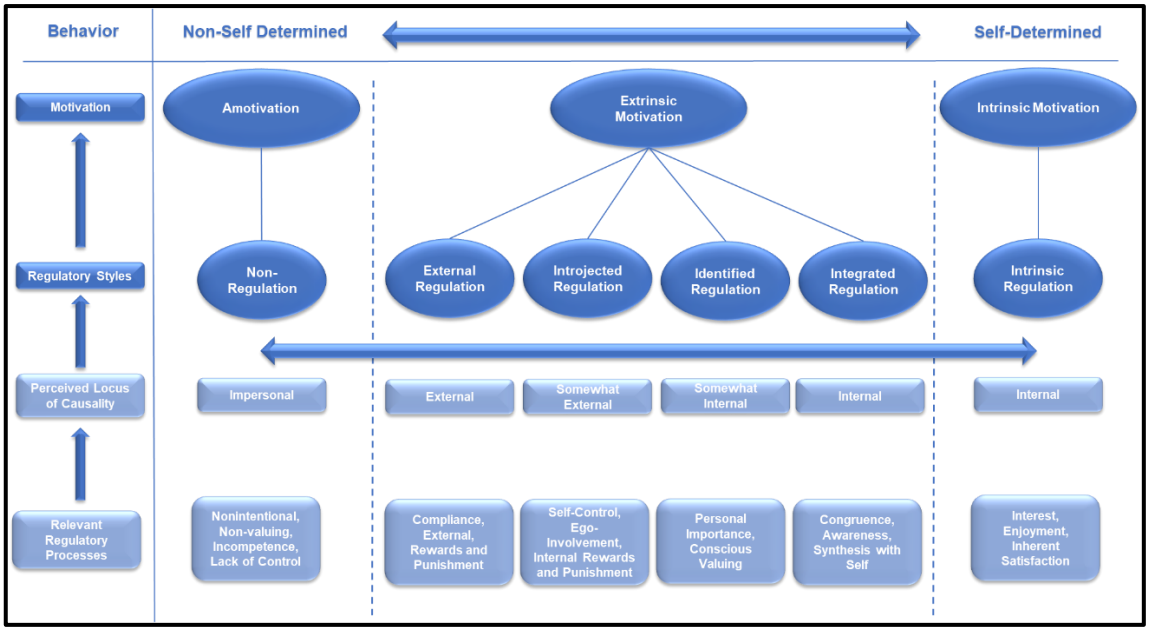
2.6 Theoretical Lens – Self-Determination Theory

It has been evaluated how SDT aids in understanding the interactions and drivers for motivation. According to Deci et al. (2017), self-determination theory developed from research done on IM and EM and evolved to be linked with various domains of life, including work organisations. A study by Siyal et al. (2021) discussed how extrinsic or intrinsic dynamics usually inspire employees in organisations to perform the required tasks. Manganelli et al. (2018) discussed how self-determination theory involves the different types of motivation that an employee experiences regarding their work. The authors elaborated on how SDT places motivation on a scale ranging from autonomous regulation, involving intrinsic and identified motivation, and controlled regulation, involving introjected and EM. They further discussed how the regulation of employee motivation could have significant psychological and behavioural outcomes for the individual and, in turn, on the organisation by affecting commitment, EE, absenteeism, and intention to turn over. As such, self-

determination theory seeks to explain how the motivational factors within the workplace translate into motivation, that in turn translates into EE.

Although work on SDT dates back to the 1970s, the first comprehensive statement of SDT was compiled in the mid-1980s by Deci and Ryan (1985). Figure 1 shows the self-determination continuum, indicating types of motivation with its regulatory styles, locus of causality and associated process. The shift from self-motivated interest, enjoyment, and satisfaction to externally motivated compliance, rewards and punishment is evident. It hints at the delicate balance for organisations to manage the preservation of internalised motivation and externalised compliance incentives.

Figure 1 *The Self-Determination Continuum*



Note. Author's own (2023) adopted from Ryan & Deci, 2000, p. 72

Deci et al. (2017) evaluated the concept of basic psychological needs for competence, autonomy, and relatedness as a perspective to understand the outcomes of self-determination theory within an organisational setting. The authors argued that organisational conduct, in the form of policies and practices, acts as drivers of psychological needs, regulating motivation from autonomous to controlled. Further impetus was added by Chai et al. (2017), who explained how psychological conditions need to be met to maintain an employee's IM and to promote the internalisation of EM. This results in an employee being more determined in the workplace, aligning with the notion of SDT. It can be argued that the basic

psychological needs for competence, autonomy, and relatedness (Deci et al., 2017) relate to the three psychological conditions of meaningfulness, safety, and availability needed for EE (Kahn, 1990). As self-determination theory frames IM in terms of satisfying the three basic psychological needs and the links to EE, this suggests that self-determination theory is a suitable theoretical lens to understand the mechanisms through which IM impacts EE.

2.7 Organisational Justice as a Construct

A study by Edezaro (2022) found OJ to be one of the factors that significantly affect organisational citizenship behaviour. This sentiment was echoed by Mohan (2018), who discussed the critical role that organisational citizenship behaviour plays in the growth of organisations and how OJ is one of the significant contributors to driving organisational citizenship behaviour. The authors went on to provide a basic definition of OJ to involve the perception of employees about the fairness of the treatment they receive from their organisation. This perception of fair treatment has been discussed to have a direct or indirect relationship with the motivation of employees and has been shown to affect engagement. As a perception of fair treatment, OJ could be considered to have a potentially significant effect on the three psychological conditions described by Kahn (1990) and how IM leads to EE. Fischer and Smith (2006) provided the impetus to this proposal by discussing how OJ, specifically procedural justice, affects the relationships between the stakeholders within an organisation on all levels related to feeling valued, which is more likely to result in EE. This links back to the dynamic relationship between IM and EE, resulting in the base from which the hypotheses were developed.

Moorman (1991) considered OJ in terms of three dimensions, ODJ, OPJ and OIJ and used these three factors in a measurement scale for the study. He described how ODJ involves the perception of fairness, where people judge what they perceive as consistent with implicit norms. Moorman (1991) illustrates OPJ as a fair process that results in decisions with resultant outcomes in the organisation. Lastly, he described OIJ as related to OPJ in that it involves the perception of how fairly an organisation interacts with its employees in its procedures.

The study by Moorman (1991) found a causal relationship between perceptions of OJ and organisational citizenship behaviour, which was an outcome of EE. He particularly discussed how employees are likelier to behave as organisational citizens if they believe their organisation has treated them fairly. Since then, there has been some discourse regarding the measurement of OJ. Moliner et al. (2008) supported the notion of a three-factor scale. In a study done by Colquitt (2001), he proposed that a four-factor scale would be better suited to measure OJ.

Colquitt (2001) further explained these four dimensions, which relate to DJ and PJ similarly, but differently to IJ. He discussed how OIJ has its effects that need to be considered in their rights, splitting OIJ into two separate components, interpersonal justice and informational justice. Colquitt (2001) defined interpersonal justice as the interpersonal treatment people receive when company policies and procedures are applied. In contrast, informational justice involves the perceived adequacy of explanations. Further support for the four-factor scale was shown in a study done by Ng (2017). Alternative discourse on the dimensionality of OJ was apparent in a study by Miller et al. (2012). The author specifically compared the three-dimension measurement scale used by Moorman (1991) to the four-dimension scale used by Colquitt (2001). The study's results suggested that Moorman's three-factor measures may outperform Colquitt's four-factor scale in some situations. More specifically, they found that Moorman's (1991) representation of OJ may be more beneficial for organisations to measure the perceptions of fairness and justice in the workplace than Colquitt's (2001) depiction. Miller et al. (2012) discussed the reason for this to lie within the phrasing used in the questions. He went on to interpret how the questions used by Colquitt (2001) assessed the judgement of an event, whereas the questions used by Moorman (1991) assessed a general perception of fairness. Organisations usually intend to understand collective situations rather than event-based situations, so a scale that measures general perceptions is likely better suited.

As the linkages of cause and effect between IM and OJ on EE and on organisational citizenship behaviour have been discussed in detail, the antecedents to OJ also have a role to play in the complex dynamics. According to Visser and Scheepers (2002), employees' perceptions regarding trust and justice are determined by their organisational leaders' traits and behaviours. Mohan (2018) discussed how the interaction between employees and their organisations forms the perceptions base

that becomes the antecedent for OJ. The authors discussed how these perceptions had been shown to manifest in the dimensions that make up OJ. A study done by Charoensap et al. (2018) added further perspective to the role that leadership can play in a study on the effect of ethical leadership and interactional justice on employee work attitudes. The study found that employees will tend to support ethical leaders in reaching the leader's goals. It is thus essential for organisations to understand the potential effects of the behaviour of leadership within the organisation as the impact could have a profound impact.

2.8 The Effect of Organisational Justice on Intrinsic Motivation and Employee Engagement

The effect of OJ on the relationship between IM and EE has been discussed, but a more profound understanding is needed as it potentially has an important role. The multiple factors that seek to understand the dynamics show the complexity of OJ and its different dimensions. One outcome of OJ was described by Georgalis et al. (2014) to be resistance to change, which can also be necessary due to growing organisations consistently making changes. In addition, Visser and Scheepers (2022) showed the vital role of interactional justice in building trust in relationships between employees and organisational management. The authors explained the critical role that communication between leaders and followers in fostering trust as formal procedures and processes are insufficient. Even though the outcomes in these studies show indirect links to EE, many studies show this relationship more directly.

Saks (2006) discussed how one of the components of OJ, procedural justice, predicts EE due to employees being more likely to feel the need to reciprocate a perception of fair treatment by applying themselves in the workplace. In another study by Strom et al. (2013), the moderating role of leadership style on the relationship between OJ and EE was explored. As the dynamics between the antecedents to EE are complex, other antecedents to EE, like IM, can also be considered in this relationship. As OJ has been depicted to include personal perceptions of treatment, it could affect the construct of IM, which also finds an internalised sense of motivation and can arguably form an effectual relationship that could affect EE. If this effect is understood, it could assist HRM practices in finding the correct focus areas to foster EE. Wollard and

Shuck (2011) discussed how it is evident that antecedents to EE cultivate the environment for a state of EE to develop within an organisation and that it requires unique strategies and models to do so.

2.9 The Role of Management and HRM Practices

The critical role that EE has in creating a competitive advantage for organisations has been illustrated. The antecedents involving motivation and OJ and the role of employee perceptions in fostering these antecedents have also been reiterated. It thus stands to reason that the role of the organisational environment that encourages employee perceptions needs to be investigated further. In line with exploring the organisational environment, Wollard and Shuck (2010) discussed how organisations pay more attention to EE and that HRM departments are expected to develop strategies to develop and promote EE strategies. The authors discussed a significant gap in research about what these strategies should look like. Mackay et al. (2017) gave further motivation to understand the organisational environment by examining how organisations must create an environment and culture likely to promote EE to boost workforce productivity. They more specifically stated that organisations must foster the antecedents to EE. This is supported by Albrecht et al. (2015), who discussed how organisations seeking to gain competitive advantage must focus on EE, specifically how to embed EE strategies into their HRM policies. More recently, support was given by Burnett and Lisk (2019) to the importance of HRM policies to foster engagement. They discussed the need for organisations to measure engagement more frequently and use improved techniques to gather better data.

It has been explained that EE needs to be an organisation's focus area. HRM departments must intentionally adopt EE strategies that specifically target EE programs. Considering the discussions relating to antecedents to EE, like IM and OJ and their relationships, it can be argued that an organisational environment that fosters EE involves more than physical HRM systems and processes. The intangible aspects of perception and interaction are arguably essential considerations. This is implied by looking at IJ, discussed to be a dimension of OJ, where the interaction of organisations with employees in performing the other more physical dimensions of OJ are measured.

2.10 Conclusion

A review of the literature indicates the focus is on the relationship between a myriad of perceived antecedents of EE. Even though there have been a few recently published studies that considered the role of IM as an antecedent to EE (Ghosh et al., 2020; Aldabbas et al., 2022; Delaney & Royal, 2017), the role of IM on EE has not yet been fully explored in all possible contexts. It has been discussed how a better understanding of IM can be gained by using the theoretical lens of SDT that looks at motivation along a continuum ranging from autonomous to controlled motivation. This provides a better understanding of how motivation is internalised and how it is affected by externalities.

Delaney and Royal (2017) found that IM in employees was constantly higher placed than EM. Hence, it was deduced that employees try their best to satisfy internally focused targets, but organisations tend to curb this enthusiasm. Even though this perspective looks at EM as the curbing medium, it can be argued that other aspects of the organisation can also influence this relationship. One of these aspects has been expressed to be the effect of OJ potentially. The dimensions of OJ have been examined to include OPJ, ODJ and OIJ, where the latter dimension involves employees' perceptions regarding the implementation and interactions related to affecting the former two dimensions. These OJ dimensions could significantly affect the relationship between antecedents to EE and the construct itself. The result could affect EE and, consequently, organisational citizenship.

This potential upstream/downstream relationship was shown by Mohan (2018), who discussed how organisational citizenship is the behaviour seen because employees are satisfied with how they are treated by their organisation, also known as OJ. This suggests a possible relationship between the employee’s perception of fair treatment, OJ, and at least one of the consequences of EE, Organisational citizenship. Thus, OJ could be a possible influencing mechanism on the relationship between IM and EE. This study seeks to explore these relationships.

Chapter 3: Research Hypotheses

The literature has shown EE's importance in gaining a competitive advantage in the manufacturing industry (Albrecht et al., 2015; Saks, 2021). As such, HRM practitioners need to foster EE (Saks 2021). This can only be achieved by having a good understanding of the drivers of EE. Even though research has been focused on many perceived antecedents to EE and their relationships, there has been limited focus on the role of IM as an antecedent to EE. Moreover, the interplay between IM and other antecedents, like OJ, has received limited attention. By viewing IM through the lens of SDT, a better understanding can be gained of how motivation is internalised and how it is affected by externalities. OJ can be assessed as one of the externalities that could affect IM.

Manganelli et al. (2018) discuss how the lens of SDT provides employers with the perspective to understand their employees' modes of regulation to see which factors preserve IM and which factors regulate EM to promote its internalisation to become IM. For this study, OJ will be considered in terms of three dimensions, OPJ, ODJ and OIJ, as this is preferred to the four-factor dimension. EE will also be considered in terms of its three manifested engagement dimensions, as expressed by oneself in the workplace and listed by Kahn (1990) as physical, cognitive, and emotional. Lastly, IM is preferred over EM as a focal point for this study because autonomous regulation needs to be promoted over controlled regulation.

3.1 Research Hypotheses

3.1.1 Research Question

This research study aims to answer the overarching research question of what effect IM has on EE in the South African manufacturing context and, specifically, what role OJ plays in this relationship. The following hypotheses need to be investigated to answer this overarching research question. The first hypothesis will test if IM influences the three dimensions of EE. The second hypothesis will test if OJ affects the relationship between IM and the three dimensions of EE. These hypotheses are graphically represented in Figure 2.

3.1.2 Hypothesis 1

According to the expansive research outlined in Chapter 2, it is widely accepted that IM has a positive effect on EE. Hypothesis 1 aims to verify this notion in the South African manufacturing context by empirically testing the relationship between IM and the three physical dimensions of EE.

H_{1a}: Intrinsic Motivation (IM) has a positive impact on Employee Physical Engagement (EPE)

H_{1b}: Intrinsic Motivation (IM) has a positive impact on Employee Emotional Engagement (EEE)

H_{1c}: Intrinsic Motivation (IM) has a positive impact on Employee Cognitive Engagement (ECE)

3.1.3 Hypothesis 2

The objective of Hypothesis 2 is to verify if the three dimensions of OJ collectively moderate the relationship between IM and the three dimensions of EE individually. To simplify the testing and reporting, each of the dimensions of EE has been hypothesised individually. Yet, time constraints do not allow the same for the dimensions of OJ. As such, the dimensions of OJ are considered together, even though they are measured separately.

H_{2a}: The three dimensions of Organisational Justice (OJ) collectively moderate the relationship between Intrinsic Motivation (IM) and Employee Physical Engagement (EPE)

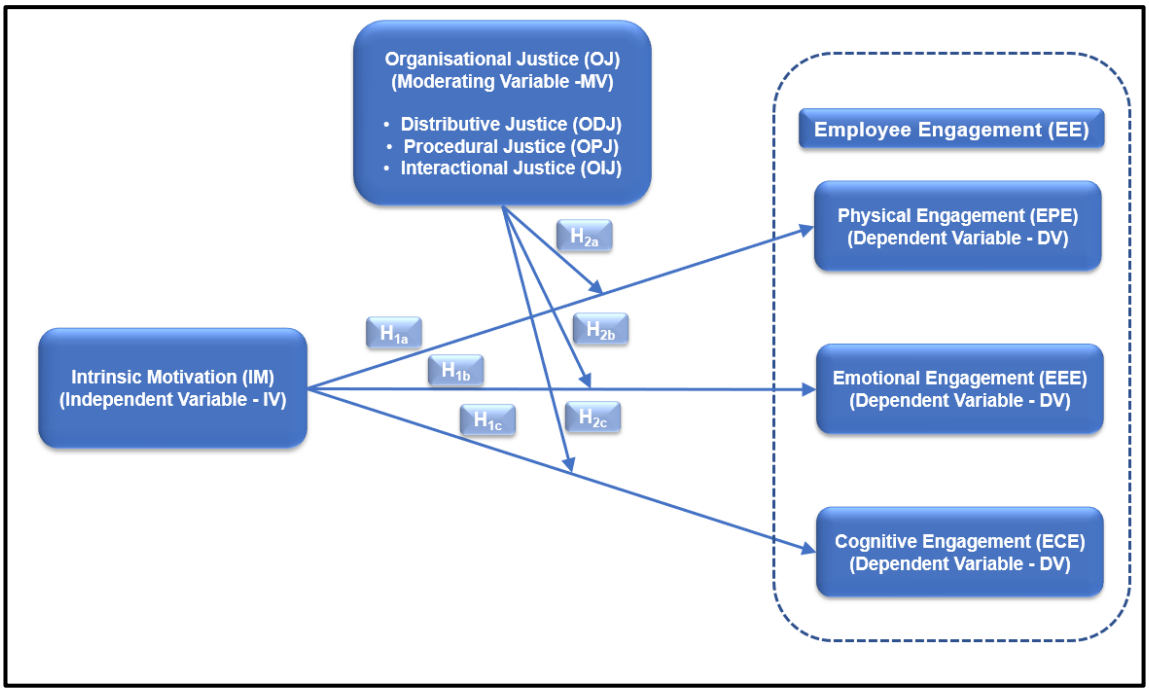
H_{2b}: The three dimensions of Organisational Justice (OJ) collectively moderate the relationship between Intrinsic Motivation (IM) and Employee Emotional Engagement (EEE)

H_{2c}: The three dimensions of Organisational Justice (OJ) collectively moderate the relationship between Intrinsic Motivation (IM) and Employee Cognitive Engagement (ECE)

3.1.4 Conceptual Model

Figure 2 shows how the hypotheses are positioned within the constructs. By empirically testing the relationships shown in Figure 2, a better understanding of the nuances relating to the interplay of the constructs can be gained. This enabled this study to effectively address the research questions the literature posed. This has been demonstrated in the subsequent chapters that deal with the research methodology related to the gathering and analysing of the data, discussion of the results and the conclusions.

Figure 2 *Visual Representation of the Conceptual Model that will be Examined in this Research*



Note. Author's own (2023)

Chapter 4: Research Methodology and Design

4.1 Introduction

This chapter outlines the rationale behind the methodology used to construct the research process to find answers to the discussed hypotheses. These hypotheses were constructed to answer the overarching research question about what effect IM has on EE in the South African manufacturing context and, specifically, what role OJ plays in this relationship. The rational explanation includes various aspects of the methodology choices, the research process, and the instrument. Thereafter, the data collection and analysis processes are discussed. Those include the validity, reliability, and quality of the data. This is followed by a discussion of the factor analysis used to reduce the responses to a manageable scale. The chapter concludes with the approaches to hypothesis testing and its associated assumption testing.

4.2 Choice of Methodology

4.2.1 Purpose of Research Design

As this research intends to understand the relationships between the constructs of IM, OJ and EE, the purpose of the research design was primarily explanatory but also had elements of descriptive research. Descriptive studies seek to represent people, events, and situations accurately and can thus be used to describe the phenomenon that will be researched (Saunders & Lewis, 2018). As the study aims to uncover relationships between constructs, understanding the phenomenon is insufficient. Explanatory research is used to find associations between distinct variables. (Saunders & Lewis, 2018). As the constructs requiring investigation represent distinct variables, explanatory research was used for this study.

4.2.2 Philosophy

Holden and Lynch (2004) state that instead of research being methodologically led, it should instead be that the methodological choice should be made based on the researcher's philosophical stance on the social science phenomenon that will be

researched. As such, the philosophical approach to the research project aligned the adopted methodology to the research problem. Holden and Lynch (2004) describe the scale for research philosophy between the subjectivist and objectivist approaches. The subjectivist approach is characterised by the belief that knowledge is relative as it cannot be discovered and is rather subjectively acquired. In contrast, objectivist proponents are realists who believe that valid knowledge about a physical reality can only be obtained through observation and measurement. (Holden & Lynch, 2004). The choice for where this research was positioned on this scale is based on the evidence from the literature review suggesting that significant research has been conducted on the various constructs; therefore, much is known. As such, this research was based on an objectivist approach.

Holden and Lynch (2004) also state that the positivist philosophy is on the scale's objectivist side. Saunders and Lewis (2018) describe positivism as a highly structured research method that is used to enable replication that results in concrete generalisations. The authors describe how this philosophy is conducive to using existing theory to construct and test hypotheses. This approach is aligned with the research topic and the researcher's preference that research should be based on phenomena that you can observe, measure, and analyse.

4.2.3 Selected Approach

Creswell and Creswell (2017) state that for quantitative studies, the theory is used deductively, where it is placed at the beginning of the study so that theory can be tested rather than developed. Saunders and Lewis (2018) describe deduction similarly as a research approach that uses a research strategy designed to test theoretical propositions. As such, the approach selected for this study was deductive, as it involves the structured collection of data relating to the identified constructs. This was used to test the relationship between the variables so that interpretations could be made to find and explain causal relationships. The authors discuss how data should be collected, tested, and interpreted towards theory advancement.

4.2.4 Methodological Choices

The data for this study was collected using one method: online surveys. Saunders

and Lewis (2018) refer to data collection via one method as a mono-method quantitative study. The authors discuss how multiple and mixed methodological choices are likely to produce richer data, but these types of methodology are also expected to take longer. As the timeline for this study was constrained, a mono-method quantitative study was preferred.

4.2.5 Research Strategy

Kothari (2004) discusses how descriptive research includes surveys and different exploratory enquiries. Creswell and Creswell (2017) describe survey research as providing a numeric portrayal of a population's trends, attitudes, or opinions. The authors further explain how this is achieved by selecting a sample of the population to be studied to generalise the findings from the selected sample to the population. As the intent of this study was to understand the relationships between the selected constructs for a sizable population, a survey approach was ideal as it allows for a sample of the population to be surveyed, as already discussed, instead of the whole population. Saunders et al. (2019) discuss how surveys are popular data collection tools that allow the gathering of large amounts of data from a vast population in a very effective manner. This data collection method is well suited for time-constrained studies such as this one.

4.2.6 Time Horizon

Saunders et al. (2019) describe cross-sectional studies as studying a phenomenon at a particular point in time. The authors discuss the suitability of the cross-sectional approach for time-constrained studies such as this one. They also discuss the association of the use of surveys with cross-sectional studies, also the effect of the time constraint (Saunders et al., 2019). A study such as this has a short time between the research proposal and thesis submission. It will, therefore, only produce a “snapshot” taken at a particular time. As such, this study could not be called a longitudinal study, which generally requires more time, but was classified as a cross-sectional study (Saunders et al., 2019).

4.3 Research Methodology

4.3.1 Population

South Africa has suffered severely as an emerging economy due to the COVID-19 pandemic and even prior to that. This led to a 5.6% contraction of income per capita between 2012 and 2021 and saw increased poverty, with 60% of the the population living below the upper-middle income countries' poverty level (The World Bank, 2022). Ndubisi et al. (2021) discuss how small and medium manufacturing industries are pivotal to driving growth in emerging markets like Asia. As South Africa is also an emerging market, the importance of developing the manufacturing sector in South Africa to drive growth continuously is evident. In addition, the crucial role of EE in organisational development has already been discussed; hence it is vital to understand the dynamics that influence EE within the South African manufacturing industry to aid in stimulating growth. This study, therefore, focused on the manufacturing industry in South Africa and the target population comprised of individuals employed within this sector.

4.3.2 Unit of Analysis

Multiple literature sources were consulted to establish whether EE and its antecedents should be measured individually or in groups. All the studies consulted measured EE at an individual level (Burnett & Lisk, 2019; Saks, 2019; Bailey et al., 2014; Albrecht et al., 2015). The premise emerges that even though EE manifests as an outcome in terms of team, group, or organisational performance, it is essentially driven by individual behaviour and should be measured individually.

4.3.3 Sampling Method and Size

Saunders and Lewis (2018) discuss how probability sampling is used to select a sample at random from a complete list of the population to be studied. The authors go on to discuss that a complete list of all the members in the population, called a sampling frame, may not always be available. Probability sampling was not suitable for this study as a complete list of all employees in the manufacturing sector in South Africa was not available. As such, non-probability sampling techniques were used for

this study. Saunders and Lewis (2018) describe non-probability sampling as different sampling technique for selecting a sample when a complete population list is unavailable. The authors elaborate that the lack of a complete list of the population leads to an inability to select a random sample from the population and that the probability of selecting each member of the population is impossible to know.

Saunders and Lewis (2018) also describe convenience sampling as a non-probability sampling type where the sample used is attributable to the ease of obtaining it rather than to its appropriateness, and it is not deemed an ideal sampling method. Even though it is not seen as a perfect sampling method, it was used for this study in conjunction with other non-probability sampling techniques due to time constraints. Saunders and Lewis (2018) describe snowball sampling as a non-probability technique where initial sample members identify and volunteer subsequent sample members. This study used this sampling technique to build on the initial convenience sampling, where additional sample members were identified. This involved using social media and emails via the researchers' network to distribute questionnaires. This could lead to the survey being completed by people outside the manufacturing target population (Etikan et al., 2016). For this reason, a screening question was included in the questionnaire to exclude unintended participants. In addition, self-selection, also called volunteer sampling, was used by posting invitations to participate in the research via social media.

Saunders et al. (2019) discuss that for non-probability sampling techniques, unlike probability sampling, there are no sample size rules. The authors discuss how the sample size depends on the research questions and what needs understanding. As such, it needs to be understood what will be measured. Saunders et al. (2019) state that ranked and numerical data variables can be statistically assessed for potential relationships by means of statistical techniques, for example, correlation and regression. This study tested the relationships between variables using correlation and regression analysis. Wilson Van Voorhis and Morgan (2007) deem a sample size of 50 reasonable for correlation and regression analysis. Saunders et al. (2019) claim that a minimum sample size of 30 is sufficient for statistical analysis. Similar studies that used regression analysis were consulted to establish a sample size more accurately. In a study by Ismail et al. (2019), a convenience sample of 186 respondents was used to study the mediating effect on EE and job performance in

Lebanon. Riyanto et al. (2021) studied the impact of work motivation and job satisfaction on employee performance using a convenience sample size of 103 respondents. An average difference between the two studies was used to target a reasonable sample size. Hence, this study targeted a sample size of 150 usable questionnaire responses.

4.3.4 Measurement Instrument

The measurement instrument used for this study was an online questionnaire created using Google Forms (Appendix A). The link to the Google Form questionnaire was distributed using the non-probability sampling techniques already discussed. The survey was designed and administered following the ethical clearance granted and included six sections. Section one contained the consent form, which advised that participation in the survey is voluntary and anonymous and that the participant could withdraw from the questionnaire at any time without penalty. This section required informed consent to be given before being allowed to proceed with the questionnaire. This section also explained the purpose of the research. Section two contained screening questions that ensured only data from the target population was considered for this study. Section three collected data that was used for descriptive statistics. Sections four to six contained the questions that tested the constructs. Due to time constraints and to ensure that the study was credible, tried and tested queries from previous surveys were used for this section.

For the assessment of the EE construct, adapted questions from Rich et al. (2010) were used. As discussed in Chapter 2, even though the UWES is the most popular measure for EE, Rich et al. (2010) argue that this scale includes measures that confound EE and its antecedents and do not fully correspond with the concept of EE presented by Kahn (1990). In addition, Bailey et al. (2014) stated that the UWES measure of engagement may have significant limitations. Adding further merit to this argument, a study done by Byrne et al. (2016) further tested the Job Engagement Scale (JES) used by Rich et al. (2010) against the more popular UWES. Their findings showed that the UWES assesses a broader domain overlapping variable compared to the JES, which could include overlap from other job attitudes. This is not ideal in research studies that aim to draw specific conclusions. The authors further recommend the UWES scale for studies that assesses a broader perception.

Hence, the decision to use the scale developed by Rich et al. (2010). The authors compiled an eighteen-item JES that used a five-point Likert scale, ranging from “strongly agree” to “strongly disagree”.

As discussed in Chapter 2, to measure IM, the lead was taken from (Goodboy et al., 2017; Shkoler & Kimura, 2020), which showed how only the items measuring IM can be used by demonstrating that the instrument is reliable. It has also been discussed that IM was separately considered from EM for this study. To measure IM, the questions were adapted from Tremblay et al. (2009), who used the WEIMS to measure work motivation. Only questions 4, 8, and 15 were used and were measured using a five-point Likert scale, ranging from “strongly agree” to “strongly disagree”.

As also discussed in Chapter 2, OJ was measured using questions adapted from Miller et al. (2012), which Moorman (1991) developed initially, where he compared the OJ Scales from Moorman (1991) to the OJ Scales from Colquit (2001). Both these scales are widely used to measure perceptions of organisational fairness, but the scales used by Moorman (1991) may be better positioned to explain these differences (Miller, 2012). This is due to the phrasing used for the scales that seem to assess the judgement of an event for the scales used by Colquitt (2001) as opposed to the scales used by Moorman (1991) that measure a general perception of fairness (Miller et al., 2012). As this study seeks to understand the influence of the general perception of organisational fairness and justice rather than the effects of single events, the scales Moorman (1991) used were more suitable and adopted in a later study by Niehoff and Moorman (1993). The questions were divided into distributive justice, procedural justice, and interactional justice. The questions were measured using a five-point Likert scale, ranging from “strongly agree” to “strongly disagree”.

To limit the possibility of incomplete data, the questionnaire was constructed in such a manner that would not allow respondents to continue to the next question without selecting an option. In this manner, only fully completed questionnaires could be submitted. In addition, the questionnaire was also pre-tested to ensure the questions were easy to interpret and that the questionnaire was of good quality. The pre-test process involved distributing the survey to ten recipients who completed the questionnaire and provided feedback. The feedback predominantly suggested

spelling and grammar corrections. One suggestion resulted in an additional qualification field being added. All pre-test candidates reported that the questions were straightforward and easy to answer and that the questionnaire flowed well. No significant changes were made to the content or structure of the questionnaire.

4.3.5 Data Gathering Process

The data-gathering process started after ethical clearance was granted (Appendix B) by distributing the questionnaire. As discussed, an anonymous online survey on Google Forms was used to gather the data. The researcher used the non-probability sampling techniques discussed to distribute the questionnaire. Using convenience sampling, individual messages, WhatsApp, LinkedIn messages, emails and Facebook messages were sent to the researcher's contacts. As the researcher has worked in the manufacturing sector for 25 years, a vast network of contacts has been built. The researcher has contacts in companies in the Eastern Cape, Gauteng and KwaZulu-Natal. The researcher also has access to the group companies affiliated with the company where he is employed. The researcher also has access to the employees within his own company of employment. Using snowball sampling, the researcher's network was also asked to nominate prospective respondents for further sampling. Lastly, self-selection sampling was used by leaving posts on LinkedIn and Facebook and sending emails to contacts, requesting the questionnaire invitation be distributed within their networks. The survey was closed when the response rate dropped significantly, despite various reminders being sent out.

4.3.6 Data Analysis

After closing the survey on Google Forms, the data was downloaded into a CSV format, which was converted to Microsoft Excel for easy manipulation. The data did not require filtering via the screening question to ensure that only data from the target population was considered a negative response to the screening question would not allow the respondent to complete the questionnaire. As the questionnaire was constructed in a manner that did not allow the respondent to continue without selecting, the expectation was to not find any missing data. This expectation was confirmed when the data was checked, as no missing fields could be identified. Of the 218 responses received, nine indicated that they had only been working for one

year, but it was decided not to exclude them from the data set to be analysed. As discussed in Chapter 2, this study aimed to evaluate the influence of the general perception of organisational fairness and justice rather than the effects of single events. As such, the original intention was to exclude employees employed for less than one year to avoid the possibility of influence from singular events. This stance was reconsidered after the data collection as it cannot be assumed that singular events have influenced only employees who have been with an organisation for a short time. Over time particular circumstances may contribute towards general perception. In addition, employees could answer the questions from the perspective of their previous organisation. Lastly, the employment, induction and integration process is integral to organisational treatment and HRM practices and should not be excluded from the study. This sample significantly exceeded the target sample size of 150 respondents.

The confirmed data set was coded according to the survey scale used, assuring consistency by coding all the response options in the same direction (Saunders & Lewis, 2018; Hair & Page, 2015). The coded data was then uploaded into IBM Statistical Package for the Social Sciences (SPSS) for analysis (Pallant, 2016). This is displayed in the code book (Appendix C).

According to Saunders and Lewis (2018), quantitative data is divided into categorical and numerical. The authors also describe how categorical data is divided into descriptive (nominal) or ranked (numerical) data. The nominal and ranked data collected from the survey was used to provide descriptive statistics by assessing the frequency, distribution, and percentages to understand the sample population (Wegner, 2016). In addition, Saunders and Lewis (2018) describe how numerical data is further divided into interval and ratio data.

Inferential statistics involves using a sample to form estimates that can be used to judge a population (Hair et al., 2015). For the hypotheses testing, inferential statistics were used to assess the data related to the IV, DV and MV. To assess the first hypothesis, simple linear regression was utilised to evaluate the strength of the relationship between IM and EE (Wegner, 2016). For the second hypothesis, the moderating effect of OJ on the relationship between IM and EE was tested by using multiple linear regression. According to Wegner (2016), this method tests the effect

of two independent variables on the dependent variable. The hypotheses were tested using the analysis of the collected numerical data to either support or not support the hypotheses. The assumptions of linear regression were honoured in the analysis.

4.3.7 Construct Validity

Construct validity involves whether a measurement scale achieves what is intended by measuring what is intended to be measured. (Saunders & Lewis, 2018; Pallant, 2016). For the collected sample, convergent validity was tested to ensure that there were relationships between the underlying variables or constructs that sought to answer the hypotheses (Hair et al., 2016). A bivariate Pearson correlation was conducted, per construct, between each question and the sum of the questions. The questions were grouped into the relevant construct, as applicable. Q1 to Q18 relates to EE, Q19 to Q21 relates to IM and Q22 to Q39 relates to OJ. The results of the validity tests per construct are reflected in Tables 1 to 5. Significant relationships are shown using a double asterisk. The results contained show that all the questions relating to the constructs passed the validity tests. The requirement for a significant correlation is that each question must have a $p < 0.05$. As all the questions met this requirement, no questions were deleted from the study.

Table 1 *Results of Pearson Correlation Test for Validity – EE Q1 to Q9*

Correlations - Employee Engagement (EE)		
Question		**Item Total Score**
Item Total Score	Pearson Correlation	1
	Sig. (2-tailed)	
	N	218
Q1. I work with intensity on my job.	Pearson Correlation	.613**
	Sig. (2-tailed)	0,000
	N	218
Q2. I exert my full effort to my job.	Pearson Correlation	.705**
	Sig. (2-tailed)	0,000
	N	218
Q3. I devote a lot of energy to my job.	Pearson Correlation	.704**
	Sig. (2-tailed)	0,000
	N	218
Q4. I try my hardest to perform well on my job.	Pearson Correlation	.727**
	Sig. (2-tailed)	0,000
	N	218
Q5. I strive as hard as I can to complete my job.	Pearson Correlation	.668**
	Sig. (2-tailed)	0,000
	N	218
Q6. I exert a lot of energy on my job.	Pearson Correlation	.649**
	Sig. (2-tailed)	0,000
	N	218
Q7. I am enthusiastic about my job.	Pearson Correlation	.773**
	Sig. (2-tailed)	0,000
	N	218
Q8. I feel energetic about my job.	Pearson Correlation	.789**
	Sig. (2-tailed)	0,000
	N	218
Q9. I am interested in my job.	Pearson Correlation	.803**
	Sig. (2-tailed)	0,000
	N	218
**.Correlation is significant at the 0.01 level (2-tailed).		

Note. Author's own, constructed from SPSS results (2023)

Table 2 *Results of Pearson Correlation Test for Validity – EE Q10 to Q18*

Correlations - Employee Engagement (EE)		
Question		**Item Total Score**
Q10. I am proud of my job.	Pearson Correlation	.669**
	Sig. (2-tailed)	0,000
	N	218
Q11. I feel positive about my job.	Pearson Correlation	.750**
	Sig. (2-tailed)	0,000
	N	218
Q12. I am excited about my job.	Pearson Correlation	.777**
	Sig. (2-tailed)	0,000
	N	218
Q13. At work, my mind is focused on my job.	Pearson Correlation	.748**
	Sig. (2-tailed)	0,000
	N	218
Q14. At work, I pay a lot of attention to my job.	Pearson Correlation	.815**
	Sig. (2-tailed)	0,000
	N	218
Q15. At work, I concentrate on my job.	Pearson Correlation	.803**
	Sig. (2-tailed)	0,000
	N	218
Q16. At work, I focus a great deal of attention on my job.	Pearson Correlation	.788**
	Sig. (2-tailed)	0,000
	N	218
Q17. At work, I am absorbed in my job.	Pearson Correlation	.680**
	Sig. (2-tailed)	0,000
	N	218
Q18. At work, I devote a lot of attention to my job.	Pearson Correlation	.763**
	Sig. (2-tailed)	0,000
	N	218
**.Correlation is significant at the 0.01 level (2-tailed).		

Note. Author's own, constructed from SPSS results (2023)

Table 3 *Results of Pearson Correlation Test for Validity – IM Q19 to Q21*

Correlations - Intrinsic Motivation (IM)		
Question		**Item Total Score**
Item Total Score	Pearson Correlation	1
	Sig. (2-tailed)	
	N	218
Q19, Because I derive much pleasure from learning new things.	Pearson Correlation	.886**
	Sig. (2-tailed)	0,000
	N	218
Q20, For the satisfaction I experience from taking on interesting challenges.	Pearson Correlation	.890**
	Sig. (2-tailed)	0,000
	N	218
Q21. For the satisfaction I experience when I am successful at doing difficult tasks.	Pearson Correlation	.793**
	Sig. (2-tailed)	0,000
	N	218
**.Correlation is significant at the 0.01 level (2-tailed).		

Note. Author's own, constructed from SPSS results (2023)

Table 4 *Results of Pearson Correlation Test for Validity – OJ Q22 to Q30*

Correlations - Organisational Justice (OJ)		
Question		**Item Total Score**
Item Total Score	Pearson Correlation	1
	Sig. (2-tailed)	
	N	218
Q22, I am fairly rewarded considering the responsibilities that I have.	Pearson Correlation	.763**
	Sig. (2-tailed)	0,000
	N	218
Q23. I am fairly rewarded in view of the amount of experience that I have had.	Pearson Correlation	.720**
	Sig. (2-tailed)	0,000
	N	218
Q24. I am fairly rewarded for the amount of effort that I put forth.	Pearson Correlation	.817**
	Sig. (2-tailed)	0,000
	N	218
Q25. I am fairly rewarded for the work that I have done well.	Pearson Correlation	.775**
	Sig. (2-tailed)	0,000
	N	218
Q26. I am fairly rewarded for the stresses and strains of my job.	Pearson Correlation	.771**
	Sig. (2-tailed)	0,000
	N	218
Q27. My employer develops procedures designed to collect accurate information necessary for making the decisions.	Pearson Correlation	.766**
	Sig. (2-tailed)	0,000
	N	218
Q28. My employer provides opportunities to appeal or challenge the decision.	Pearson Correlation	.800**
	Sig. (2-tailed)	0,000
	N	218
Q29. My employer has all sides affected by the decision represented.	Pearson Correlation	.739**
	Sig. (2-tailed)	0,000
	N	218
Q30. My employer generates standards so that the decision can be made with consistency.	Pearson Correlation	.737**
	Sig. (2-tailed)	0,000
	N	218
**.Correlation is significant at the 0.01 level (2-tailed).		

Note. Author's own, constructed from SPSS results (2023)

Table 5 *Results of Pearson Correlation Test for Validity – OJ Q31 to Q39*

Correlations - Organisational Justice (OJ)		
Question		**Item Total Score**
Q31. My employer hears the concerns of all those affected by the decision.	Pearson Correlation	.786**
	Sig. (2-tailed)	0,000
	N	218
Q32. My employer provides useful feedback regarding the decision and its implementation.	Pearson Correlation	.795**
	Sig. (2-tailed)	0,000
	N	218
Q33. My employer allows for requests for clarification or additional information about the decision.	Pearson Correlation	.781**
	Sig. (2-tailed)	0,000
	N	218
Q34. In general, representatives of this company considered your viewpoint.	Pearson Correlation	.750**
	Sig. (2-tailed)	0,000
	N	218
Q35. In general, representatives of this company were able to suppress personal biases.	Pearson Correlation	.682**
	Sig. (2-tailed)	0,000
	N	218
Q36. In general, representatives of this company provided you with timely feedback about the decision and its implications.	Pearson Correlation	.738**
	Sig. (2-tailed)	0,000
	N	218
Q37. In general, representatives of this company treated you with kindness and consideration.	Pearson Correlation	.714**
	Sig. (2-tailed)	0,000
	N	218
Q38. In general, representatives of this company showed concern for your rights as an employee.	Pearson Correlation	.761**
	Sig. (2-tailed)	0,000
	N	218
Q39. In general, representatives of this company took steps to deal with you in a truthful manner.	Pearson Correlation	.776**
	Sig. (2-tailed)	0,000
	N	218
**.Correlation is significant at the 0.01 level (2-tailed).		

Note. Author's own, constructed from SPSS results (2023)

4.3.8 Reliability

Pallant (2016) discusses how the reliability of a measurement scale shows how free the scale is from random errors. One of the aspects of reliability that can be assessed, internal consistency, is the degree to which the individual items within the scale all measure the same underlying attribute (Pallant, 2016; Hair et al., 2015). The Cronbach's alpha test was used to measure the internal consistency of the individual constructs and ensure that they are trustworthy. Pallant (2016) recommends a minimum value for Cronbach's alpha to be 0.7. Values below this threshold will be considered to be of poor reliability. Tables 6 to 8 contain the results of the reliability tests of each of the three constructs.

Table 6 *Results of Cronbach's Alpha Test for Reliability – EE Q1 to Q18*

Item-Total Statistics				
Question	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
Q1. I work with intensity on my job.	74,92	73,394	0,564	0,948
Q2. I exert my full effort to my job.	74,80	73,016	0,669	0,946
Q3. I devote a lot of energy to my job.	74,83	72,839	0,667	0,946
Q4. I try my hardest to perform well on my job.	74,67	73,466	0,696	0,946
Q5. I strive as hard as I can to complete my job.	74,64	74,158	0,634	0,947
Q6. I exert a lot of energy on my job.	74,89	73,383	0,606	0,947
Q7. I am enthusiastic about my job.	75,05	69,500	0,731	0,945
Q8. I feel energetic about my job.	75,13	69,591	0,751	0,944
Q9. I am interested in my job.	74,94	70,480	0,772	0,944
Q10. I am proud of my job.	74,82	73,392	0,630	0,946
Q11. I feel positive about my job.	75,11	69,988	0,706	0,945
Q12. I am excited about my job.	75,19	69,087	0,735	0,945
Q13. At work, my mind is focused on my job.	75,06	71,347	0,710	0,945
Q14. At work, I pay a lot of attention to my job.	74,91	71,462	0,790	0,944
Q15. At work, I concentrate on my job.	74,91	71,896	0,777	0,944
Q16. At work, I focus a great deal of attention on my job.	74,88	72,225	0,760	0,944
Q17. At work, I am absorbed in my job.	75,15	71,269	0,628	0,947
Q18. At work, I devote a lot of attention to my job.	74,94	71,656	0,730	0,945

Reliability Statistics	
Cronbach's Alpha	N of Items
0,948	18,000

Note. Author's own, constructed from SPSS results (2023)

Table 7 *Results of Cronbach's Alpha Test for Reliability – IM Q19 to Q21*

Item-Total Statistics				
Question	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
Q19, Because I derive much pleasure from learning new things.	8,88	1,031	0,727	0,697
Q20, For the satisfaction I experience from taking on interesting challenges.	8,93	1,014	0,732	0,691
Q21. For the satisfaction, I experience when I am successful at doing difficult tasks.	8,81	1,253	0,573	0,848

Reliability Statistics	
Cronbach's Alpha	N of Items
0,820	3,000

Note. Author's own, constructed from SPSS results (2023)

Table 8 *Results of Cronbach's Alpha Test for Reliability – OJ Q22 to Q39*

Item-Total Statistics				
Question	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
Q22, I am fairly rewarded considering the responsibilities that I have.	57,62	164,716	0,729	0,954
Q23. I am fairly rewarded in view of the amount of experience that I have had.	57,61	166,248	0,680	0,955
Q24. I am fairly rewarded for the amount of effort that I put forth.	57,79	162,386	0,788	0,953
Q25. I am fairly rewarded for the work that I have done well.	57,71	164,642	0,743	0,954
Q26. I am fairly rewarded for the stresses and strains of my job.	57,96	162,893	0,734	0,954
Q27. My employer develops procedures designed to collect accurate information necessary for making decisions.	57,57	164,818	0,731	0,954
Q28. My employer provides opportunities to appeal or challenge the decision.	57,60	164,370	0,770	0,954
Q29. My employer has all sides affected by the decision represented.	57,65	167,076	0,705	0,955
Q30. My employer generates standards so that the decision can be made with consistency.	57,50	165,993	0,700	0,955
Q31. My employer hears the concerns of all those affected by the decision.	57,68	164,689	0,755	0,954
Q32. My employer provides useful feedback regarding the decision and its implementation.	57,70	163,906	0,764	0,954
Q33. My employer allows for requests for clarification or additional information about the decision.	57,55	164,903	0,749	0,954
Q34. In general, representatives of this company considered your viewpoint.	57,42	167,646	0,719	0,955
Q35. In general, representatives of this company were able to suppress personal biases.	57,78	169,272	0,645	0,956
Q36. In general, representatives of this company provided you with timely feedback about the decision and its implications.	57,68	167,305	0,704	0,955
Q37. In general, representatives of this company treated you with kindness and consideration.	57,31	167,864	0,678	0,955
Q38. In general, representatives of this company showed concern for your rights as an employee.	57,41	167,220	0,731	0,954
Q39. In general, representatives of this company took steps to deal with you in a truthful manner.	57,45	164,922	0,744	0,954

Reliability Statistics	
Cronbach's Alpha	N of Items
0,957	18,000

Note. Author's own, constructed from SPSS results (2023)

As reflected in Tables 6 to 8, Cronbach's alpha score for all three constructs was good, as all exceeded the 0.7 thresholds (Hair et al., 2015). In addition, the Corrected Item-Total Correlation was also above 0.3, indicating that all the questions measured the same concept as intended by the measurement scale (Pallant, 2016). It could also be seen in the "Cronbach's Alpha if Item Deleted" field that only one question showed that it would improve Cronbach's alpha if the question was deleted. This was Q21 under the IM construct, which would enhance Cronbach's alpha from 0.820 to 0.848. The option to delete the question was discarded for two reasons. Firstly, Hair and Page (2015) recommend using a minimum of three questions to measure each construct. This would not be advisable as the IM construct consists of only three questions. Secondly, Pallant (2016) recommends that questions are only considered for deletion if Cronbach's Alpha is below 0.7. As the Cronbach's Alpha value for the IM construct was above this threshold, the questions for the construct were accepted as is. As such, all the measurement scales were accepted to be reliable.

4.4. Assessing the Effect of Outliers

As factor analysis can be sensitive to outliers, it is essential to look for these, assess their impact, and consider their removal before performing a factor analysis (Pallant, 2016). To this end, a descriptive analysis of the datasets can be run in SPSS. The descriptives table generated in the output shows the five per cent Trimmed Mean value that removes the top and bottom five per cent of all cases and recalculates the mean. If the newly trimmed mean is significantly different from the actual mean, then it indicates that additional investigation of the effect of the outliers is required. By inspecting the Descriptives in Table 9, it can be seen that the five per cent trimmed mean value made a minimal difference for all the variables. The most significant difference observed was for the EE_EE dataset, which showed a slight difference of 0.065. This indicates that outliers do not have a considerable effect, and all the responses in the datasets can be retained.

Table 9 *Descriptives for All Variables*

Descriptives				
			Statistic	**Std. Error**
EE_PhysicalEngagement	Mean		4,553	0,033
	95% Confidence Interval for Mean	Lower Bound	4,487	
		Upper Bound	4,619	
	5% Trimmed Mean		4,594	
EE_EmotionalEngagement	Mean		4,304	0,046
	95% Confidence Interval for Mean	Lower Bound	4,213	
		Upper Bound	4,394	
	5% Trimmed Mean		4,369	
EE_CognitiveEngagement	Mean		4,368	0,038
	95% Confidence Interval for Mean	Lower Bound	4,294	
		Upper Bound	4,442	
	5% Trimmed Mean		4,408	
IM_IntrinsicReward	Mean		4,436	0,034
	95% Confidence Interval for Mean	Lower Bound	4,369	
		Upper Bound	4,503	
	5% Trimmed Mean		4,469	
OJ_DistributiveJustice	Mean		3,261	0,065
	95% Confidence Interval for Mean	Lower Bound	3,133	
		Upper Bound	3,390	
	5% Trimmed Mean		3,283	
OJ_ProceduralJustice	Mean		3,392	0,057
	95% Confidence Interval for Mean	Lower Bound	3,279	
		Upper Bound	3,505	
	5% Trimmed Mean		3,412	
OJ_InteractionalJustice	Mean		3,492	0,052
	95% Confidence Interval for Mean	Lower Bound	3,389	
		Upper Bound	3,594	
	5% Trimmed Mean		3,515	

Note. Author's own, constructed from SPSS results (2023)

4.5 Exploratory Factor Analysis

As the EE and OJ constructs consist of 18 questions each, dimension reduction is required to simplify the analysis process by reducing the questions to fewer components. According to Suhr (2006), both Confirmatory Factor Analysis (CFA) and Exploratory Factor Analysis (EFA) can be used to achieve the same objective of dimension reduction. Suhr (2006) further explains that CFA is typically used to reduce the dimensions of previously tested scales. EFA is used for newly developed scales that have not been subjected to factor analysis and modelling. Notwithstanding, EFA can be used if CFA reveals a poor model fit (Suhr, 2006). Statistics Solutions (2013) also states that a minimum sample size of 200 responses is required for CFA as it is sensitive to small sample sizes. As the obtained sample of 218 responses barely met the threshold, EFA was chosen over CFA to avoid poor model fit.

To assess the suitability of the data for factor reduction, the strength of the inter-correlations among the items needs to be verified (Pallant, 2016). For this, the correlation matrix for each construct was inspected for evidence of coefficients greater than 0.3. At least one correlation above 0.3 must be present for appropriate factor analysis. Two additional statistical tests were also generated by SPSS that helped assess the data's factorability. These tests are the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and Barlett's Test of Sphericity (Pallant, 2016). For the KMO, a minimum value of 0.6 is suggested for good factor analysis. For Barlett's Test of Sphericity, a Sig. value of less than 0.05 is needed to demonstrate the significance and consider the factor analysis appropriate (Pallant, 2016). Thereafter, Principal Component Analysis (PCA) was used to identify the number of extracted components. This was achieved by using Kaiser's criterion. Pallant (2016) explains how the "Total Variance Explained" table output by SPSS is used to identify the number of components by scanning the table for a total Eigenvalue that ranks above 1. Finally, Pallant (2016) describes how to factor rotation and interpretation are used to interpret the number of factors determined in the preceding PCA analysis. The loadings of each variable on the individual components can be seen by looking at the "Total variance explained" table that was output by SPSS. The highest loading variable on each component was selected to group the questions to the applicable sub-construct, and the sub-constructs were re-named to represent the common theme of the questions. The following tables contain the results of the factor analysis of each of the three constructs.

4.5.1 EFA – EE

For assessing the suitability of the data for factor reduction, the results from Table 36 (Appendix D) show that not only was at least one correlation present, but all questions also showed a correlation of above 0.3. To assess the factorability of the data, the KMO score of 0.934 was achieved, which exceeded the minimum threshold of 0.6. A Sig. value of less than 0.05 demonstrated significance for Bartlett's Test of Sphericity. As the preceding tests' results, shown in Table 10, demonstrated factor analysis to be appropriate, PCA was applied to the data. Using Kaiser's criterion of Eigenvalues >= 1 to Table 11, three-factor solutions explained 73.329% of the variance. This showed that the EE questions could be reduced to three dimensions.

These three dimensions were named EE_Physical Engagement (EE_PE), EE_Emotional Engagement (EE_EE) and EE_Cognitive Engagement (EE_CE). Table 12 shows that Q1 to Q6 loaded onto the first dimension, Q7 to Q12 loaded onto the second dimension, and Q13 to Q18 loaded onto the third dimension.

Table 10 *Assessment of the Factorability of the Data – EE Q1 to Q18*

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0,934
Bartlett's Test of Sphericity	Approx. Chi-Square	3465,089
	df	153
	Sig.	0,000

Note. Author's own, constructed from SPSS results (2023)

Table 11 *Identification of the Number of Extracted Components – EE Q1 to Q18*

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9,804	54,468	54,468	9,804	54,468	54,468	4,866	27,034	27,034
2	2,327	12,927	67,394	2,327	12,927	67,394	4,373	24,294	51,328
3	1,068	5,935	73,329	1,068	5,935	73,329	3,960	22,001	73,329
4	0,853	4,739	78,068						
5	0,576	3,199	81,268						
6	0,509	2,830	84,098						
7	0,447	2,483	86,581						
8	0,391	2,172	88,753						
9	0,340	1,891	90,643						
10	0,283	1,572	92,216						
11	0,246	1,369	93,585						
12	0,227	1,260	94,844						
13	0,209	1,163	96,007						
14	0,183	1,018	97,025						
15	0,158	0,878	97,903						
16	0,129	0,717	98,621						
17	0,128	0,710	99,331						
18	0,120	0,669	100,000						

Note. Author's own, constructed from SPSS results (2023)

Table 12 *Identification of the Number of Extracted Components – EE Q1 to Q18*

Rotated Component Matrix			
	Component		
	1	2	3
Q1. I work with intensity on my job.	0,175	0,703	0,200
Q2. I exert my full effort to my job.	0,220	0,762	0,276
Q3. I devote a lot of energy to my job.	0,179	0,835	0,249
Q4. I try my hardest to perform well on my job.	0,180	0,713	0,425
Q5. I strive as hard as I can to complete my job.	0,159	0,724	0,335
Q6. I exert a lot of energy on my job.	0,139	0,825	0,199
Q7. I am enthusiastic about my job.	0,851	0,230	0,197
Q8. I feel energetic about my job.	0,864	0,270	0,170
Q9. I am interested in my job.	0,799	0,262	0,287
Q10. I am proud of my job.	0,668	0,122	0,340
Q11. I feel positive about my job.	0,875	0,079	0,278
Q12. I am excited about my job.	0,865	0,146	0,266
Q13. At work, my mind is focused on my job.	0,419	0,285	0,584
Q14. At work, I pay a lot of attention to my job.	0,334	0,341	0,771
Q15. At work, I concentrate on my job.	0,351	0,290	0,777
Q16. At work, I focus a great deal of attention on my job.	0,292	0,326	0,783
Q17. At work, I am absorbed in my job.	0,229	0,299	0,644
Q18. At work, I devote a lot of attention to my job.	0,245	0,418	0,685

Note. Author's own, constructed from SPSS results (2023)

4.5.2 EFA – IM

Applying the same analysis process for the IM construct. The assessment for the suitability of the data for factor reduction results from Table 37 (Appendix D) shows that at least one correlation was present, and all questions also showed a correlation of above 0.3. For the factorability of the data, a KMO score of 0.681 was achieved, which exceeded the minimum threshold of 0.6. A Sig. value of less than 0.05 demonstrated significance for Bartlett's Test of Sphericity. As the preceding tests' results, shown in Table 13, demonstrated factor analysis to be appropriate, PCA was applied to the data. By applying Kaiser's criterion of Eigenvalues >= 1 to Table 14, only a one-factor solution was given that explained 73.584% of the variance. This showed that the IM questions could be reduced to a single dimension. Table 15 showed that Q19 to Q21 loaded onto the single dimension, IM_Intrinsic Reward (IM_IR).

Table 13 *Assessment of the Factorability of the Data – IM Q19 to Q21*

3		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0,681
Bartlett's Test of Sphericity	Approx. Chi-Square	253,475
	df	3
	Sig.	0,000

Note. Author's own, constructed from SPSS results (2023)

Table 14 *Identification of the Number of Extracted Components – IM Q19 to Q21*

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2,208	73,584	73,584	2,208	73,584	73,584
2	0,529	17,623	91,207			
3	0,264	8,793	100,000			

Note. Author's own, constructed from SPSS results (2023)

Table 15 *Identification of the Number of Extracted Components – IM Q19 to Q21*

Rotated Component Matrix
Only one component was extracted. The solution cannot be rotated.

Note. Author's own, constructed from SPSS results (2023)

4.5.3 EFA – OJ

Again, applying the same analysis process for the OJ construct. For assessing the suitability of the data for factor reduction, the results from Table 38 (Appendix D) show that not only was at least one correlation present, but all questions also showed a correlation to be above 0.3. To assess the factorability of the data, the KMO score of 0.940 was achieved, which exceeded the minimum threshold of 0.6. For Bartlett's Test of Sphericity, significance was demonstrated by a Sig. value of less than 0.05. As the preceding tests' results, shown in Table 16, demonstrated factor analysis to be appropriate, PCA was applied to the data. Applying Kaiser's criterion of Eigenvalues >= 1 to Table 17 gave three-factor solutions that explained 73.816% of the variance. This showed that the OJ questions could be reduced to three dimensions. These three dimensions were named OJ_Distributive Justice (OJ_DJ), OJ_Procedural Justice (OJ_PJ) and OJ_Interactional Justice (OJ_IJ). Table 18 shows that Q22 to Q26 loaded onto the first dimension, Q27 to Q33 loaded onto the second dimension, and Q34 to Q39 loaded onto the third dimension.

Table 16 *Assessment of the Factorability of the Data – OJ Q22 to Q39*

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0,940
Bartlett's Test of Sphericity	Approx. Chi-Square	3466,669
	df	153
	Sig.	0,000

Note. Author's own, constructed from SPSS results (2023)

Table 17 *Assessment of the Factorability of the Data – OJ Q22 to Q39*

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10,405	57,808	57,808	10,405	57,808	57,808	4,852	26,953	26,953
2	1,766	9,814	67,622	1,766	9,814	67,622	4,359	24,219	51,172
3	1,115	6,194	73,816	1,115	6,194	73,816	4,076	22,644	73,816
4	0,691	3,837	77,654						
5	0,554	3,076	80,730						
6	0,494	2,744	83,474						
7	0,445	2,473	85,947						
8	0,393	2,185	88,132						
9	0,323	1,794	89,926						
10	0,316	1,754	91,680						
11	0,293	1,630	93,311						
12	0,267	1,483	94,793						
13	0,207	1,147	95,941						
14	0,175	0,971	96,912						
15	0,172	0,958	97,870						
16	0,144	0,800	98,670						
17	0,134	0,742	99,412						
18	0,106	0,588	100,000						

Note. Author's own, constructed from SPSS results (2023)

Table 18 *Identification of the Number of Extracted Components – OJ Q22 to Q39*

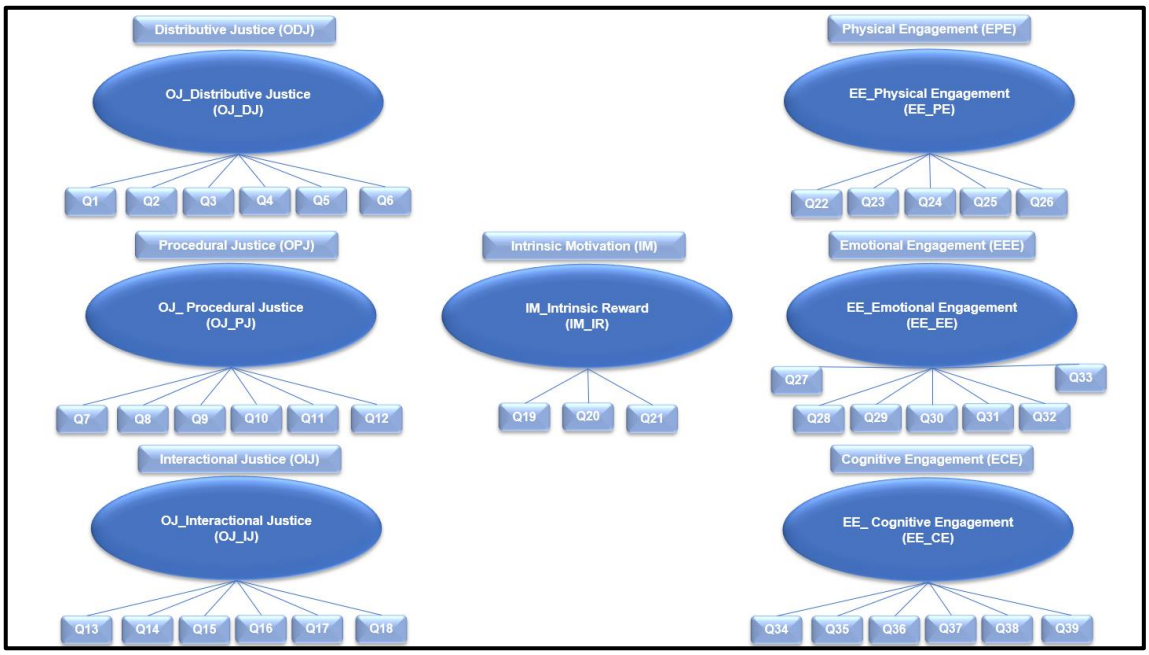
Rotated Component Matrix			
	Component		
	1	2	3
Q22. I am fairly rewarded considering the responsibilities that I have.	0,240	0,849	0,252
Q23. I am fairly rewarded in view of the amount of experience that I have had.	0,231	0,828	0,204
Q24. I am fairly rewarded for the amount of effort that I put forth.	0,328	0,838	0,264
Q25. I am fairly rewarded for the work that I have done well.	0,229	0,826	0,310
Q26. I am fairly rewarded for the stresses and strains of my job.	0,284	0,829	0,235
Q27. My employer develops procedures designed to collect accurate information necessary for making the decisions.	0,761	0,301	0,229
Q28. My employer provides opportunities to appeal or challenge the decision.	0,766	0,286	0,302
Q29. My employer has all sides affected by the decision represented.	0,754	0,210	0,284
Q30. My employer generates standards so that the decision can be made with consistency.	0,784	0,198	0,253
Q31. My employer hears the concerns of all those affected by the decision.	0,744	0,260	0,327
Q32. My employer provides useful feedback regarding the decision and its implementation.	0,717	0,235	0,400
Q33. My employer allows for requests for clarification or additional information about the decision.	0,644	0,286	0,404
Q34. In general, representatives of this company considered your viewpoint.	0,352	0,241	0,723
Q35. In general, representatives of this company were able to suppress personal biases.	0,329	0,159	0,704
Q36.In general, representatives of this company provided you with timely feedback about the decision and its implications.	0,438	0,242	0,603
Q37. In general, representatives of this company treated you with kindness and consideration.	0,249	0,235	0,776
Q38. In general, representatives of this company showed concern for your rights as an employee.	0,255	0,366	0,725
Q39. In general, representatives of this company took steps to deal with you in a truthful manner.	0,341	0,298	0,722

Note. Author's own, constructed from SPSS results (2023)

4.5.4 EFA – Factor Reduction Outcome

After completing the EFA, it was evident for all cases that the questions grouped concerning the sub-construct they were expected to explore. Figure 3 shows the final question to construct groupings along with the hypothesis constructs and sub-constructs (shown as headings) that it relates to.

Figure 3 *EFA - Factor Reduction Question Grouping*



Note. Author's own, based on factor reduction results

4.6 Approach to Hypothesis 1

4.6.1 Test for Normality

One of the main assumptions for parametric tests is that the data is normally distributed (Pallant, 2016). Multiple tests can be used to test for normality. These include the Kolmogorov-Smirnov and the Shapiro-Wilk tests (Pallant, 2016; Razali & Wah, 2011). Even though the Shapiro-Wilk test is known to be used for smaller sample sizes, while the Kolmogorov-Smirnov test is used for larger sample sizes, both these statistics reflected in Table 19 reveal the same result for the data. The sig-values for all the data sets were less than 0.05, showing that the data was not normally distributed for any variables. This supports non-parametric testing to be used (Pallant 2016). A non-parametric equivalent test to the Pearson product-moment correlation parametric test is Spearman's rank order correlation non-parametric test.

Table 19 *Results of the Test for Normality*

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
EE_Physical Engagement (EE_PE)	0,192	218	0,000	0,796	218	0,000
EE_Emotional Engagement (EE_EE)	0,158	218	0,000	0,862	218	0,000
EE_Cognitive Engagement (EE_CE)	0,134	218	0,000	0,861	218	0,000
IM_Intrinsic Reward (IM_IR)	0,191	218	0,000	0,850	218	0,000
OJ_Distributive Justice (OJ_DJ)	0,141	218	0,000	0,952	218	0,000
OJ_Procedural Justice (OJ_PJ)	0,112	218	0,000	0,967	218	0,000
OJ_Interactional Justice (OJ_IJ)	0,136	218	0,000	0,959	218	0,000

Note. Author's own, constructed from SPSS results (2023)

4.6.2 Selection of the Appropriate Test for Hypothesis 1

Hypothesis 1 intends to understand whether there is a significant relationship between IM and the three dimensions of EE. A correlation test was done to aid in this understanding, but the appropriate test is defined by the nature of the data (Pallant, 2016). For this study, the data was collected from Likert-scale responses and could thus be classified as numeric data. In addition, it has been established that the data is not normally distributed; hence an appropriate test to be used to test the strength of the relationship between IM (Independent Variable) and the three dimensions of EE, being EPE, EEE, and ECE (Dependent Variables) is the Spearman's rank order correlation non-parametric test. This test does not require the data to be normally distributed (Pallant, 2016; Saunders & Lewis, 2018).

4.7 Approach to Hypothesis 2

4.7.1 Selection of the Appropriate Test for Hypothesis 2

Hypothesis 2 aims to understand if the three dimensions of IM, as a whole, moderate the relationship between IM and the three dimensions of EE. To better understand this relationship, a moderated linear regression analysis was done. This is probably one of the most commonly used tools in data analysis that is used to understand the relationships between variables (Brandt, 2014; Hair & Page, 2015). Hair and Page (2015) describe Multiple Regression as a technique to measure linear relationships between two or more variables with a single metric dependent variable and several metric independent variables. As such, this method is suitable for testing and predicting the effects of the independent variables on the dependent variable.

4.7.2 Assumptions for Multiple Regression

Multiple regression testing requires several assumptions to be satisfied for measuring the data (Hair & Page, 2015; Pallant, 2016). These include normality, linearity, Homogeneity of variance (also known as Homoscedasticity), multicollinearity, sample size, singularity, and outliers.

Pallant (2016) estimates the sample size required for multiple regression to be N > 50 + 8m, where m equals the number of independent variables. Applying this equation to this study shows that the sample size would be suitable for in excess of 20 independent variables. As such, this requirement has been satisfied. The study design inherently ensured sample independence, satisfying this requirement. Singularity is like multicollinearity and occurs when one of the variables is a combination of two or more of the other variables and implies a very high level of correlation. By ensuring that multicollinearity is not a problem, singularity is naturally excluded as an effect (Tabachnick & Fidell, 2013). Outliers have been considered, and testing showed no significant influence from outliers. The remaining tests will be tested individually for each sub-hypothesis.

4.7.3 Normality, Linearity, Homogeneity of Variance and Multicollinearity

Saunders and Lewis (2018) describe a normal distribution as data that can be plotted as a bell-shaped curve. To test for normality, the residual scatterplots generated as part of the multiple regression procedure in SPSS can be checked to approximate a normal distribution (Pallant, 2016). In addition, Saunders et al. (2019) describe linearity as the degree to which the change in the dependent variable is related to the change in the independent variables. Linearity can be inspected on the same scatterplots to reflect a relatively straight-line relationship. Saunders et al. (2019) describe homogeneity of variance as a measure of the equality of variances for a single set of variables. For homogeneity of variance, the scatterplot should show data points that are fairly evenly spread out. Lastly, multicollinearity represents the extent to which other factors within the study can influence the results, mainly when there is a high correlation between the independent variables (Hair & Page, 2015; Pallant, 2016). This interrelation makes it harder to determine the relationships between variables. The Variance Inflation Factor (VIF) was used to test for this by applying an

upper limit of 10.0 (Pallant 2016).

4.8 Quality Controls

As a start, the questions used in the survey were taken from previous studies that showed favourable Cronbach's alpha results, indicating that they are reliable. The quality of the collected data was ensured by guaranteeing anonymity to reduce the risk of bias and by pre-testing the survey. In addition, screening questions were included to ensure that only data from the intended audience were included for consideration. Finally, the data were evaluated for missing fields, cleaned, and coded in the same direction. To confirm the internal consistency of the constructs and test for reliability, Cronbach's alpha was calculated using the IBM SPSS software (Pallant, 2016). Bonett and Wright (2014) describe Cronbach's alpha as one of the most popular ways to measure reliability in social and organisational science fields. Construct validity was also tested to ensure that the questions asked in the questionnaire gathered data about what needed to be measured (Saunders & Lewis, 2018). Factor analysis was used to ease the results analysis process by reducing the observed variables via data reduction into a reduced factor group. (Nunnally & Bernstein, 1994).

4.9 Data Storage

Only anonymous data were collected in compliance with the Protection of Personal Information Act No 4 of 2013 (POPIA) (South African Government, 2013). After data collection and analysis, the researcher digitally stored the original data, which was also submitted to the Gordon Institute of Business Science, where it will be safely stored for ten years.

4.10 Limitations

A potential limitation of this study is that it is cross-sectional and hence, done at a point in time. This means that the responses received would be in the context of that time. The same study done in a different context may yield different results. Saunders and Lewis (2018) also do not hold non-probability sampling techniques, as will be used for this study, in the same regard as probability sampling techniques. The

authors discuss that non-probability sampling inhibits the ability to make statistical inferences about the data. As such, it is essential to ensure a sufficient sample size for this limitation. The skewed response pattern from higher educated management level respondents could see this potential limitation. Lastly, being a quantitative study, no open-ended questions were used in the survey as this would have required coding to identify trends. This does not allow for the respondents to express themselves in any manner, as their responses are guided by the Likert scale options provided with the closed-ended questions. This could potentially reduce the depth of the study.

4.11 Conclusion

This chapter outlined the research design and methodology used to explore the hypotheses discussed in Chapter 3. The questionnaire's design and data collection were discussed; in addition, the collected data from the 218 respondents were cleaned, coded, and tested to ensure validity and reliability before proceeding to Factor analysis to reduce the questions to become more manageable. The result of the factor analysis showed that the EE construct (DV) was reduced to three dimensions, which was in line with the three dimensions of EE. The IM construct (IV) is reduced to one dimension. Lastly, the OJ construct (MV) was also reduced to three dimensions that were in line with the three dimensions of OJ. In line with the hypotheses, the three dimensions of the OJ construct will be analysed collectively. Towards the end of the chapter, the approaches used to test the hypotheses were discussed. These included Spearman’s rank order correlation non-parametric test to test the relationship between IM and EE and the use of multiple regression testing to understand the moderating effect that OJ could have on the relationship between IM and EE. Finally, the assumptions and related tests for multiple regression testing were discussed.

Chapter 5: Results

5.1 Introduction

Chapter 1 discussed that this study's purpose was to better understand the potential impact that OJ could have on the engagement of intrinsically motivated employees. Chapter 2 gave more insight into the context of the investigation, and chapter 3 outlined the hypotheses intended to test this impact. This chapter explains the results obtained from the research methods designed to test the hypotheses described in chapter 4. This process involves gaining a high-level understanding of the characteristics of the sample population in the form of descriptive statistics. This was followed by tests to ensure data quality and the compliance of assumptions required for the simple linear regression and multiple linear regression tests that will evaluate the hypotheses.

After completing the EFA in Chapter 4, the survey questions were reduced to dimensions related to the constructs that required measuring. Further discussions will use the renamed dimensions for discussion purposes.

For EE, the three dimensions were named EE_Physical Engagement (EE_PE), EE_Emotional Engagement (EE_EE), and EE_Cognitive Engagement (EE_CE). These replace Employee Physical Engagement (EPE), Employee Emotional Engagement (EEE), and Employee Cognitive Engagement (ECE).

The dimension relating to IM was named IM_Intrinsic Reward (IM_IR). This replaces IM.

Lastly, the three dimensions relating to OJ were named OJ_Distributive Justice (OJ_DJ), OJ_Procedural Justice (OJ_PJ), and OJ_Interactional Justice (OJ_IJ). These replace Organisational Procedural Justice (OPJ), Organisational Distributive Justice (ODJ), and Organisational Interactional Justice (OIJ).

5.2 Descriptive Statistics

5.2.1 Description of Collected Data

The context of the study fell within the South African manufacturing industry, which was used as a screening question to ensure that only respondents employed within this context were considered. A total of 218 respondents met this criterion and completed the questionnaire successfully. None of the respondents was excluded from the study, as all the responses met the requirements of the target population. There was no missing data, and it was also discussed that the nine respondents that indicated that they had been employed for less than one year were included in the study.

5.2.2 Industry Classification

The majority of 139 respondents (63.8% of the sample) indicated they were employed in the automotive industry. This weighting of the result was expected as the researcher has been employed within the automotive sector for twenty-five years. In addition, the snowball sampling technique used for data gathering lends itself to this type of phenomenon by design as it involves initial sample members identifying and volunteering subsequent sample members (Saunders and Lewis, 2018). As indicated in Table 20, no other sectors displayed any individual significance.

Table 20 *Industry Classification of Respondents*

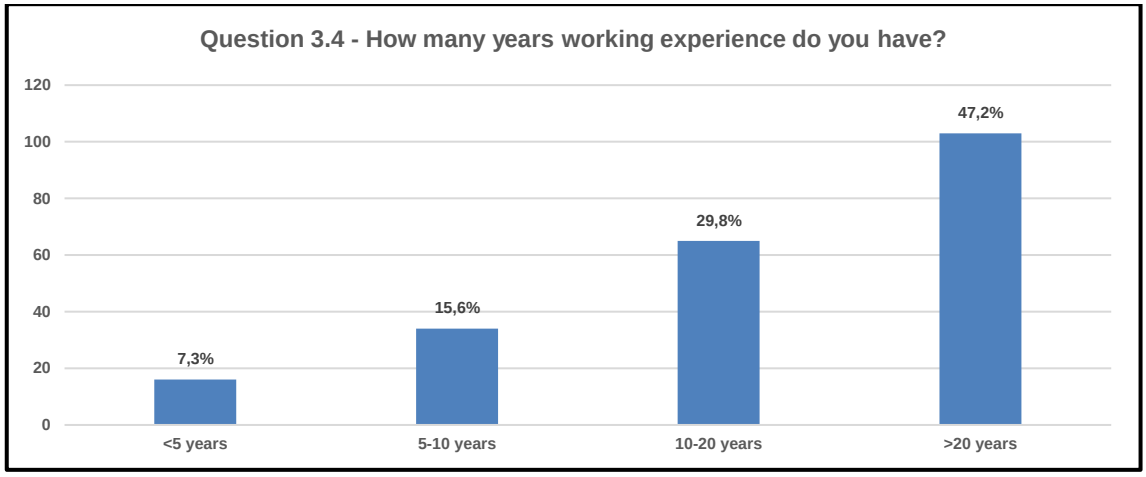
Question 3.2 - Please select the category that best fits your industry	Frequency	Percent
Manufacture of food and beverage	15	6.9%
Manufacture of Textile, clothing, leather, and footwear	5	2.3%
Manufacture of wood products, paper, publishing, and printing	6	2.8%
Manufacture of Petroleum and chemical products	9	4.1%
Manufacture of rubber and plastic products	16	7.3%
Manufacture of basic pharmaceutical products	2	0.9%
Manufacture of steel, non-ferrous metal products, metal products and machinery	2	0.9%
Manufacture of computer, electronic and optical products	4	1.8%
Manufacture of electrical equipment and machinery	3	1.4%
Manufacture of motor vehicles, parts and accessories and other transport equipment	139	63.8%
Manufacturing of furniture	1	0.5%
Other	16	7.3%
Total	**218**	**100.0**

Note. Author's own - Based on survey responses (2023)

5.2.3 Work Experience

Two demographic variables were used to describe work experience for the sample population. As shown in Figure 4, the results show that, at 103 responses (47.2%), almost half the respondents had more than twenty years of work experience. The next age bracket captured 65 respondents (29.8%), resulting in the vast majority of respondents (77%) having more than ten years of work experience. This result could suit the study's narrative, wanting to measure longer-term perceptions rather than singular events.

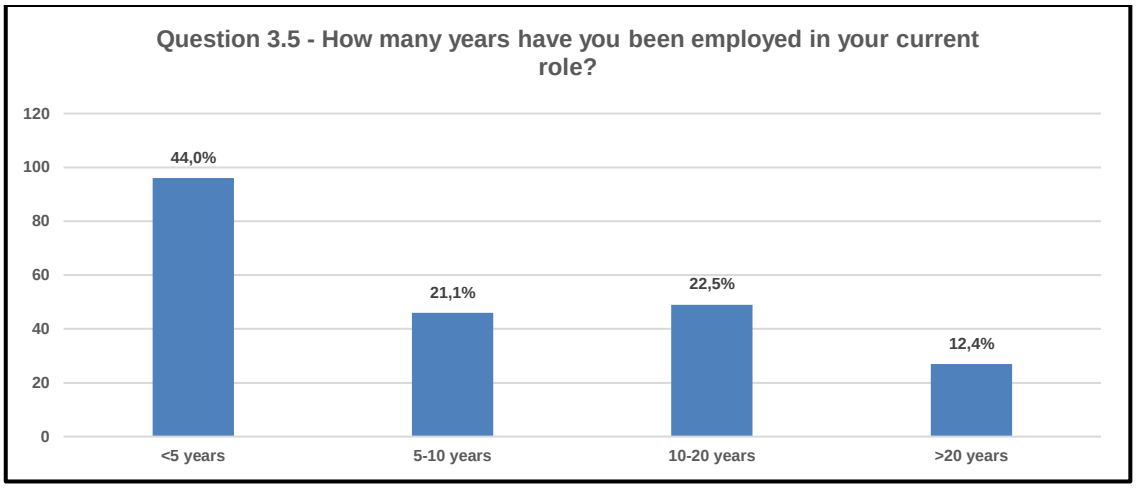
Figure 4 *Total Work Experience*



Note. Author's own based on survey responses (2023)

The following variable was measured separately from the previous one as this may become valuable when interpreting the results. As employee engagement has been discussed to have job turnover as one of its outcomes, this may provide a more profound perspective when the results are interpreted. Figure 5 shows how, at 96 responses (44.0%), almost half the respondents have been employed in their current roles for less than five years.

Figure 5 *Job Tenure*

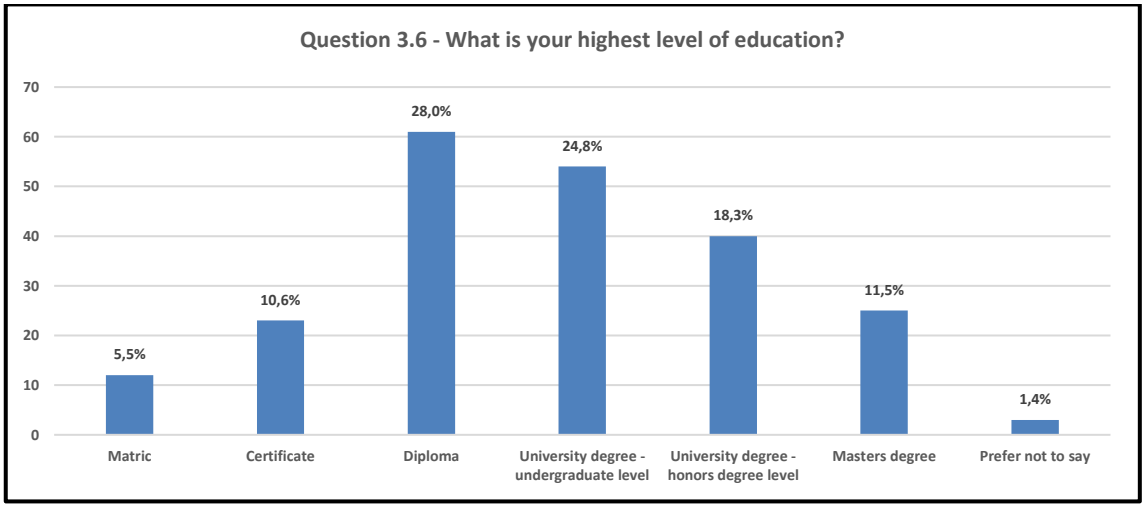


Note. Author's own based on survey responses (2023)

5.2.4 Level of Education

Figure 6 shows that at least 203 (93.1%) had tertiary education, with 12 respondents (5.5%) having only a matric and three respondents (1.4%) preferring not to disclose their education level. It can further be seen at least 119 respondents (54.6%) have a university degree or higher. One of the reasons for the lack of responses from less educated employees could be due to the snowball and convenience sampling technique used to gather data. The researcher used his social and professional network, who mostly have a similar level of education, to distribute the questionnaire. The researcher's network likely followed the same distribution technique.

Figure 6 *Education Level*

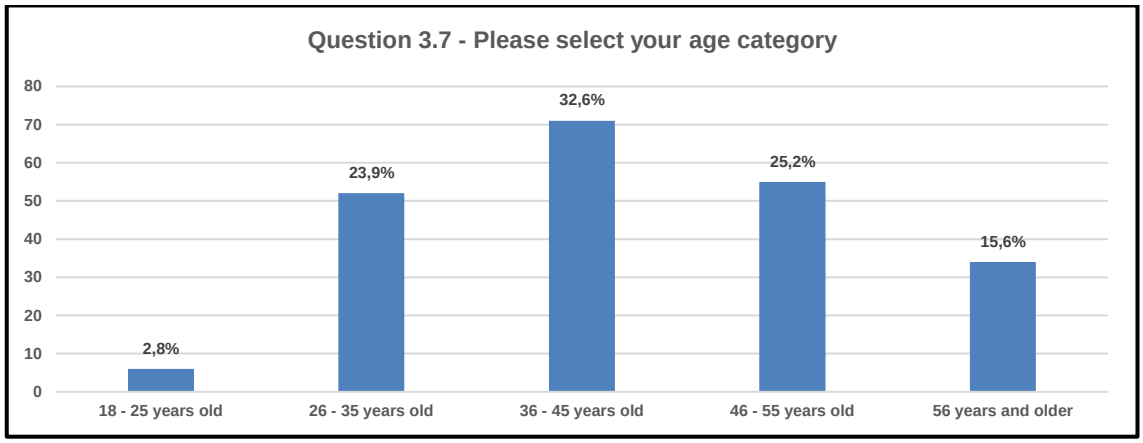


Note. Author's own based on survey responses (2023)

5.2.5 Age of Respondents

As the demographic variables for work experience show that 77% of the respondents have more than ten years of work experience, it was expected that results for the age distribution would be skewed towards an older demographic. Figure 7 shows this to be the case with 160 respondents (73.4%) older than 36 years.

Figure 7 *Age Category*

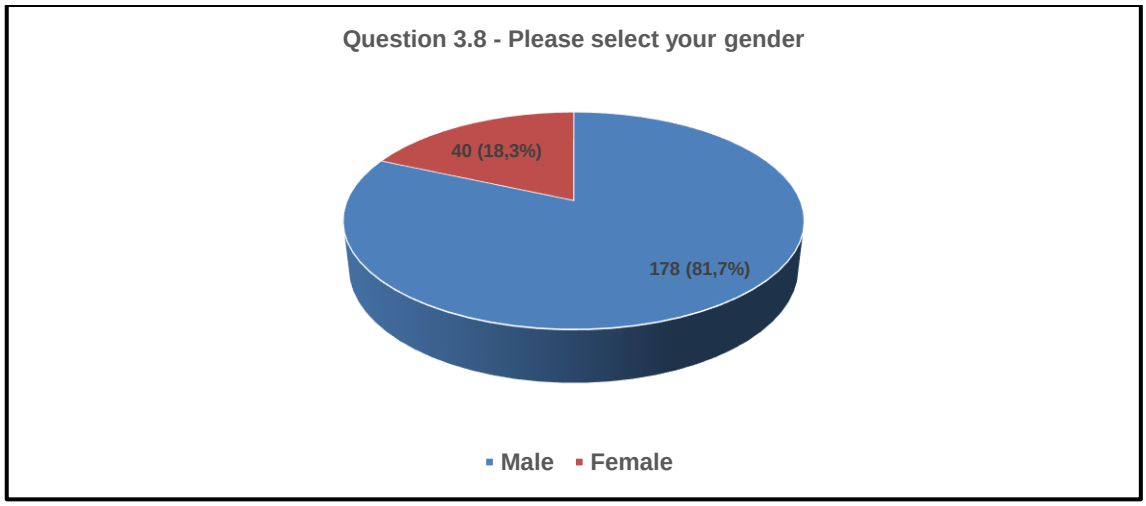


Note. Author's own based on survey responses (2023)

5.2.6 Gender of Respondents

According to Howcroft and Rubery (2019), the manufacturing industry is male-dominated. Therefore, it was expected in the study that the gender profile would heavily favour the male gender. Figure 8 confirms this assumption by Howcroft and Rubery (2019), revealing 178 (81.7%) of the respondents are male and 40 (18.3%) female.

Figure 8 *Gender Profile*

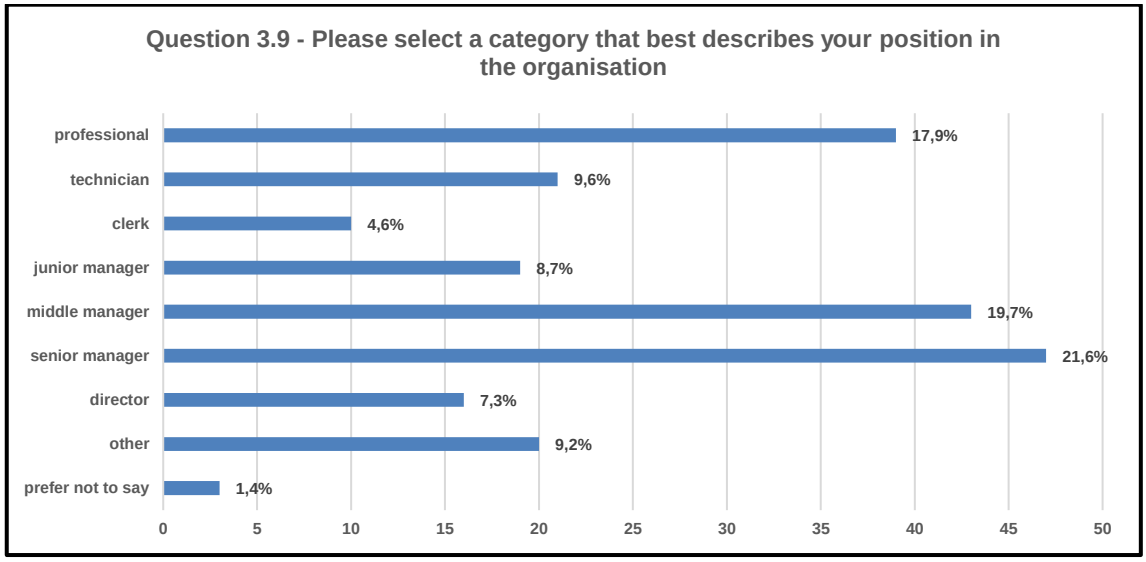


Note. Author's own based on survey responses (2023)

5.2.7 Position within the Organisation

The uneven representation of positions within the represented organisations could again be attributed to the snowball and convenience sampling technique used to gather data, as the researcher is also in a Senior Management position. Figure 9 shows the positions that dominated the responses to Senior Manager and Middle Manager. These positions accounted for 90 of the responses (41.3%).

Figure 9 *Position within the Organisation*

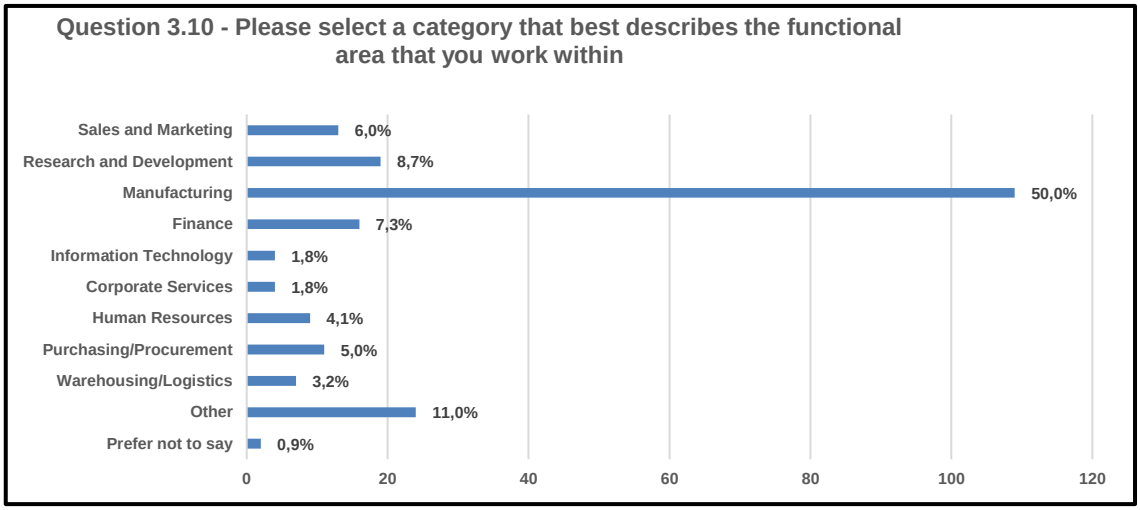


Note. Author's own based on survey responses (2023)

5.2.8 Functional Area within the Organisation

As the researcher worked within the operational area of manufacturing for most of his career, the snowball and convenience sampling technique used to gather data could again significantly affect the type of respondents. This seems to be evident in the results shown in Figure 10, where 109 respondents (50,0%) were found to be working within the manufacturing division of their organisation. The distribution within the other departments showed no significant trend.

Figure 10 *Functional Area within the Organisation*



Note. Author's own based on survey responses (2023)

5.3 Results of Hypothesis Testing - $H1_a$,$H1_b$ and $H1_c$

To ensure the integrity of the data that will be used to test the hypotheses, the reliability and validity of the measurement scales need to be confirmed. This was explained and verified in Chapter 4. This section provides the results of the hypotheses testing that was done on the data collected for IM and EE.

The objective of Hypothesis 1 was to establish whether a relationship exists between IM and the three dimensions of EE. This evaluation was performed using a Spearman rank correlation analysis to test the relationship between the Intrinsic Motivation construct and the three sub-constructs of EE, represented by Employee Physical Engagement (EE_PE), Employee Emotional Engagement (EE_EE) and Employee Cognitive Engagement (EE_CE). The Spearman rank correlation was

used as the data was found to not be normally distributed, so parametric testing, like Pearson's correlation, could not be used. This is demonstrated in the basic descriptive below, which was reported before reporting the inferential statistics used for the hypothesis testing. All tests were performed at a 95% confidence level.

5.3.1 Basic Descriptive Statistics for IM and EE

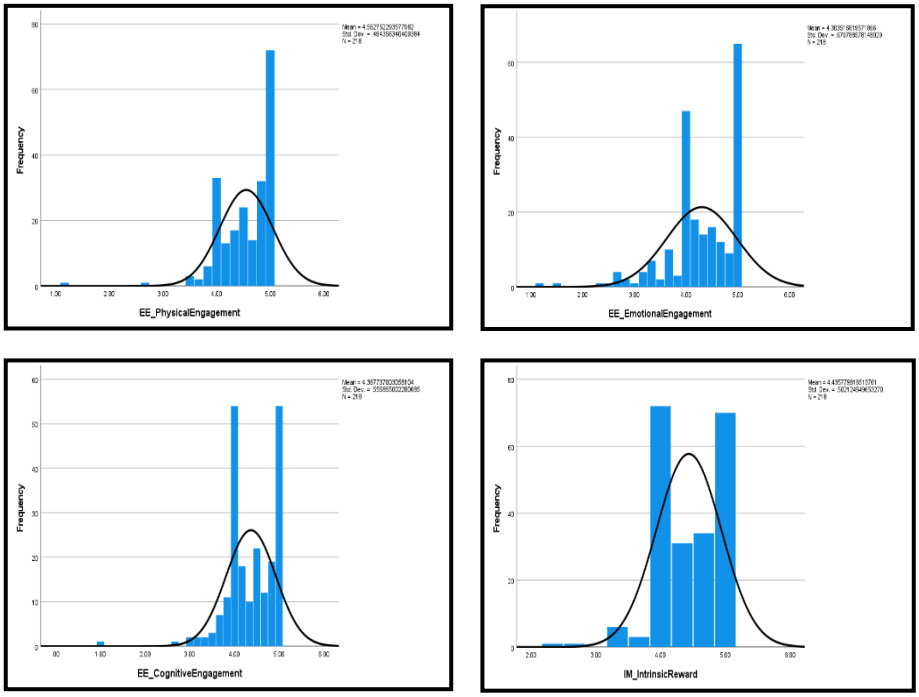
As indicated in Table 21, 218 responses were used for this study. By looking at the sub-constructs of EE, EE_PE displayed a mean of 4.55 with a Standard Deviation (SD) of 0.49. EE_EE displayed a mean of 4.30 with an SD of 0.68. EE_CE displayed a mean of 4.37 with an SD of 0.56. In addition, the IM_IR construct showed a mean of 4.44 with an SD of 0.50. The histograms are shown in Figure 11 display the distributions before the data was standardised.

Table 21 *EE_PE, EE_EE, EE_CE and IM_IR Descriptive Statistics*

Descriptive Statistics											
Variable	**N**	**Range**	**Min**	**Max**	**Mean**	**Std. Deviation**	**Variance**	**Skewness**		**Kurtosis**	
	Stat	**Stat**	**Stat**	**Stat**	**Stat**	**Stat**	**Stat**	**Stat**	**Std. Error**	**Stat**	**Std. Error**
EE_ Physical Engagement	218	3,83	1,17	5,00	4,55	0,49	0,24	-2,00	0,16	9,42	0,33
EE_ Emotional Engagement	218	3,83	1,17	5,00	4,30	0,68	0,46	-1,27	0,16	2,67	0,33
EE_ Cognitive Engagement	218	4,00	1,00	5,00	4,37	0,56	0,31	-1,27	0,16	5,17	0,33
IM_Intrinsic Reward	218	2,67	2,33	5,00	4,44	0,50	0,25	-0,63	0,16	0,61	0,33

Note. Author's own, based on survey responses (2023)

Figure 11 *Histograms for EE_PE, EE_EE, EE_CE and IM_IR Descriptives*



Note. Author's own based on survey responses (2023)

The results show that the data distribution for the sub-constructs of EE, EE_PE, and the construct of IM_IR was negatively skewed. The skewness can be reported as -2.00, -1.27, -1.27, and -0.63 for the four data sets, respectively, indicating the clustering of scores on the right-hand side of the graph (Pallant, 2016). The kurtosis is 9.42, 2.67, 5.17, and 0.61 for the four data sets, indicating a distribution rather clustered in the centre, with long thin tales (Pallant, 2016). Even though skewness and kurtosis are not zero showing deviation from normality, inspecting the distribution's shape is recommended to assess normality. By performing such an inspection, it was evident that there were slight deviations from normality.

5.3.2 Outcome of Spearman's Correlation Testing

The violation of normality shown by the histograms for the constructs of IM_IR and the sub-constructs of EE were confirmed by the Kolmogorov-Smirnova and the Shapiro-Wilk test results that were already discussed to establish a data distribution that was not normal. Hence the need to use non-parametric testing to evaluate the relationship between IM_IR and the three dimensions of EE.

The results for the Spearman rank correlation are shown in Tables 22 to 24. The results using IM_IR and EE_PE as the variables showed ρ = 0.409, with Sig. (2-tailed) (P-value) < 0,05. With the P-value being < 0.05, a significant relationship or association between IM_IR and EE_PE is demonstrated. The value of ρ = 0.409 illustrates the strength of the relationship. As the value is more than zero, it is demonstrated that the relationship is positive. The relationship's strength is considered medium if the value falls between ρ = 0.30 to 0.49 (Pallant, 2016).

The results using IM_IR and EE_EE as the variables showed ρ = 0.441, with Sig. (2-tailed) (P-value) < 0,05. With the P-value being < 0.05, a significant relationship or association between IM_IR and EE_PE is demonstrated. The value of ρ = 0.441 illustrates the strength of the relationship. As the value is more than zero, it is demonstrated that the relationship is positive. If the value falls between ρ = 0.30 to 0.49, then the relationship's strength is considered medium (Pallant, 2016).

Lastly, the results using IM and ECE as the variables showed ρ = 0.445, with Sig. (2-tailed) (P-value) < 0,05. With the P-value being < 0.05, a significant relationship or association between IM_IR and EE_PE is demonstrated. The value of ρ = 0.445 illustrates the strength of the relationship. As the value is more than zero, it is demonstrated that the relationship is positive. If the value falls between ρ = 0.30 to 0.49, the relationship's strength is considered medium (Pallant, 2016).

Table 22 *Results of Spearman's Correlation Testing between IM_IR and EE_PE - H1a*

Correlations				
			EE_PhysicalEngagement	IM_IntrinsicReward
Spearman's rho	EE_PhysicalEngagement (EE_PE)	Correlation Coefficient	1,000	.409**
		Sig. (2-tailed)		0,000
		N	218	218
	IM_IntrinsicReward (IM_IR)	Correlation Coefficient	.409**	1,000
		Sig. (2-tailed)	0,000	
		N	218	218

Note. Author's own - Based on survey responses (2023)

Table 23 *Results of Spearman's Correlation Testing between IM_IR and EE_EE - H1b*

Correlations				
			IM_IntrinsicReward	EE_EmotionalEngagement
Spearman's rho	IM_IntrinsicReward (IM_IR)	Correlation Coefficient	1,000	.441**
		Sig. (2-tailed)		0,000
		N	218	218
	EE_EmotionalEngagement (EE_EE)	Correlation Coefficient	.441**	1,000
		Sig. (2-tailed)	0,000	
		N	218	218

Note. Author's own - Based on survey responses (2023)

Table 24 *Results of Spearman's Correlation Testing between IM_IR and CE - H1c*

Correlations				
			IM_IntrinsicReward	EE_CognitiveEngagement
Spearman's rho	IM_IntrinsicReward (IM_IR)	Correlation Coefficient	1,000	.445**
		Sig. (2-tailed)		0,000
		N	218	218
	EE_CognitiveEngagement- (EE_CE_	Correlation Coefficient	.445**	1,000
		Sig. (2-tailed)	0,000	
		N	218	218

Note. Author's own - Based on survey responses (2023)

5.3.3 Conclusion – $H1_a$, $H1_b$ and $H1_c$

The p-value is < 0.05, with a medium relationship strength in all cases. As such, these results show that a relationship does exist between IM_IR and the three dimensions of EE. Therefore, $H1_a$, $H1_b$ and $H1_c$ are accepted.

5.4 Results of Hypothesis Testing – $H2_a$, $H2_b$ and $H2_c$

To ensure the integrity of the data that will be used to test the hypotheses, the reliability and validity of the measurement scales need to be confirmed. This was explained and verified in Chapter 4. This section provides the results of the hypotheses testing that was done on the data collected for IM, EE and OJ.

The objective of Hypothesis 2 is to verify if the three dimensions of OJ collectively moderate the relationship between IM and the three dimensions of EE individually. It has already been established that a relationship exists between IM and EE, as Spearman's correlation test results showed a significant correlation with a medium strength for all three sub-dimensions of EE. But correlation does not imply causality or prediction (Hair & Page, 2015). As the element of prediction needs to be introduced to test Hypothesis 2, a multiple linear regression test will be used as it makes predictions by examining information about the relationship between multiple independent variables and one dependent variable (Hair & Page, 2015).

Using multiple linear regression, this section evaluates OJ's effect on the relationship between IM_IR and EE_PE, EE_EE and EE_CE, respectively. At first, basic descriptives were reported, with the inferential statistical results reported thereafter for each of the three sub-hypotheses. The reporting of the results of the linear regression test follows this. Before reporting the inferential statistics results, the assumption test results for parametric testing were shown. All tests were performed at a 95% confidence level.

5.4.1 Data Standardisation for Regression

Before performing regression testing, a requirement is to standardise the independent variables by using the centring method to adjust the mean of each variable as close to zero as possible. This is done to reduce the chance of multicollinearity. Thereafter an interaction term is created by multiplying the centred values of each OJ dimension with IM. The interaction variable determines a possible moderating effect (Hair & Page, 2015; Pallant, 2016). These results are reported in Table 39 (Appendix E).

5.4.2 Descriptive Statistics for OJ

The descriptive statistics for IM and EE were discussed in Section 5.3.1. For the descriptive statistics of OJ, Table 25 reflects the 219 responses used for this study. By looking at the OJ constructs, OJ_DJ displayed a mean of 3.26 with an SD of 0.96. OJ_PJ displayed a mean of 3.39 with an SD of 0.85. Lastly, OJ_IJ displayed a mean

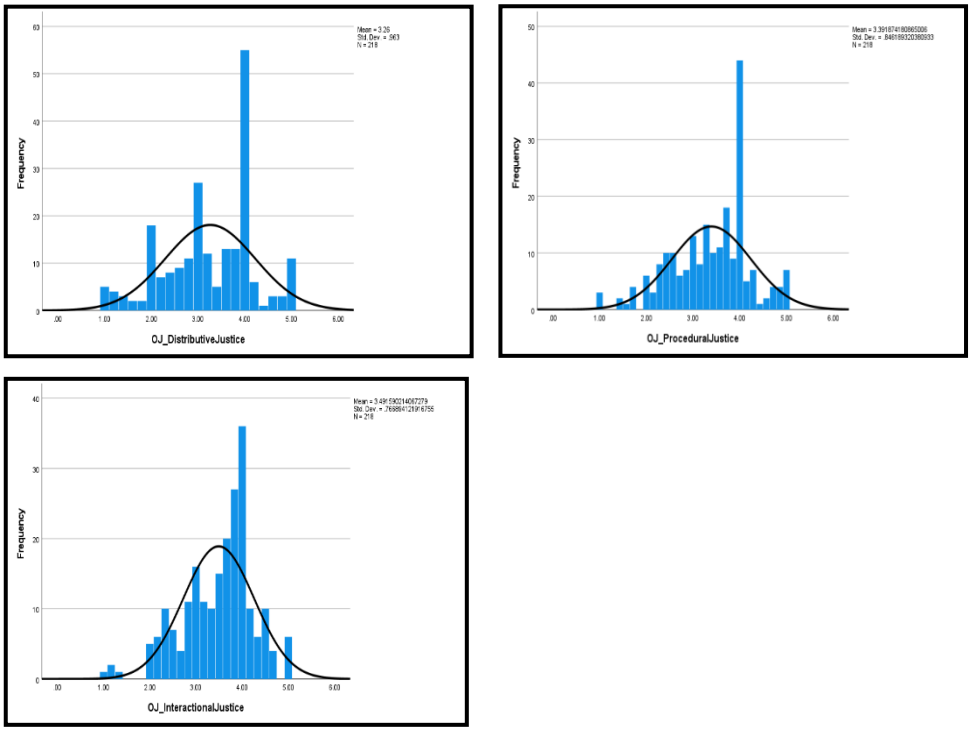
of 3.49 with an SD of 0.77. The histograms shown in Figure 12 indicate the distribution before the data was standardised.

Table 25 *OJ_DJ, OJ_DJ and OJ_IJ Descriptive Statistics*

Descriptive Statistics											
Variable	N	Range	Min	Max	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Stat	Stat	Stat	Stat	Stat	Stat	Stat	Stat	Std. Error	Stat	Std. Error
OJ_DistributiveJustice (OJ_DJ)	218	4,00	1,00	5,00	3,26	0,96	0,93	-0,39	0,16	-0,42	0,33
OJ_ProceduralJustice (OJ_DJ)	218	4,00	1,00	5,00	3,39	0,85	0,72	-0,45	0,16	-0,06	0,33
OJ_InteractionalJustice (OJ_IJ)	218	4,00	1,00	5,00	3,49	0,77	0,59	-0,63	0,16	0,36	0,33

Note. Author's own - Based on survey responses (2023)

Figure 12 *Histograms for OJ_DJ, OJ_PJ and OJ_IJ Descriptives*



Note. Author's own based on survey responses (2023)

The results show that the data distribution for the three constructs of OJ, OJ_DJ, OJ_PJ and OJ_IJ, were negatively skewed. The skewness can be reported as -0.39,

-0.45, and -0.63 for the three data sets, respectively, indicating slight clustering of scores on the right-hand side of the graph (Pallant, 2016). The kurtosis is shown to be -0.42, -0.06, and 0.36 for the four data sets. For OJ_DJ and OJ_PJ, this indicates a relatively flat distribution, which could mean that there are too many cases in the extremes. This risk is reduced with studies with sample sizes of over 200 responses, such as this one (Pallant 2016). The kurtosis result for OIJ indicates a distribution rather clustered in the centre, with long thin tales (Pallant, 2016). Even though skewness and the kurtosis not being zero showed deviation from normality, inspecting the distribution's shape is recommended to assess normality. By performing such an inspection, it was evident that there were slight deviations from normality.

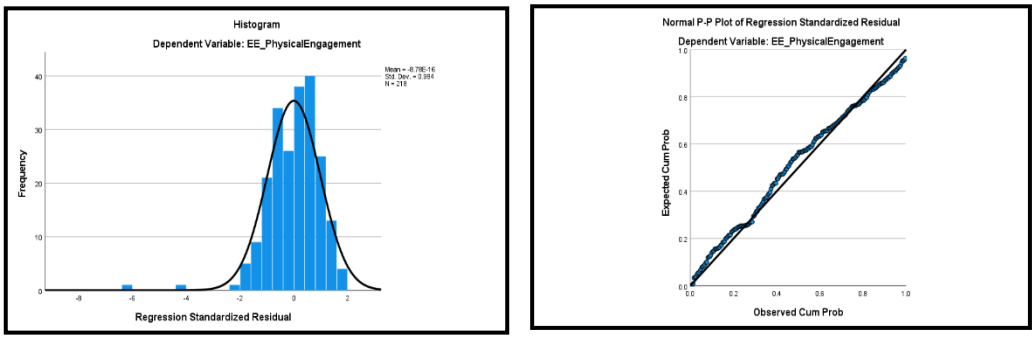
5.4.3 Inferential Statistics for $H2_a$

Evaluating and reporting on the four assumptions for linear regression testing.

Normality

Normality is assessed by looking at the histogram and p-plot of the standardised residuals shown in Figure 13. A visual inspection of the histogram showed the results concentrated towards the centre and the line on the p-plot being relatively straight (Pallant 2016). This shows no significant deviations from normality, satisfying the normally distributed data assumption.

Figure 13 *H2a - Histogram and P-plot*

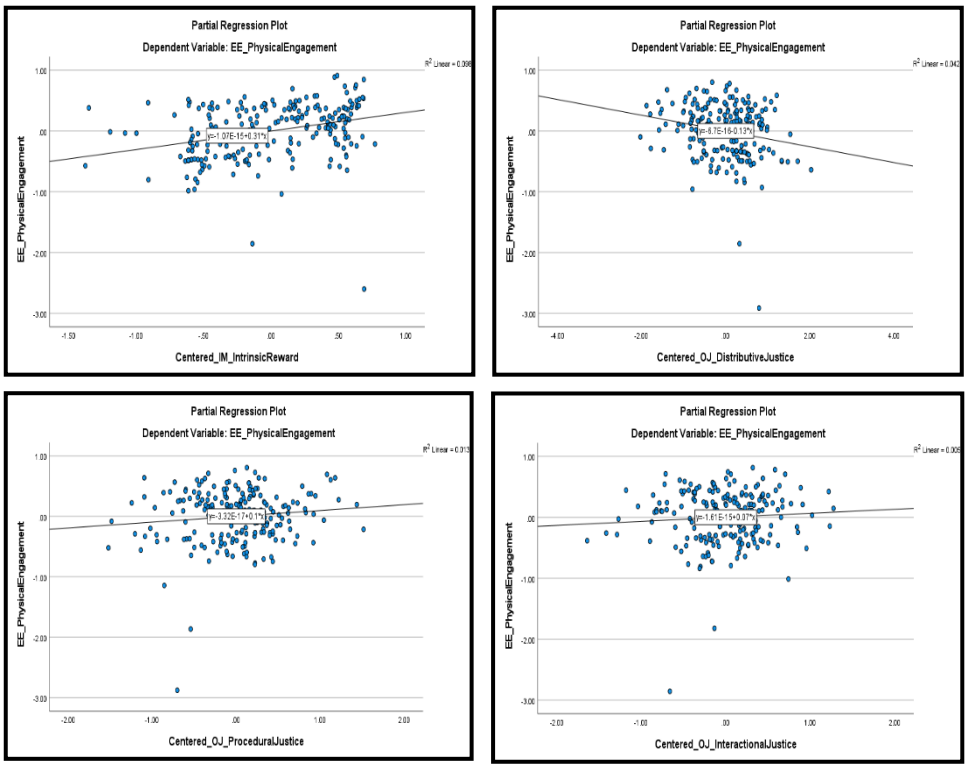


Note. Author's own based on survey responses (2023)

Linearity

A visual assessment of the scatterplot should show a relatively straight-line relationship between the Independent Variables/Moderators and the Dependent Variables (Pallant, 2016). As seen in Figure 14, this type of relationship was observed in all cases, satisfying the assumption of linearity.

Figure 14 *Scatterplots to Assess the Linearity*

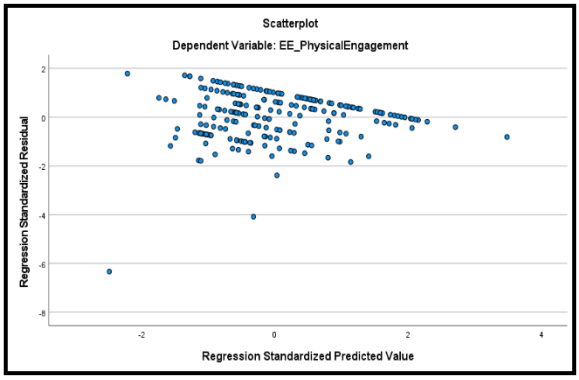


Note. Author's own based on survey responses (2023)

Homogeneity of Variance

The homogeneity of variance was assessed by inspecting the scatterplot of residuals shown in Figure 15. The inspections should display the data to be randomly spread out (Pallant 2016). By looking at the scatterplot, it was observed that there is a relatively equal spread across the range, which is adequate to assume homogeneity of variance. The outliers seen on the scatterplot have already been discussed as not having a significant effect.

Figure 15 H2a - *Scatterplot to Assess the Homogeneity of Variance*



Note. Author's own based on survey responses (2023)

Multicollinearity

Multicollinearity was assessed, and the results are reflected in Table 26. To satisfy the requirement for no multicollinearity, the Variance Inflation Factor (VIF) value must be below ten, and the tolerance must be greater than 0.1. All the results met these requirements; hence the multicollinearity assumption was satisfied.

Table 26 *H2a – Results of the Assessment of Homogeneity of Variance*

Homogeneity of variance		
Variable	**Collinearity Statistics**	
	Tolerance	**VIF**
Centered_IM_IntrinsicReward (IM_IR)	0,874	1,144
Centered_OJ_DistributiveJustice (OJ_DJ)	0,535	1,869
Centered_OJ_ProceduralJustice (OJ_PJ)	0,375	2,667
Centered_OJ_InteractionalJustice (OJ_IJ)	0,376	2,660
Centered_OJ_DistributiveJusticeXCentered_IM_IntrinsicReward	0,410	2,438
Centered_OJ_ProceduralJusticeXCentered_IM_IntrinsicReward	0,319	3,136
Centered_OJ_InteractionalJusticeXCentered_IM_IntrinsicReward	0,256	3,911

Note. Author's own - Based on survey responses (2023)

5.4.4 Results of $H2_a$ Testing

The adjusted R square values shown in Table 27 demonstrate a moderating effect on the relationship between IM_IR and EE_PE when the OJ constructs are introduced. The value changes from 0.115 to 0.194. Notably, the net resultant change introduced by the moderating effect is 0.079. This indicates a change of 7.9% due to the moderating effect of the OJ constructs on the relationship between IM_IR

and EE_PE. In addition, the P-value under Sig. F change shows a value of 0.000, < 0.05, indicating that the OJ constructs contribute statistically significantly to the relationship between IM_IR and EE_PE (Pallant, 2016).

Table 27 *Model Summary for the Regression Analysis of H2a*

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.363[a]	0,131	0,115	0,465	0,131	8,062	4	213	0,000
2	.469[b]	0,220	0,194	0,444	0,089	7,956	3	210	0,000
a. Predictors: (Constant), Centered_OJ_InteractionalJustice, Centered_IM_IntrinsicReward, Centered_OJ_DistributiveJustice, Centered_OJ_ProceduralJustice									
b. Predictors: (Constant), Centered_OJ_InteractionalJustice, Centered_IM_IntrinsicReward, Centered_OJ_DistributiveJustice, Centered_OJ_ProceduralJustice, Centered_OJ_ProceduralJusticeXCentered_IM_IntrinsicReward, Centered_OJ_DistributiveJusticeXCentered_IM_IntrinsicReward, Centered_OJ_InteractionalJusticeXCentered_IM_IntrinsicReward									
c. Dependent Variable: EE_PhysicalEngagement									

Note. Author's own - Based on survey responses (2023)

The ANOVA results, shown in Table 28, indicate whether the model, as a whole, is significant. The p-value of < 0.001 is less than 0.05, demonstrating that the model is statistically significant (Pallant, 2016).

Table 28 *Model Fit for the Regression Analysis of H2a*

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6,973	4	1,743	8,062	<,001[b]
	Residual	46,059	213	0,216		
	Total	53,032	217			
2	Regression	11,674	7	1,668	8,468	<,001[c]
	Residual	41,359	210	0,197		
	Total	53,032	217			
a. Dependent Variable: EE_PhysicalEngagement						
b. Predictors: (Constant), Centered_OJ_InteractionalJustice, Centered_IM_IntrinsicReward, Centered_OJ_DistributiveJustice, Centered_OJ_ProceduralJustice						
c. Predictors: (Constant), Centered_OJ_InteractionalJustice, Centered_IM_IntrinsicReward, Centered_OJ_DistributiveJustice, Centered_OJ_ProceduralJustice, Centered_OJ_ProceduralJusticeXCentered_IM_IntrinsicReward, Centered_OJ_DistributiveJusticeXCentered_IM_IntrinsicReward, Centered_OJ_InteractionalJusticeXCentered_IM_IntrinsicReward						

Note. Author's own - Based on survey responses (2023)

To understand the individual contributions of the independent variables, the coefficients' results, shown in the Model two rows of Table 29, need to be consulted. This allows an understanding of the individual components and whether the individual interactional components of OJ have a moderating effect between IM_IR and EE_PE. An inspection of the table reveals that IM_IR and OJ_DJ each

contributed uniquely to EE_PE, with IM_IR being the most significant contributor with a beta = 0.311, followed by OJ_DJ, with a beta = -0.253. Importantly, it could be seen that the moderating effect of OJ_PJ on IM_IR made a unique contribution with a beta = 0.262. This observation was confirmed by evaluating the Sig. column for the Model's two rows. The p-values for the independent variables need to be < 0.05 for the variable to make a statistically significant contribution (Pallant, 2016). The observed p-values were all above 0.05, except for IM_IR, OJ_DJ and the interaction variable that evaluates the effect of OJ_PJ on the relationship between IM_IR and EE_PE.

Table 29 *Coefficients Table of the Regression Analysis for H2a*

Coefficients								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	4,553	0,031		144,555	0,000	4,491	4,615
	Centered_IM_IntrinsicReward (IM_IR)	0,248	0,065	0,252	3,828	0,000	0,120	0,376
	Centered_OJ_DistributiveJustice (OJ_DJ)	-0,124	0,045	-0,242	-2,786	0,006	-0,212	-0,036
	Centered_OJ_ProceduralJustice (OJ_PJ)	0,105	0,061	0,180	1,727	0,086	-0,015	0,225
	Centered_OJ_InteractionalJustice (OJ_IJ)	0,083	0,067	0,129	1,246	0,214	-0,048	0,215
2	(Constant)	4,519	0,031		146,186	0,000	4,458	4,580
	Centered_IM_IntrinsicReward (IM_IR)	0,306	0,064	0,311	4,769	0,000	0,180	0,433
	Centered_OJ_DistributiveJustice (OJ_DJ)	-0,130	0,043	-0,253	-3,034	0,003	-0,214	-0,045
	Centered_OJ_ProceduralJustice (OJ_PJ)	0,096	0,058	0,165	1,656	0,099	-0,018	0,211
	Centered_OJ_InteractionalJustice (OJ_IJ)	0,066	0,064	0,103	1,035	0,302	-0,060	0,193
	Centered_OJ_DistributiveJusticeXCentered_IM_IntrinsicReward	-0,038	0,086	-0,042	-0,441	0,660	-0,207	0,131
	Centered_OJ_ProceduralJusticeXCentered_IM_IntrinsicReward	0,288	0,119	0,262	2,427	0,016	0,054	0,522
	Centered_OJ_InteractionalJusticeXCentered_IM_IntrinsicReward	0,100	0,144	0,084	0,698	0,486	-0,183	0,383

a. Dependent Variable: EE_PhysicalEngagement

Note. Author's own - Based on survey responses (2023)

5.4.5 Conclusion – $H2_a$

With all the interactions run in the same model, it could be seen that the OJ_Procedural JusticexIM_Intrinsic Reward interaction variable showed a moderating effect, having a Beta value of 0.262 and a p-value < 0.05. As such, it is shown that one of the Dimensions of OJ had a moderating effect on the interaction between IM_IR and EE_PE. Therefore, $H2_a$, is accepted.

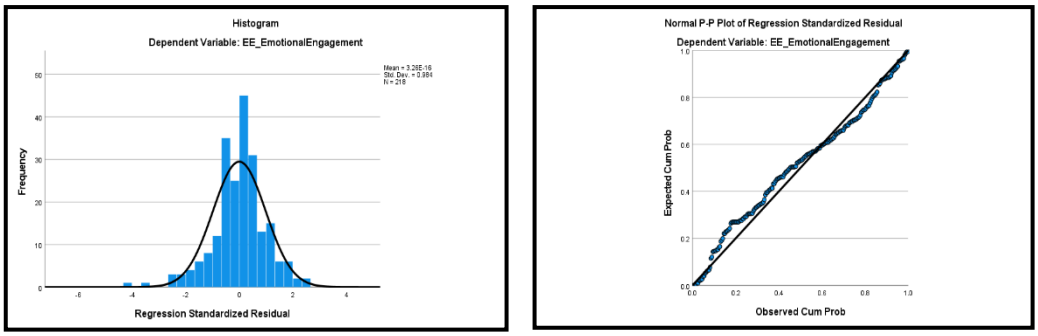
5.4.6 Inferential Statistics for $H2_b$

Evaluating and reporting on the four assumptions for linear regression testing.

Normality

Assessing the normality of the data, visual inspection of the standardised residuals histogram showed the results concentrated towards the centre and the line on the p-plot being relatively straight (Pallant 2016). As shown in Figure 16, this shows no significant deviations from normality, satisfying the normally distributed data assumption.

Figure 16 *H2b - Histogram and P-plot*

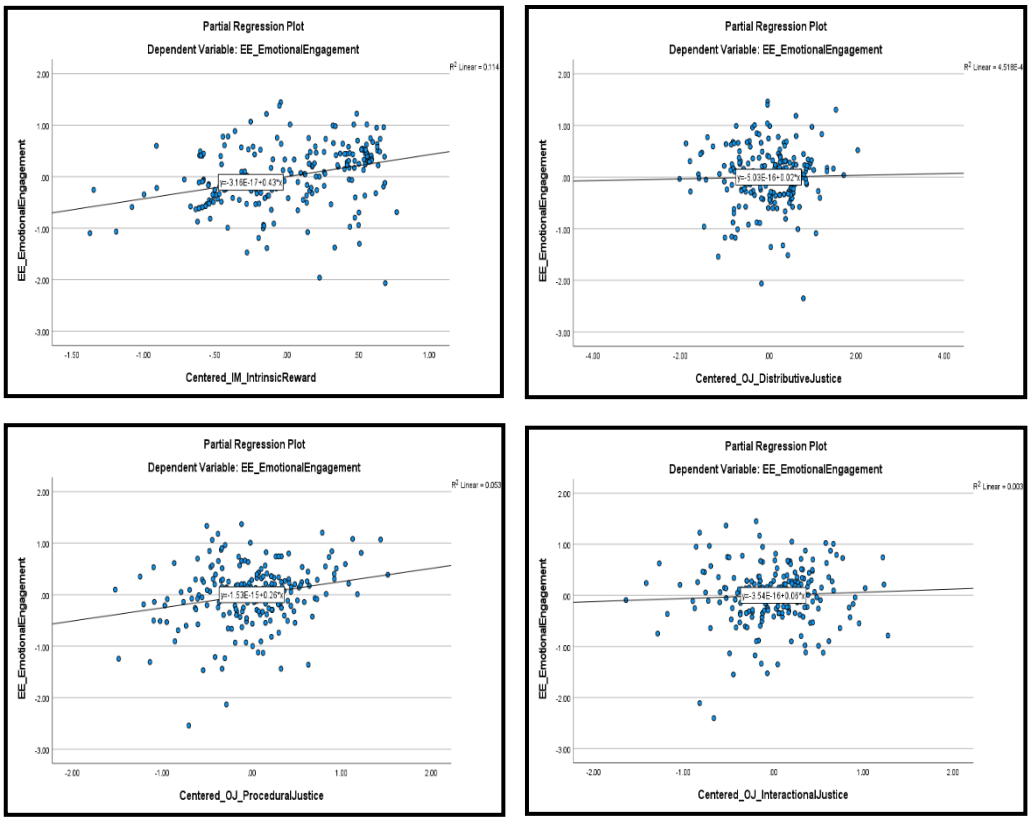


Note. Author's own based on survey responses (2023)

Linearity

A visual assessment of the scatterplot should show a relatively straight-line relationship between the Independent Variables/Moderators and the Dependent Variables (Pallant, 2016). As shown in Figure 17, this type of relationship was observed in all cases, satisfying the assumption of linearity.

Figure 17 *H2b - Scatterplots to Assess the Linearity*

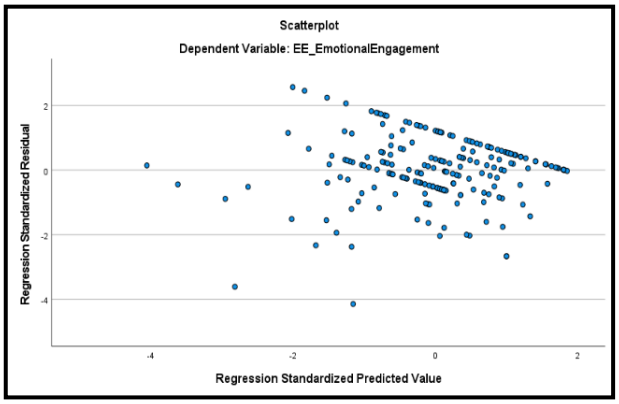


Note. Author's own based on survey responses (2023)

Homogeneity of Variance

The homogeneity of variance was assessed by inspecting the scatterplot of residuals shown in Figure 18. The inspections should display the data to be randomly spread out (Pallant 2016). By looking at the scatterplot, it was observed that there is a relatively equal spread across the range, which is adequate to assume homogeneity of variance. The outliers seen on the scatterplot have already been discussed, not having a significant effect.

Figure 18 *H2b - Scatterplots to Assess Homogeneity of Variance*



Note. Author's own based on survey responses (2023)

Multicollinearity

Multicollinearity was assessed, and the results were reflected in the section discussing the results for $H2_a$. The same independent variables are used to assess $H2_a$, $H2_b$ and $H2_c$. The VIF results showed that the multicollinearity assumption was satisfied.

5.4.7 Results of Hypothesis Testing for $H2_b$

The adjusted R square values shown in Table 30 demonstrate no significant moderating effect on the relationship between IM_IR and EE_EE when the OJ constructs are introduced. The value changes from 0.301 to 0.295. Notably, the net resultant change introduced by the moderating effect shows a value of 0.006. This indicates a slight change of 0.6% due to the moderating effect of the OJ constructs on the relationship between IM_IR and EE_EE. In addition, the P-value under Sig. F change shows a value of 0.737, which is > 0.05, indicating that the OJ constructs do not significantly contribute to the relationship between IM_IR and EE_EE (Pallant, 2016).

Table 30 *Model Summary for the Regression Analysis of H2b*

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.560[a]	0,313	0,301	0,569	0,313	24,313	4	213	0,000
2	.564[b]	0,318	0,295	0,571	0,004	0,423	3	210	0,737
a. Predictors: (Constant), Centered_OJ_InteractionalJustice, Centered_IM_IntrinsicReward, Centered_OJ_DistributiveJustice, Centered_OJ_ProceduralJustice									
b. Predictors: (Constant), Centered_OJ_InteractionalJustice, Centered_IM_IntrinsicReward, Centered_OJ_DistributiveJustice, Centered_OJ_ProceduralJustice, Centered_OJ_ProceduralJusticeXCentered_IM_IntrinsicReward, Centered_OJ_DistributiveJusticeXCentered_IM_IntrinsicReward, Centered_OJ_InteractionalJusticeXCentered_IM_IntrinsicReward									
c. Dependent Variable: EE_EmotionalEngagement									

Note. Author's own, based on survey responses (2023)

The ANOVA results, shown in Table 31, indicate whether the model, as a whole, is significant. The p-value of < 0.001 is less than 0.05, demonstrating that the model is statistically significant (Pallant, 2016).

Table 31 *Model Fit for the Regression Analysis of H2b*

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31,433	4	7,858	24,313	<,001[b]
	Residual	68,845	213	0,323		
	Total	100,278	217			
2	Regression	31,847	7	4,550	13,962	<,001[c]
	Residual	68,431	210	0,326		
	Total	100,278	217			
a. Dependent Variable: EE_EmotionalEngagement						
b. Predictors: (Constant), Centered_OJ_InteractionalJustice, Centered_IM_IntrinsicReward, Centered_OJ_DistributiveJustice, Centered_OJ_ProceduralJustice						
c. Predictors: (Constant), Centered_OJ_InteractionalJustice, Centered_IM_IntrinsicReward, Centered_OJ_DistributiveJustice, Centered_OJ_ProceduralJustice, Centered_OJ_ProceduralJusticeXCentered_IM_IntrinsicReward, Centered_OJ_DistributiveJusticeXCentered_IM_IntrinsicReward, Centered_OJ_InteractionalJusticeXCentered_IM_IntrinsicReward						

Note. Author's own - Based on survey responses (2023)

To understand the individual contributions of the independent variables, the coefficients' results, shown in the Model two rows of Table 32, need to be consulted. This allows an understanding of the individual components and whether the individual interactional components of OJ have a moderating effect between IM_IR and EE_EE. An inspection of the table reveals that IM_IR and OJ_PJ each contributed uniquely to EE_EE, with OJ_PJ being the biggest contributor with a beta = 0.318, followed by IM_IR, with a beta = 0.316. Importantly, it could be seen that none of the interaction variables that tested the moderating effects of OJ_DJ, OJ_PJ and OJ_IJ showed a significant moderating effect on IM_IR, with the largest beta = -0.052. This observation was confirmed by evaluating the Sig. column for the Model's

two rows. The p-values for the independent variables need to be < 0.05 for the variable to make a statistically significant contribution (Pallant, 2016). The only observed p-values below 0.05 were for the OJ_PJ and IM_IR variables, showing these to be the only variables that make a statistically significant contribution.

Table 32 *Coefficients Table of the Regression Analysis for H2b*

Coefficients								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	4,304	0,039		111,765	0,000	4,228	4,379
	Centered_IM_IntrinsicReward (IM_IR)	0,452	0,079	0,334	5,700	0,000	0,295	0,608
	Centered_OJ_DistributiveJustice (OJ_DJ)	0,014	0,055	0,019	0,248	0,804	-0,094	0,121
	Centered_OJ_ProceduralJustice (OJ_PJ)	0,251	0,074	0,312	3,372	0,001	0,104	0,397
	Centered_OJ_InteractionalJustice (OJ_IJ)	0,059	0,082	0,067	0,724	0,470	-0,102	0,220
2	(Constant)	4,310	0,040		108,389	0,000	4,231	4,388
	Centered_IM_IntrinsicReward (IM_IR)	0,428	0,083	0,316	5,189	0,000	0,266	0,591
	Centered_OJ_DistributiveJustice (OJ_DJ)	0,017	0,055	0,024	0,308	0,758	-0,092	0,125
	Centered_OJ_ProceduralJustice (OJ_PJ)	0,255	0,075	0,318	3,416	0,001	0,108	0,403
	Centered_OJ_InteractionalJustice (OJ_IJ)	0,061	0,082	0,069	0,744	0,458	-0,101	0,224
	Centered_OJ_DistributiveJusticeXCentered_IM_IntrinsicReward	-0,065	0,110	-0,052	-0,589	0,557	-0,282	0,153
	Centered_OJ_ProceduralJusticeXCentered_IM_IntrinsicReward	-0,016	0,153	-0,011	-0,104	0,917	-0,317	0,285
	Centered_OJ_InteractionalJusticeXCentered_IM_IntrinsicReward	-0,014	0,185	-0,008	-0,074	0,941	-0,378	0,350

a. Dependent Variable: EE_EmotionalEngagement

Note. Author's own - Based on survey responses (2023)

5.4.8 Conclusion – $H2_b$

With all the interactions run in the same model, it could be seen that there was no moderating effect from the interaction variables, all having a p-value > 0.05. As such, it is shown that none of the Dimensions of OJ had a moderating effect on the interaction between IM_IR and EE_EE. Therefore, $H2_b$, is rejected.

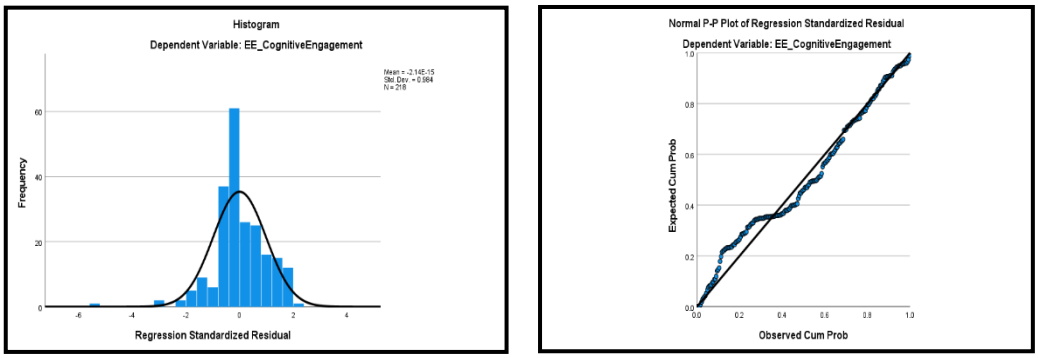
5.4.9 Inferential Statistics for $H2_c$

Evaluating and reporting on the four assumptions for linear regression testing.

Normality

As seen in the previous two cases, by assessing the normality of the data, visual inspection of the standardised residuals histogram showed the results concentrated towards the centre and the line on the p-plot being relatively straight (Pallant 2016). As shown in Figure 19, this shows no significant deviations from normality, satisfying the normally distributed data assumption.

Figure 19 *H2c - Histogram and P-plot*

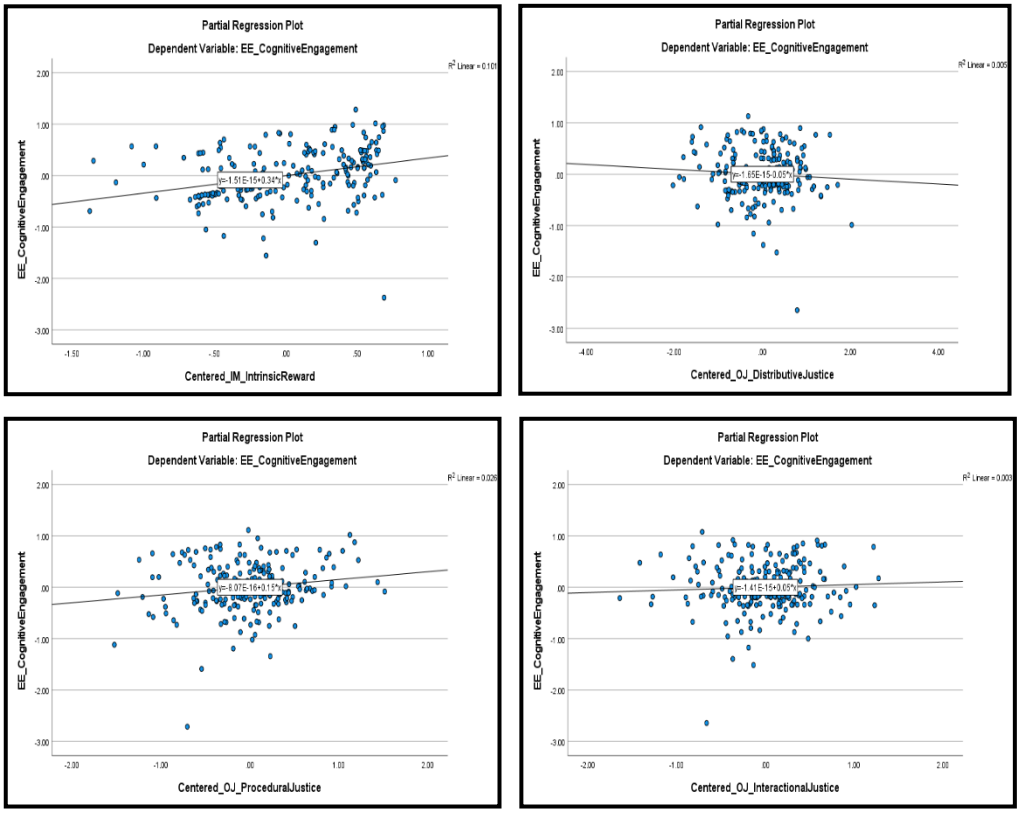


Note. Author's own based on survey responses (2023)

Linearity

A visual assessment of the scatterplot should show a relatively straight-line relationship between the Independent Variables/Moderators and the Dependent Variables (Pallant, 2016). As shown in Figure 20, this type of relationship was observed in all cases, satisfying the assumption of linearity.

Figure 20 *H2c - Scatterplots to Assess Linearity*

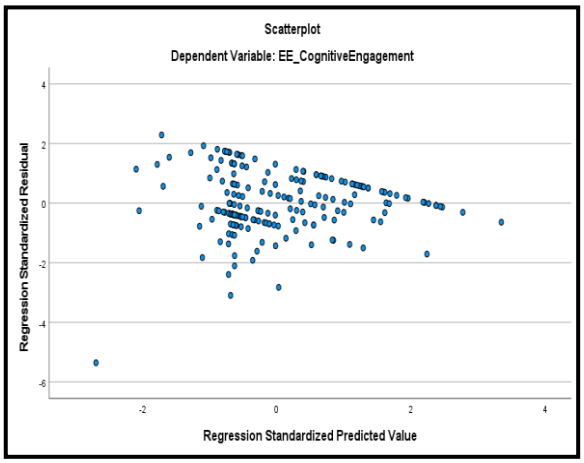


Note. Author's own based on survey responses (2023)

Homogeneity of Variance

The homogeneity of variance was assessed by inspecting the scatterplot of residuals shown in Figure 21. The inspections should display the data to be randomly spread out (Pallant 2016). By looking at the scatterplot, it was observed that there is a relatively equal spread across the range, which is adequate to assume homogeneity of variance. The outliers seen on the scatterplot have already been discussed, not having a significant effect.

Figure 21 *H2b - Scatterplots to Assess Homogeneity of Variance*



Note. Author's own based on survey responses (2023)

Multicollinearity

Multicollinearity was assessed, and the results were reflected in the section discussing the results for $H2_a$. The same independent variables are used to assess $H2_a$, $H2_b$ and $H2_c$. The VIF results showed that the multicollinearity assumption was satisfied.

5.4.10 Results of $H2_c$ Testing

The adjusted R square values shown in Table 33 demonstrate no significant moderating effect on the relationship between IM_IR and EE_CE when introducing the OJ constructs. The value changes from 0.168 to 0.232. Importantly, the net resultant change introduced by the moderating effect is shown by R Square Change, which shows a value of 0.064. This indicates a change of 6.4% due to the moderating effect of the OJ constructs on the relationship between IM_IR and EE_CE. In addition, the P-value under Sig. F change shows a value of 0.000, which is < 0.05, indicating that the OJ constructs do make a statistically significant contribution to the relationship between IM_IR and EE_CE (Pallant, 2016).

Table 33 *Model Summary for the Regression Analysis of H2c*

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.428[a]	0,183	0,168	0,507	0,183	11,955	4	213	0,000
2	.507[b]	0,257	0,232	0,487	0,074	6,951	3	210	0,000
a. Predictors: (Constant), Centered_OJ_InteractionalJustice, Centered_IM_IntrinsicReward, Centered_OJ_DistributiveJustice, Centered_OJ_ProceduralJustice									
b. Predictors: (Constant), Centered_OJ_InteractionalJustice, Centered_IM_IntrinsicReward, Centered_OJ_DistributiveJustice, Centered_OJ_ProceduralJustice, Centered_OJ_ProceduralJusticeXCentered_IM_IntrinsicReward, Centered_OJ_DistributiveJusticeXCentered_IM_IntrinsicReward, Centered_OJ_InteractionalJusticeXCentered_IM_IntrinsicReward									
c. Dependent Variable: EE_CognitiveEngagement									

Note. Author's own - Based on survey responses (2023)

The ANOVA results, shown in Table 34, indicate whether the model, as a whole, is significant. The p-value of 0.000 is less than 0.05, demonstrating that the model is statistically significant (Pallant, 2016).

Table 34 *Model Fit for the Regression Analysis of H2c*

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12,293	4	3,073	11,955	<,001[b]
	Residual	54,755	213	0,257		
	Total	67,048	217			
2	Regression	17,238	7	2,463	10,383	<,001[c]
	Residual	49,809	210	0,237		
	Total	67,048	217			
a. Dependent Variable: EE_CognitiveEngagement						
b. Predictors: (Constant), Centered_OJ_InteractionalJustice, Centered_IM_IntrinsicReward, Centered_OJ_DistributiveJustice, Centered_OJ_ProceduralJustice						
c. Predictors: (Constant), Centered_OJ_InteractionalJustice, Centered_IM_IntrinsicReward, Centered_OJ_DistributiveJustice, Centered_OJ_ProceduralJustice, Centered_OJ_ProceduralJusticeXCentered_IM_IntrinsicReward, Centered_OJ_DistributiveJusticeXCentered_IM_IntrinsicReward, Centered_OJ_InteractionalJusticeXCentered_IM_IntrinsicReward						

Note. Author's own - Based on survey responses (2023)

To understand the individual contributions of the independent variables, the coefficients' results, shown in the Model two rows of Table 35, need to be consulted. This allows an understanding of the individual components and whether the individual interactional components of OJ have a moderating effect between IM_IR and EE_CE. An inspection of the table reveals that OJ_PJ made a unique contribution to EE_CE, with a beta = 0.230. Importantly, it could be seen that the moderating effect of OJ_PJ on IM_IR made a unique contribution with a beta = 0.330. This observation was confirmed by evaluating the Sig. column for the Model's two rows. The p-values for the independent variables need to be < 0.05 for the variable

to make a statistically significant contribution (Pallant, 2016). The observed p-values were all above 0.05, besides for OJ_PJ and interaction variable that evaluates the effect of OJ_PJ on the relationship between IM_IR and EE_PE.

Table 35 *Coefficients Table of the Regression Analysis for H2c*

Coefficients								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	4,368	0,034		127,193	0,000	4,300	4,435
	Centered_IM_IntrinsicReward (IM_IR)	0,303	0,071	0,273	4,281	0,000	0,163	0,442
	Centered_OJ_DistributiveJustice (OJ_DJ)	-0,043	0,049	-0,075	-0,887	0,376	-0,139	0,053
	Centered_OJ_ProceduralJustice (OJ_PJ)	0,156	0,066	0,237	2,346	0,020	0,025	0,286
	Centered_OJ_InteractionalJustice (OJ_IJ)	0,068	0,073	0,094	0,934	0,351	-0,076	0,212
2	(Constant)	4,332	0,034		127,697	0,000	4,265	4,399
	Centered_IM_IntrinsicReward (IM_IR)	0,342	0,070	0,309	4,860	0,000	0,203	0,481
	Centered_OJ_DistributiveJustice (OJ_DJ)	-0,048	0,047	-0,082	-1,013	0,312	-0,140	0,045
	Centered_OJ_ProceduralJustice (OJ_PJ)	0,151	0,064	0,230	2,368	0,019	0,025	0,277
	Centered_OJ_InteractionalJustice (OJ_IJ)	0,052	0,070	0,072	0,743	0,458	-0,086	0,191
	Centered_OJ_DistributiveJusticeXCentered_IM_IntrinsicReward	-0,115	0,094	-0,113	-1,217	0,225	-0,300	0,071
	Centered_OJ_ProceduralJusticeXCentered_IM_IntrinsicReward	0,408	0,130	0,330	3,129	0,002	0,151	0,665
	Centered_OJ_InteractionalJusticeXCentered_IM_IntrinsicReward	0,018	0,158	0,014	0,117	0,907	-0,292	0,329

a. Dependent Variable: EE_CognitiveEngagement

Note. Author's own - Based on survey responses (2023)

5.4.11 Conclusion – $H2_c$

With all the interactions run in the same model, it could be seen that the OJ_Procedural JusticexIM_Intrinsic Reward interaction variable showed a moderating effect, having a Beta value of 0.330 and a p-value < 0.05. As such, it is shown that one of the Dimensions of OJ had a moderating effect on the interaction between IM_IR and EE_CE. Therefore, $H2_c$, is accepted.

5.5 Conclusion

The results discussed in this chapter showed that a relationship does exist between IM_IR and the three dimensions of EE in the South African manufacturing industry context. In addition, it was shown that OJ had a moderating effect on the relationship between IM_IR with EE_PE and EE_CE, but that OE did not moderate the relationship between IM_IR and EE_EE.

Chapter 6: Discussion of Results

6.1 Introduction

The purpose of this study was to gain a better understanding of the impact that OJ could have on the engagement of intrinsically motivated employees. This could aid organisations in developing suitable HRM practices that foster EE. Using SDT as a theoretical lens, a model was developed that facilitated testing the relationships between the constructs in question. The model showed two perspectives on the approach of the investigation. Firstly, $H1_{a,}$ $H1_{b}$ and $H1_{c}$ required an understanding of the relationships between IM and the sub-constructs of EE. A Spearman's correlation analysis was used to measure the relationship between IM_IR and the sub-constructs of EE (EE_PE, EE_EE and EE_CE) to gain this understanding. Secondly, $H2_{a,}$ $H2_{b}$ and $H2_{c}$ aimed at understanding the moderating impact of OJ on the relationship between IM and OJ. To assess the moderating impact, a regression analysis was used to test the effect of OJ, as a whole (OJ_DJ, OJ_PJ, and OJ_IJ_, on each of the relationships between IM_IR and the sub-constructs of EE (EE_PE, EE_EE, and EE_CE).

This chapter aims to understand the reported hypotheses test results in the context of the literature review so that the overarching research question can be answered. A summary of the literature review follows to aid with creating the linkages. The competitive nature of the manufacturing industry and the importance of having motivated employees to help gain a competitive advantage has been discussed. Kahn (1990) established his seminal work by distinguishing between the three psychological conditions required as antecedents for EE and the three dimensions of how EE is displayed. This distinction showed how the three psychological conditions in the employee work context lead to the employee expressing EE physically, cognitively, and emotionally (Rich et al., 2010).

IM, as one of the antecedents of EE, was viewed through the theoretical lens of SDT to understand its role. SDT places motivation on a continuum between autonomous and controlled regulation, having internalised and externalised promoters (Manganelli et al., 2018). As such, motivation and its consequential relationship with EE can be deemed to be susceptible to influence. Despite the significant research

that has been done on the relationship between IM and EE (Ghosh et al., 2020; Aldabbas et al., 2022; Delaney & Royal, 2017), the role of OJ as a possible influencing factor requires further research. Lastly, HRM is vital to creating a work environment that supports the cultivation of EE. The remainder of this chapter focuses on a description of the sample population, a look at the descriptive statistics for the constructs, and a discussion of the hypotheses test results.

6.2 Sample Population

The sample population for this study consisted of 218 participants. All were individuals employed in the South African manufacturing industry. The sample size exceeded the target sample size of 150; hence, no concerns about sample size were noted. An inspection of the descriptive statistics revealed the following information. Of the 218 participants, 139 (63.8%) indicated they were employed in the automotive industry. This result skewed the population being studied towards this manufacturing industry sector. Regarding work experience, 103 responses (47.2%) indicated that the participants had more than twenty years of work experience, with the next age bracket containing 65 respondents (29.8%). This showed that most respondents had significant work experience of more than ten years.

The second demographic variable that could assist in adding context to the work experience of the respondents was job tenure. At 96 responses (44.0%), almost half the respondents were shown to have been employed in their current roles for less than five years. Regarding education level, at least 203 respondents (93.1%) had tertiary education, with 180 respondents (82.6%) having a university degree or higher. The demographic variables revealed that 160 respondents (73.4%) were older than 36 years, indicating an older demographic. This also aligns with most respondents having significant work experience of more than ten years. In addition, as expected from a sample from the manufacturing industry, the vast majority of the population was male, with 178 respondents (81.7%). By looking at the sample positions within the organisation, ninety respondents (41.3%) indicated that they were senior managers or middle managers. Regarding the functional area where the individuals are employed, the results showed that 109 respondents (50,0%) were found to be working within the manufacturing division of their organisation, supporting the critical focus of this study.

6.3 Overview of Descriptive Statistics for the Main Constructs

The mean value for the IM_IR responses reflected a value of 4.44, on a scale of 1 - 5, tending towards 'Strongly Agree.' This suggests that the respondents want to be involved in the workplace for the intrinsic rewards such work activities provide. This is aligned with SDT, which affects external and internal influences that inspire individuals to perform tasks at work (Siyal et al., 2021; Deci et al., 2017; Manganelli et al., 2018). Ryan and Deci (2000) discussed the motivation continuum, shown in Figure 1, which illustrates how the relevant regulatory processes required for IM include interest, enjoyment, and inherent satisfaction. The survey questions were aligned with testing these personal motivational factors and hence, align the respondents' responses to the intentions of this study.

The descriptive statistics for the OJ sub-constructs revealed the following means. OJ_DJ displayed a mean of 3.26, OJ_PJ displayed a mean of 3.39, and OJ_IJ displayed a mean of 3.49. On a scale of 1 - 5, consistently indicating a result between 'Neither Agree nor Disagree' and 'Agree.' The OJ questions were worded in such a manner to be able to assess employees' perceptions of how well an organisation provides outcomes, uses procedures to make decisions and provides respectful and fair treatment (Colquitt, 2001). In this regard, it appears that the general perception of OJ for the respondents tended towards a neutral response as opposed to an agreement with the questions that were asked. This suggests that neither of the three dimensions of OJ showed any distinction from the others in terms of perceived organisational performance against the assessed criteria.

The sub-constructs of EE displayed the following mean results. EE_PE displayed a mean of 4.55, EE_EE showed a mean of 4.30, and EE_CE displayed a mean of 4.37. On a scale of 1 - 5, consistently indicating a result between 'Agree' and 'Strongly Agree.' The questions used to measure EE were designed to specifically gauge Kahn's (1990) physical engagement dimensions (Rich et al., 2010). The questions were specifically designed to measure the respondents' engagement levels against all three dimensions so that cohesion of these dimensions would adequately reflect job engagement (Rich et al., 2010). In line with this intention, it seems apparent that there is reasonable consistency in the responses across the three dimensions.

6.4 Hypothesis 1

The objective of Hypothesis 1 was to assess whether IM positively affects the three physical dimensions of EE in the South African manufacturing context. The variables were reduced to sub-constructs by using EFA and matching the sub-constructs to each of the variables, as shown in Figure 3. Using the empirical test results for the sub-constructs, the following section will discuss the results of the testing that was done on the relationship between IM and each of the three sub-dimensions of EE.

6.4.1 $H1_a$: IM has a Positive Impact on EPE

The results of the relationship test showed that there was a correlation between IM_IR and EE_PE. As such, it can be concluded that the relationship is significant.

This result was expected, as IM is an antecedent to EE. This study supports past studies pointing toward the link that some of the antecedents of EE have to IM (Aldabbas et al., 2022; Feng et al., 2016; Woolard & Shuck, 2011; Rich et al., 2010; May et al., 2004). In addition, the high mean value of the Likert scale responses for both IM and all three dimensions of EE further supports this expectation for this study. Kahn (1990) discussed how expressing personal engagement at work requires physical effort, which links back to the need for motivation to express this physical effort. Ryan and Deci (2000) also showed how the Self-Determination Continuum includes the interest, enjoyment, and inherent satisfaction of performing a task as a required regulatory process for IM. It is obvious how this form of motivation, which does not require external regulation, will lead to intrinsically motivated employees being more likely to invest the required effort that displays engagement. This physical display of effort is what was measured by the survey. The role of physical effort in displaying levels of EE is supported by Saks (2021), who discusses how physical work demands are negatively related to EE. It could be argued that the physical display of effort at work requires motivation beyond the regulation induced by extrinsically motivational methods. This is further supported by Rich et al. (2010), who refer to Kahn's (1990) definition of EE as a multidimensional motivational construct.

Thus, it stands to reason that employees that display high levels of EE would also likely display high levels of IM. This would be particularly obvious in work role performance that requires physical effort to be displayed. This argument is given further impetus by Delaney and Royal (2017), who discuss how employee motivation is a core element of EE. IM is more closely related to performance and essential for engagement.

6.4.2 $H1_b$: IM has a Positive Impact on EEE

The results of the relationship test showed that there was a correlation between IM_IR and EE_EE. This was consistent with the result of the relationship between IM_IR and EE_PE. It can be concluded that the relationship is significant.

It has been discussed how employees with high levels of EE would also likely display high levels of IM. Kahn (1990) outlines how employees who express themselves in tasks requiring emotional labour require specific emotional resources. A recent study by Aldabbas et al. (2022) discussed how employees with basic psychological needs met in the workplace would probably be engaged and willing to invest time and energy into their work roles due to being emotionally involved in their work. The linkages between Kahn's (1990) psychological conditions and IM are again shown, and emotionality's role has been highlighted. This is consistent with the reported result of this study, which offers a significant relationship between IM_IR and EE_EE.

6.4.3 $H1_c$: IM has a Positive Impact on ECE

The results of the relationship test showed that there was a correlation between IM_IR and EE_CE. This showed consistency with the result shown by the relationship between IM_IR with EE_PE and EE_EE. It can be concluded that the relationship is significant.

As discussed for the previous two dimensions of EE, the high mean value of the Likert scale responses for both IM and all three dimensions of EE seem to suggest a link, even before the relationship is proven using Spearman's rank correlation test. The result for EEE is again consistent with the other dimensions of EE, as the mean value measured for EE_CE was shown to be 4.37. When the literature is again

consulted, the theory also supports this expectation. As discussed for Physical and Emotional Engagement, it has been shown that engaged employees are likely to have high levels of IM as motivation is deemed essential for EE. It has been discussed how IM impacts EE more than EM (Delaney & Royal, 2017). When ECE is specifically considered, engaged employees express themselves cognitively in the workplace by actively employing their energies and knowledge to benefit the organisation (Kahn, 1990). Many subsequent authors (Saks, 2019; May et al., 2004; Shuck & Wollard, 2010; Afrahi et al., 2021) have elaborated on Kahn's (1990) theory that describes how employees that have their psychological needs met, express their engagement by investing their energy in the workplace. It can be argued that by satisfying these psychological needs, employees that perform tasks for the interest, enjoyment, and inherent satisfaction it provides, as suggested by the Self-Determination continuum (Ryan & Deci, 2000), would be likely to expend their cognitive energies for the benefit of the organisation. This is also supported by Delaney and Royal (2017), who discuss how organisations that foster feelings of competence, autonomy, and relatedness facilitate self-motivation that leads to the internalisation of organisational goals that lead to high performance. This discussion proves to be consistent with the result that shows the significant relationship between IM and ECE.

6.4.4 Hypothesis 1: Conclusion

In all cases for the sub-hypotheses of Hypothesis 1, the p-value was shown to be < 0.05, with a medium relationship strength. As such, these results show that, for all cases, a relationship does exist between IM_IR and the three dimensions of EE. Therefore, $H1_a$, $H1_b$, and $H1_c$ were accepted.

It was discussed that a high-level inspection of the mean values for the Likert scale responses showed a high mean value for all three dimensions of EE that ranged between 4.30 and 4.55. Furthermore, the results for IM also showed a high mean value for Likert scale responses, with IM_IR having a mean value of 4.44. Even though these values all rank high on the 5-point Likert scale, it cannot be assumed that there is a relationship. This was verified using Spearman's rank correlation test, which confirmed the initial suspicions.

The seeds for the initial suspicions were planted by the literature that showed how motivation is essential for EE and how IM is seen to be more impactful than EM. Delaney and Royal (2017) summarise the critical drivers for both IM and EM and show little difference in relation to the three psychological conditions required for EE, as defined by Kahn (1990). Delaney and Royal (2017) also discuss how employees come to work every day to satisfy internally focused needs and goals. This again shows the strong link to EE suggested by SDT and the Self-Determination continuum (Ryan & Deci, 2000) that indicates intrinsically motivated employees perform tasks for the interest, enjoyment, and inherent satisfaction that can be gained. Performance is an indication that the required resources and energies are in place to be able to do the job well.

An example, for IM, managers are encouraged to recognise good performance, while for EM, public recognition is cited. Both these drivers could relate to an employee's sense of meaningfulness, as recognition in any form would be valued. Both drivers could also relate to an employee's sense of safety as performance recognition encourages one to keep doing what you are doing, instilling confidence. Likewise, the relation to the availability, as an antecedent to EE, would also be demonstrated. This discussion indicates that the three psychological conditions required for EE are similar for the different types of motivation but that intrinsically motivated employees are more likely to show higher levels of EE. This higher level of EE is demonstrated by the employees investing themselves in the workplace via the three dimensions of EE, physical, emotional, and cognitive. This premise emanating from the literature is consistent with the high-level indications of similar high Likert scale response mean values and the empirical test results that showed a significant relationship between IM and the three dimensions of EE.

The objective of Hypothesis 1 was to verify whether IM has a significant relationship with the three physical dimensions of EE within the South African manufacturing context. The discussed results that emanated from the empirical testing done in the South African manufacturing industry conclusively proved that the relationship does exist and showed the expected consistency with global norms suggested by the literature discussion. As such, the research objective for Hypothesis 1, as discussed, has been met.

6.5 Hypothesis 2

It is indicated that OJ is one of the known antecedents to EE (Strom, 2013; Mohan, 2018, Saks, 2006; Saks, 2019). The pre-and post-dynamics related to EE are complex, and the interplay between all the variables has not been fully explored. Hence, the need for studies, such as this one, that help to build further understanding. To simplify the testing and reporting, each of the dimensions of EE has been hypothesised individually. The objective of Hypothesis 2 was to assess whether the three dimensions of OJ collectively moderate the relationship between IM and the three dimensions of EE individually. As discussed for Hypothesis 1, the questions intended to measure the variables were reduced to sub-constructs by using EFA and matching the sub-constructs to each of the variables. Using the empirical test results for the sub-constructs, the following section will discuss the results of the testing that was done on the moderating effect on the relationship between IM and each of the three sub-dimensions of EE.

6.5.1 $H2_a$: The Three Dimensions of OJ, Collectively Moderate the Relationship between IM and EPE

The results from the moderated regression analysis showing the adjusted R square values demonstrate that there is a moderating effect on the relationship between IM_IR and EE_PE when the OJ constructs are introduced. It was discussed in Section 5.4.4 how the value changes from 0.115 to 0.194, indicating a change of 7.9% due to the moderating effect introduced by the OJ constructs. In addition, the P-value under Sig. F change shows a value of 0.000 < 0.05, indicating that the moderating effect is significant. A closer inspection of the Coefficients shown in Table 29 reveals that the OJ_Procedural_JusticexIM_Intrinsic Reward interaction variable was the dimension of OJ that contributed to the moderating effect, having a Beta value of 0.262 and a p-value < 0.05. As such, it is evident that when all the dimensions of OJ are considered, together with IM and EPE, the OJ_PJ dimension is the dimension that impacts the relationship between IM_IR and EE_PE.

It could be expected that all dimensions of OJ would have a similar impact on the dimensions of EE. The dimensions of OJ were discussed in Chapter 2 to be closely linked due to OJ_IJ being affected by the perceptions of how well organisations

handle OJ_PJ and OJ_DJ. The anticipated perspective provided by the literature did not manifest as expected. The main reason for this is the complexity of the interaction between the variables. It was also discussed in Chapter 2 that there are many antecedents to EE and that the interplay between the variables is complex. No direct evidence of studies that specifically looked at the relationship between IM_IR and EE_PE could be found. Two recent studies that explored the influencing role of OJ on the relationships between various variables (Liu et al., 2017, Niehoff & Moorman, 2013) were consulted. However, these provided a negligible contribution to the current relationships being explored. The lack of contextual understanding required EPE as a construct to be re-visited to understand why this construct specifically received impact.

Mohan (2018) defined OJ as involving the perception of employees about the fairness of the treatment they receive from their organisation. This perception of fair treatment has also been discussed to have a direct or indirect relationship with the motivation of employees. Building on employees' perceptions of how they are treated, Fischer and Smith (2006) discuss how OJ, specifically procedural justice, affects the relationships between the stakeholders within an organisation on all levels regarding the notion of feeling valued. This was discussed previously in Chapter 2 and fostered an expectation that the perception of procedural justice could significantly influence employees' motivation. This means that employees perceive how fairly a company treats its employees when using its processes.

An example could involve seemingly basic concepts, like parking allocation based on position within the company. This could result in perceptions of unfair treatment when an employee has long service and feels that he deserves a parking allocation. He may think that the procedure used to decide on parking allocation is unfair. It could be argued that this could lead to an employee not feeling valued, and the result could impact the meaningfulness he feels at work, which is one of the psychological conditions for EE. This lack of EE could be expressed by physically withholding himself from work tasks, displaying a lack of EPE. Of course, there could be many influencing factors, as this is only one hypothetical example. Mohan (2018) referred to employees displaying organisational citizenship behaviour when interacting with their organisations results in the perception base of fair treatment. This observable display of employees being good citizens could be argued to be one of the most

apparent indicators of EE. As such, this could help explain why perceptions of unfair processes, which guide organisational operations, could result in employees withdrawing from displaying EPE.

OJ_PJ was shown to be the main contributor to the moderating effect on the IM_IR and EE_PE relationship. It must be considered that the regression model was executed with all the components of OJ and interaction variables present. Furthermore, it was discussed that the OJ dimensions show significant overlap. Colquitt (2001) demonstrated this overlap and debated the merit of a two-factor, three-factor, and even a four-factor model for the OJ construct. Intuitively, it seems obvious that this overlap would exist as the sense of fair distribution could easily be linked to the perception of the system that allocates such distribution and then further to the interactional systems that communicate the merits of the distribution. Thus, in addition to the regression testing showing that the three dimensions of OJ collectively moderate the relationship between IM_IR and EE_PE, the literature shows significant support for this finding.

6.5.2 $H2_b$: The Three Dimensions of OJ, Collectively Moderate the Relationship between IM and EEE

In this case, the results from the moderated regression analysis showing the adjusted R square values demonstrate no significant moderating effect on the relationship between IM_IR and EE_EE when the OJ constructs are introduced. It was discussed in section 5.4.7 how the value changes from 0.301 to 0.295, indicating a change of 0.6% due to the moderating effect introduced by the OJ constructs. In addition, the P-value under Sig. F change shows a value of 0.737, which is > 0.05, indicating that the moderating effect does not make a statistically significant contribution. A closer inspection of the Coefficients shown in Table 32 reveals that none of the interaction variables contributed a moderating effect, with the largest Beta value being -0.052, with a p-value > 0.05. It is evident that when all the dimensions of OJ are considered, together with IM and EEE, none of the dimensions of OJ impact the relationship between IM_IR and EE_EE.

The results contradict existing literature. The inter-related nature of the OJ dimensions has been well discussed during this study, and surprisingly, none of the

sub-dimensions were shown to influence the relationship between IM_IR and EE_EE. It could be argued that EE_EE is very closely linked to IM_IR, as IM has been discussed to be so reliant on intrinsic regulation. May et al. (2004) further support this expectation by discussing how a lack of compatibility between an employee's felt emotions and the desired emotions from the organisation would add to the emotional labour an employee experiences, leading to a lack of EE. It would be fair to expect that OJ could influence this emotional state, hence EE_EE. For this reason, it would be expected that the relationship of IM_IR with EE_EE would be particularly susceptible to influence from OJ.

Strom et al. (2013) explain why the results did not support this expectation. The study discusses how even though justice is generally positively related to work engagement, the behavioural style of leaders could modify the effect of justice on motivation. Their study concluded that employees experiencing low transactional leadership would make the positive relationship of Justice with work engagement more pronounced. With leadership being one of the antecedents to EE, this result again shows the complex dynamics between the many antecedents of EE and how they affect one another. In conclusion, although the regression tests do not show that the three dimensions of OJ collectively moderate the relationship between IM_IR and EE_EE, the literature explains why the expected result was not observed.

6.5.3 $H2_c$: The Three Dimensions of OJ Collectively Moderate the Relationship between IM and ECE

The results from the moderated regression analysis showing the adjusted R square values demonstrate a moderating effect on the relationship between IM_IR and EE_CE when the OJ constructs are introduced. It was discussed in section 5.4.10 how the value changes from 0.168 to 0.232, indicating a change of 6.4% due to the moderating effect introduced by the OJ constructs. In addition, the P-value under Sig. F change shows a value of 0.000 < 0.05, indicating that the moderating effect is significant. A closer inspection of the Coefficients shown in Table 35 reveals that the OJ_Procedural_JusticexIM_Intrinsic Reward interaction variable was the dimension of OJ that contributed to the moderating effect, having a Beta value of 0.330 and a p-value < 0.05. As such, it is evident that when all the dimensions of OJ are

considered, together with IM_IR and EE_CE, the OJ_PJ dimension is the dimension that impacts the relationship between IM_IR and EE_PE.

OJ was shown to have a moderating effect on the IM_IR and EE_PE relationship. Even though this was found not to be the case for the IM_IR and EE_EE relationship, there was still an expectation that OJ would have a moderating effect on the relationship between IM_IR and EE_CE. This is due to specific influences being identified that could affect the moderating impact of OJ on the IM_IR and EE_EE relationship. As such, the same cannot be assumed for the possible moderating effect that OJ could have on the IM_IR and EE_CE relationship. Rich et al. (2010) discussed how the EE_CE involves employees applying their minds in the workplace by being cognitively vigilant and ensuring that work tasks are performed properly. The authors also discuss how Kahn's concept of EE involves motivation as it requires individuals to allocate resources to perform their work roles. The relationship between perceptions of fair treatment in the form of OJ, IM, and EE is again evident. As such, the expectation that OJ would affect the relationship between IM_IR and EE_CE can be considered fair.

As for the results for $H2_a$, the OJ_Procedural_JusticexIM_Intrinsic Reward interaction was also the variable that contributed a significant moderating effect. Fischer and Smith (2006) support the results by stating that OJ, specifically OPJ, provides the notion of being valued by an organisation and influencing relationships. Hence, it can be seen that employees expect their organisation to have fair processes and procedures in place. This perception of fair treatment will support internalised motivation resulting in EE, including the investment of cognitive energies, represented by EE_CE. This discussion shows how the literature supports the regression testing results that show that the three dimensions of OPJ collectively moderate the relationship between IM_IR and EE_CE.

6.5.4 Hypothesis 2: Conclusion

For the relationships between IM_IR and both EE_PE and EE_CE, the three dimensions of OJ, collectively, were shown to have a moderating effect. In both cases, the effect was significant when the OJ constructs were introduced, resulting in $H2_a$ and $H2_c$ being accepted. For the relationships between IM_IR and EE_EE, the three dimensions of OJ were shown to not have a moderating effect. In this case,

the effect was not significant when the OJ constructs were introduced, resulting in $H2_b$ not being accepted.

It was discussed how EE is a construct with significant emotional connotations due to the need for the investment of personal resources, physically, emotionally, and cognitively. In this sense, the critical role of IM is evident as it involves internalised autonomous regulation of an employee's motivation. It was also discussed that perceptions of fair treatment in the form of OJ could significantly affect intrinsically regulated motivation. This is due to the regulatory processes for IM, such as enjoyment and satisfaction, that could be affected if an organisation's perception of fair treatment changed. As such, the expectation was set that OJ would moderate the relationship between IM and EE. This expectation was met for the relationships between IM_IR and both EE_PE and EE_CE but not for the relationship between IM and EEE. The literature showed this unexpected result to have merit. The complexity of the interplay between the different constructs related to EE was shown to be susceptible to unforeseen influences on the relationships between the constructs. In the case of EE_EE, the influence of leadership aspects was discussed to have the potential to influence OJ's effect on motivation. As such, it is possible that leadership style could have influenced the effect that OJ has on the relationship between IM_IR and EE_EE, so it could not show a moderating effect in this study.

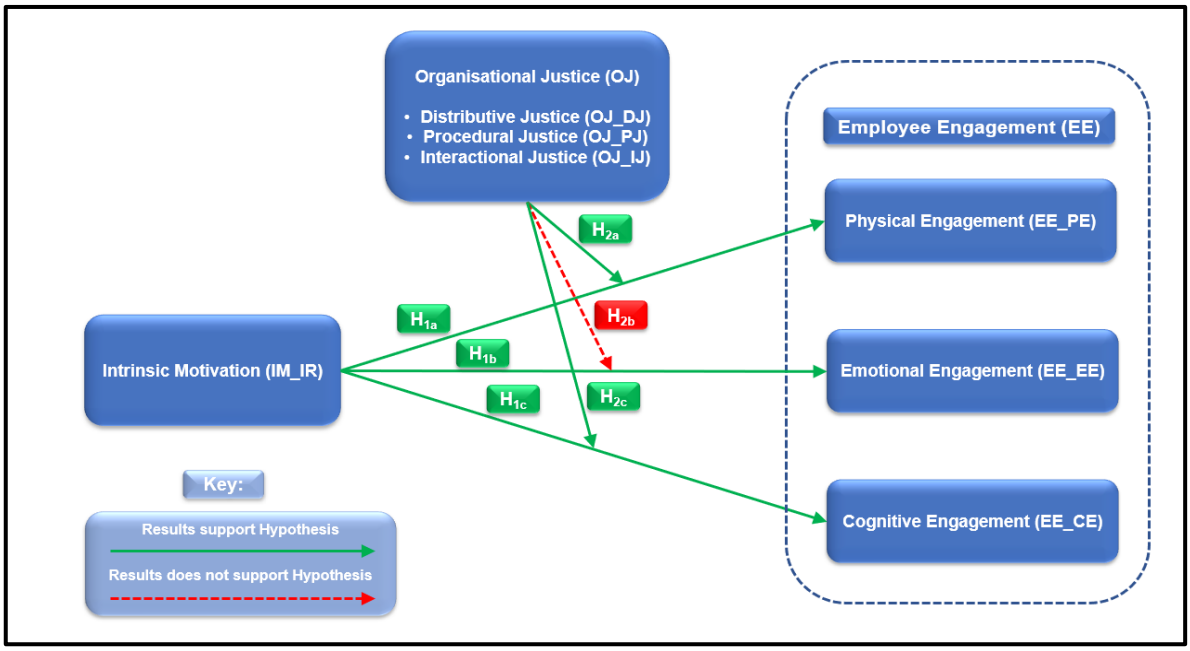
The objective of Hypothesis 2 was to verify if the three dimensions of OJ, collectively moderate the relationship between IM_IR and the three dimensions of EE individually. The discussed results from the empirical testing showed that for the relationships between IM_IR and both EE_PE and EE_CE, the three dimensions of OJ, collectively, there was a moderating effect. For the relationships between IM_IR and EE_EE, the three dimensions of OJ were shown not to have a moderating effect. As such, the research objective for Hypothesis 2, as discussed, has been met.

6.6 Conclusion

Even though significant evidence exists in the literature that IM is one of the antecedents to EE, this relationship has not received significant attention in the South African manufacturing context. This study provides empirically tested evidence that IM positively affects the three physical dimensions of EE in the South African manufacturing context. Furthermore, this study also proves that the three dimensions

of OJ collectively moderate the relationships between IM_IR and both EE_PE and EE_CE. In addition, for the relationships between IM_IR and EE_EE, the three dimensions of OJ were shown not to have a moderating effect. The results of the hypotheses testing and the resultant relationships are shown graphically in Figure 22 below.

Figure 22 *Visual Representation of the Hypotheses Results*



Note. Author's own (2023)

Chapter 7: Conclusions and Recommendations

7.1 Introduction

This study's primary purpose was to understand better the potential impact that OJ could have on the engagement of intrinsically motivated employees. To this end, a quantitative analysis approach was used to gather data via surveys before analysing the relationships between the measured constructs. The results of these tests were presented and discussed in the preceding chapters. This chapter aims to consolidate the findings in line with the discussed hypotheses. In line with this, the principal findings are discussed before showing how these contribute to the body of research. This is followed by discussing the implications for management and other stakeholders before the research scope and context is illustrated by outlining the study's limitations. Finally, suggestions will be made to inspire further research before presenting the closing comments.

7.2 Principal Findings

Working towards the primary purpose of answering the overarching research question, two hypotheses were investigated. The principal findings are discussed in the following section.

7.2.1 Hypothesis 1 Principle Findings

To verify the relationship in South Africa, Hypothesis 1 assessed whether IM positively affects the three physical dimensions of EE within the South African manufacturing context. The research found a correlation between IM and the three dimensions of Engagement, EE_PE, EE_EE, and EE_CE, indicating that a relationship does exist. This result was expected as the literature confirmed the links between IM and EE in the global context. However, confirming this result sets the base for research in South Africa to better understand what affects this critical relationship.

7.2.2 Hypothesis 2 Principle Findings

To test the effects of OJ on the EE of IM employees, the objective of Hypothesis 2 was to assess whether the three dimensions of OJ collectively moderate the relationship between IM and the three dimensions of EE individually. The results showed that OJ significantly moderated the relationship of IM_IR with EE_PE and EE_CE. The results also showed that OJ did not have a significant moderating impact on the relationship of IM_IR with EE_EE. These results indicate that OJ moderated the effect of IM on two of the dimensions of EE, Physical Engagement and Cognitive Engagement, but did not moderate Emotional Engagement. This result was unexpected as the three dimensions of EE seem to present a degree of interrelatedness. Authors discuss how engaged employees use all aspects of themselves, cognitive, emotional, and physical, to immerse themselves in their work roles (May et al., 2004; Saks, 2019; Mackay et al., 2017). As such it was expected that they would be affected similarly.

Regarding the moderating effect of IM_IR on EE_PE and EE_CE, this result shows the importance for organisations to understand the drivers, like OJ, that affect the EE of intrinsically motivated employees. For the lack of a moderating effect of IM_IR on EE_EE, this result received some perspective from the literature that explained how leadership style could influence the relationship between OJ and motivation. This provides an interesting take on the subtle differences between organisational and individual management, which will be discussed in the section on the implications for management and other relevant stakeholders.

7.2.3 Overall Principle Findings

It was discussed in Chapter three that the study's primary purpose was to understand better the potential impact that OJ could have on the engagement of intrinsically motivated employees. Firstly, as the results showed that a relationship does exist between IM and the three dimensions of engagement, Hypothesis 1, which required confirmation of this relationship, was supported. Secondly, the results also provided partial support for Hypothesis 2, which probed the effect of OJ on the relationship between IM_IR and the three dimensions of EE. Confirming the relationship between IM_IR and the three dimensions of EE in the South African context, and testing the

effect of OJ on this relationship, directly relates to the overarching research question. It was found that there is a relationship between IM and EE in the context of the South African manufacturing industry and that OJ has a moderating effect on the relationship between IM and two of the dimensions of EE.

7.3 Theoretical Contributions

The antecedents and consequences of EE have received substantial attention in research (Wollard & Shuck, 2011; Bailey et al., 2014; Saks, 2019). The role of IM as an antecedent to EE was considered in some recent studies (Ghosh et al., 2020; Aldabbas et al., 2022; Delaney & Royal, 2017), but this relationship still has significant room for further exploration. This is supported by Bailey et al. (2014) who discuss how the gap in the definition and measurement of EE and its antecedents remains. Delaney and Royal (2017) place motivation at the core of any conceptualisation of engagement, and adding to the understanding of motivation would contribute to this gap in knowledge. IM is particularly important as it involves self-regulation when the three psychological conditions discussed by Kahn (1990) are met (Manganeli et al., 2018; Deci et al., 2017). As such, it is essential to understand what affects self-regulation for internalised motivation. Liu et al. (2017) discuss the critical effect that OJ could have on EE and organisations by arguing that employees can adapt their internal mental activities and resultant external behaviour based on their perception of fairness within an organisation.

Even though many variations of the complex combinations of antecedents to EE have been researched since Kahn's (1990) seminal work, very little has been done on the effect of OJ on internalised motivation and how this affects EE. The effects of OJ, in the form of financial reward, on IM are discussed by Olafsen et al. (2015). The authors called for further research to be done to test their model in other contexts, yet no similar research could be found elsewhere, including the South African manufacturing context. This study was conducted in this context and verified that the relationship between IM and EE is consistent with the research done thus far. Furthermore, the study added impetus to understanding the effects that OJ could have on internalised motivation and EE. Finally, an interesting perspective was highlighted by identifying that OJ only moderated the IM_IR relationship with two of the dimensions of EE, EE_PE and EE_CE. This perspective again shows the

complexity created by the interplay between the antecedents of EE. For the dimension of EE, EE_EE, where OJ did not moderate the relationship with IM_IR, it was shown by the literature that leadership style could have an impact on how OJ affects motivation. This effect will be discussed further under implications for management and other relevant stakeholders.

7.4 Implications for Management and other Relevant Stakeholders

It was discussed in Chapter 2 that manufacturing organisations need HRM practitioners to understand EE drivers so that engaged employees' benefits can be leveraged to help provide a competitive advantage. Saks (2021) discusses the importance of aligning HRM practices to foster EE to gain a competitive advantage. Saks (2021) also elaborates on how a lack of caregiving by organisations could affect engagement and lead to staff turnover. This illustration of the vital link between HRM practices and engaged employees shows how a better understanding of the potential impact that OJ could have on the engagement of intrinsically motivated employees could help organisations and management foster EE and improve competitive advantage. If this is achieved, there could also be resultant implications for employees.

The implications for organisations are clear. Understanding EE drivers is vital as the importance for organisations to gain a competitive advantage, and the links to EE are obvious. This study has added to this understanding by showing how intrinsically motivated employees' perceptions of how their organisations treat them impact EE. By confirming the direct correlation between IM and EE and then showing the moderating effect of OJ on this relationship, the importance for organisations to understand how to control OJ perceptions has been demonstrated. Furthermore, the observation that OJ did not affect all three dimensions of EE as expected, not only reaffirmed the complexity of the relationships but also led to additional insights into the role of management in EE.

A study by Bailey et al. (2014) discussed a positive link between constructive forms of leadership and management on the levels of EE. By finding that OJ did not have a significant moderating effect on EE_EE, a deeper investigation of this relationship revealed the important potential role that management could play. This suggests that

management style could influence the effect that perceptions of OJ have on EE of intrinsically motivated employees. The work done by Strom et al. (2014) found that employees subjected to a low transformational leadership style would tend to have an intensified need for justice-related information. This means that employees working in an environment where responsibilities, expectations and rewards are not communicated and agreed to, would be more likely to look towards OJ if they perceive their treatment to be unfair. This is an essential clue for HRM practitioners and management as it clearly shows the benefits of having suitable and effective HRM practices in place, like performance measurement, communicated and implemented well by management.

The implied benefits for the employee are obvious. Employees with psychological needs met and displayed through EE will feel higher work satisfaction and fulfilment. In addition, they are likely to feel more stability as engaged employees are less likely to turnover. Engaged employees have been shown to perform better in the workplace, helping organisations to gain competitive advantage and completing the synergetic relationship.

7.5 Limitations of the Research

According to Saunders et al. (2019), virtually all research has its limitations that should be reflected on to demonstrate the degree to which the research findings and conclusions can be true. In other words, stating the limitations helps to define the parameters and context of the study that had to be established due to the required compromises for the chosen research methodology.

The chosen time horizon for this study was cross-sectional as the study was done at a point in time. This removes the ability to conclude from different periods, as the responses received would be limited to the context of a particular period. Studies done over a longer or different period may yield different results. In addition, the sampling technique used may also affect the study results. As discussed in Section 6.2, the convenience and snowball sampling techniques yielded responses from a skewed sample population. This disproportionate representation of the manufacturing sector and employee age distribution could affect the results of the

study due to not adequately representing employees from other industries and younger employees that may have different perspectives.

7.6 Suggestions for Future Research

This study was intended to specifically understand the dynamics between OJ and IM as antecedents to EE. But, as was extensively shown, the interplay between the many antecedents to EE is complex. It would benefit HRM practitioners to gain a more holistic understanding of how these antecedents interact and affect EE so that comprehensive policies can be established. In addition, surveys do not allow probing to gain a deeper understanding of the responses to the survey questions. Performing quantitative studies may be beneficial to collect richer data that may provide more insight.

In addition, this study has highlighted the potential effects of leadership on the relationship between OJ and IM. This showed some support to the study done by Strom et al. (2014), where through the lens of uncertainty management theory, uncertainty and justice perceptions are related to work engagement. Their study outcome showed that leadership style could direct employees' attention towards or away from matters of OJ, and the authors called for further investigation to be done in this area. Therefore, further research is recommended on the effects of leadership style on the antecedents of EE.

Lastly, to ensure that the study stayed within a manageable scope, the investigation was bound by only considering the effect of OJ, as a whole, on the IM-to-EE relationship. Even though the three dimensions of OJ were considered in the moderation model, the investigation may have benefited from assessing the dimension of OJ independently on the relationship of IM on each of the dimensions of EE. As each of these constructs has its complexity, assessment on a sub-construct level may provide a deeper understanding of how the constructs interact.

7.7 Closing Comments

The results of this study aligned with the overarching research question as to what effect IM has on EE in the South African manufacturing context and specifically what

role OJ plays in this relationship. The research outcomes showed a correlation between IM and EE within the South African manufacturing industry. Furthermore, it was found that OJ had a moderating effect on the relationship between IM and two of the three dimensions of EE. This moderating effect was only found in the relationship between IM_IR with EE_PE and EE_CE and not in the relationship of IM with EE_EE.

These findings illustrate the importance for manufacturing companies to understand the importance of creating an environment for engagement. A lack of engagement removes one of the important weapons available to companies to leverage a competitive advantage. By considering South Africa in the global context, gaining a competitive advantage is of vital importance. Organisations need to understand how to improve HRM practices to create the required environment. Aligning with the purpose of this study, gaining a better understanding of the potential impact that OJ could have on the engagement of intrinsically motivated employees, organisations can first understand the importance of managing such perceptions and secondly, understand how this should be done.

To this end, the insights gained from this study could be valuable as it provides a perspective on the role that management style must play in managing the effects of OJ on employees' IM. In particular, it was shown that managers with a low transformational leadership style tend to make employees more susceptible to perceptions of poor OJ. This shows that organisations could benefit from coaching managers to employ the correct leadership style and cultivate the correct work environment. This could supplement satisfying Kahn's (1990) psychological conditions for engagement and result in higher engagement levels of employees.

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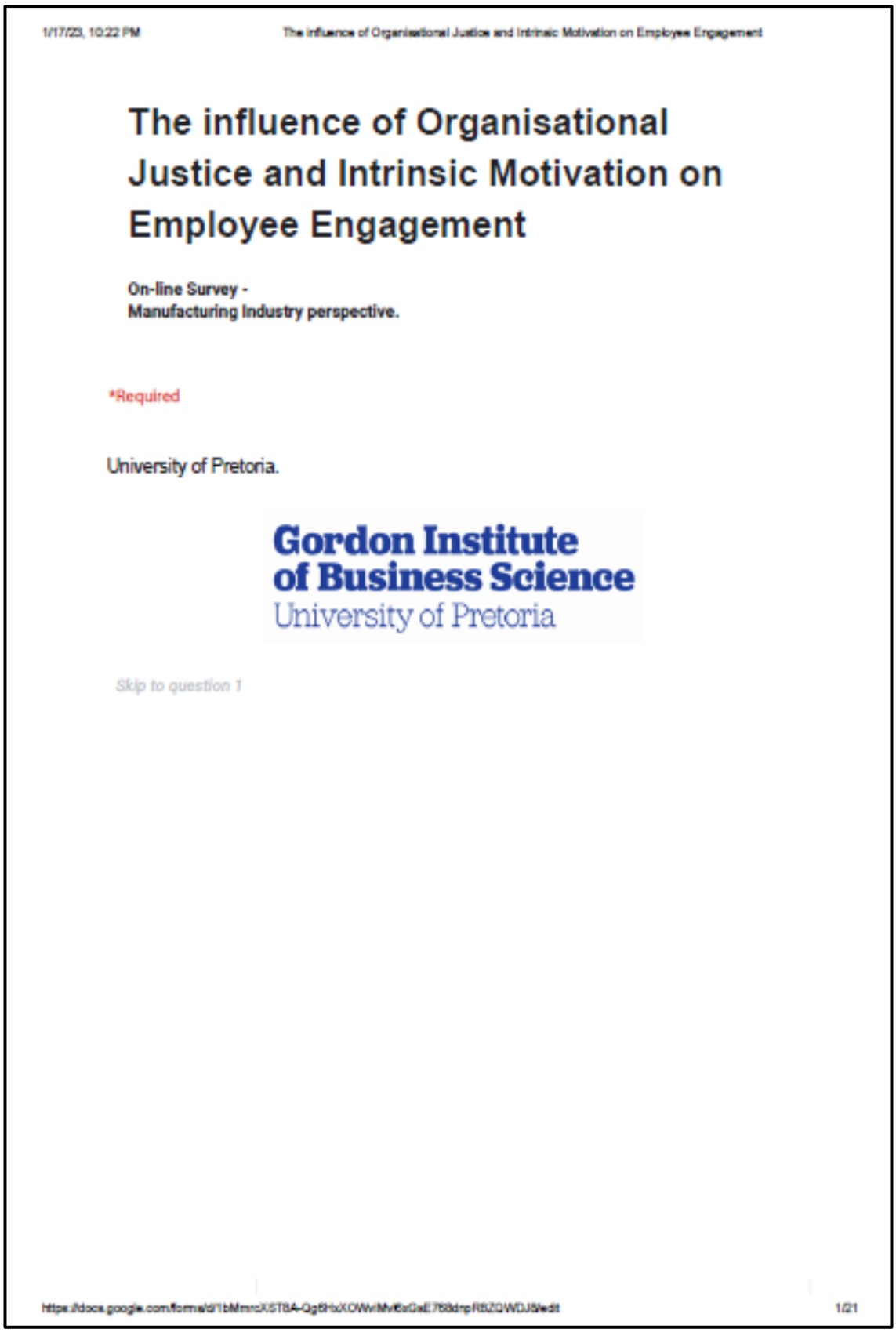
Appendices

Appendix A: Survey Questionnaire from Google forms



1/17/23, 10:22 PM The influence of Organisational Justice and Intrinsic Motivation on Employee Engagement

The influence of Organisational Justice and Intrinsic Motivation on Employee Engagement

On-line Survey -
Manufacturing Industry perspective.

*Required

University of Pretoria.

Gordon Institute of Business Science
University of Pretoria

Skip to question 1

https://docs.google.com/forms/d/1bMmrcXST8A-Qg6HoXOWvIMvf6xGaE7f8/edit 1/21

Section 1: Consent Form

I am currently a student at the University of Pretoria's Gordon Institute of Business Science. I am completing my research in partial fulfilment of a manufacturing-focused MBA.

I am conducting research on employee engagement, the perceptions of organisational justice and employees' intrinsic motivation. The purpose of the research is to understand the effect that perceived fairness of organisational treatment has on an employee's self-motivation and how this impacts on employee engagement in the workplace.

This survey will require you to answer questions about your type of employment and how you feel about your work, manager, and organisation.

Your participation is voluntary, and you can withdraw at any time without penalty.

Your participation is anonymous, and no names will be captured, stored, or reported. The survey will take approximately 10 minutes to complete. By completing the survey, you indicate that you voluntarily participate in this research. If you have any concerns, please contact me or my supervisor. Our details are provided below.

Researcher:
Friedrich Hamel

Email: 21819018@mygibs.co.za

Research Supervisor: Anel Meintjes

Email: aneirdsa@gmail.com

1. I hereby confirm my informed consent to participate in this questionnaire. *

Mark only one oval.

- ◯ Yes
- ◯ No

Skip to question 2

Section 2: Screening Question

Who should complete the survey?

This survey is applicable to individuals employed within the manufacturing sector in South Africa. Please proceed if you are employed in the manufacturing sector in South Africa.

2. I am currently employed in the manufacturing sector in South Africa. *

Mark only one oval.

- Yes
- No
- Other: ____________

Section 3: Descriptive Questions

The questions in this section help to understand the context of the responses.

3. Please select the category that best fits your industry. *

Mark only one oval.

- Manufacture of food and beverage
- Manufacture of textile, clothing, leather, and footwear
- Manufacture of wood products, paper, publishing, and printing
- Manufacture of petroleum and chemical products
- Manufacture of rubber and plastic products
- Manufacture of basic pharmaceutical products
- Manufacture of basic iron and steel
- Manufacture of steel, non-ferrous metal products, metal products and machinery
- Manufacture of computer, electronic and optical products
- Manufacture of electrical equipment and machinery
- Manufacture of motor vehicles, parts and accessories and other transport equipment
- Manufacturing of furniture
- Other

4. I have been employed in the manufacturing industry in South Africa for at least one year. *

Mark only one oval.

- ◯ Yes
- ◯ No

5. How many years working experience do you have? *

Mark only one oval.

- ◯ Less than five years
- ◯ Five to ten years
- ◯ Ten to twenty years
- ◯ More than twenty years

6. How many years have you been employed in your current role? *

Mark only one oval.

- ◯ Less than five years
- ◯ Five to ten years
- ◯ Ten to twenty years
- ◯ More than twenty years

7. What is your highest level of education? *

Mark only one oval.

- Matric
- Certificate
- Diploma
- University degree - undergraduate level
- University degree - honors degree level
- Masters degree
- Doctorate
- Prefer not to say

8. Please select your age category. *

Mark only one oval.

- 18 - 25 years old
- 26 - 35 years old
- 36 - 45 years old
- 46 - 55 years old
- 56 years and older

9. Please select your gender. *

Mark only one oval.

- Male
- Female
- Prefer not to say

10. Please select the category that best describes your position in the organisation. *

Mark only one oval.

- Operator
- Professional
- Technician
- Clerk
- Junior manager
- Middle manager
- Senior manager
- Director
- Other
- Prefer not to say

11. *Please select a category that best describes the functional area that you work within.* *

Mark only one oval.

- Sales and Marketing
- Research and Development
- Manufacturing
- Finance
- Information Technology
- Corporate Services
- Human Resources
- Purchasing/Procurement
- Warehousing/Logistics
- Other
- Prefer not to say

Skip to question 12

Section 4: Employee Engagement

The questions in this section relate to your feelings about your work, your relationship with your manager and the organisation.

Engagement involves the investment of an employee's complete self into the work role.

Please select the answer and tick the box that most closely relates to your feelings between Strongly Agree and Strongly Disagree,

By considering how you feel about the physical, emotional and intellectual aspects of your job, to what extent do you agree with the following statements.

12. I work with intensity on my job. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

13. I exert my full effort to my job. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

14. I devote a lot of energy to my job. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

15. I try my hardest to perform well on my job. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

16. I strive as hard as I can to complete my job. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

17. I exert a lot of energy on my job. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

18. I am enthusiastic about my job. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

19. I feel energetic about my job. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

20. I am interested in my job. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

21. I am proud of my job. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

22. I feel positive about my job. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

23. I am excited about my job. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

24. At work, my mind is focused on my job. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

25. At work, I pay a lot of attention to my job. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

26. **At work, I concentrate on my job.** *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

27. **At work, I focus a great deal of attention on my job.** *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

28. **At work, I am absorbed in my job.** *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

29. At work, I devote a lot of attention to my job. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

Skip to question 30

Section 5: Intrinsic Motivation

The questions in this section relate to the reasons why you are currently involved in your work. Intrinsic motivation involves performing an activity for its own sake.

Please select the answer and tick the box that most closely relates to your feelings between Strongly Agree and Strongly Disagree.

By considering the reasons why you are presently involved in your work, to what extent do you agree with the following statements.

30. Because I derive much pleasure from learning new things. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

31. For the satisfaction I experience from taking on interesting challenges. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

32. For the satisfaction I experience when I am successful at doing difficult tasks. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

Skip to question 33

Section 6: Organisational Justice - Distributive justice

The questions in this section relate to your feelings of fair treatment within your department and organisation.

Distributive justice is the degree to which rewards (Not limited to financial rewards) are allocated in a fair manner by your organisation.

Please select the answer and tick the box that most closely relates to your feelings between Strongly Agree and Strongly Disagree.

By looking at the ways that your organisation rewards employees, to what extent do you agree with the following statements.

33. I am fairly rewarded considering the responsibilities that I have. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

34. I am fairly rewarded in view of the amount of experience that I have had. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

35. I am fairly rewarded for the amount of effort that I put forth. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

36. I am fairly rewarded for the work that I have done well. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

37. I am fairly rewarded for the stresses and strains of my job. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

Skip to question 38

Section 7: Organisational Justice - Procedural Justice

The questions in this section relate to your feelings of fair treatment within your department and organisation.

Procedural justice is the degree to which employees believe that the allocation of rewards (Not limited to financial rewards) is made by the organisation according to fair methods and guidelines.

Please select the answer and tick the box that most closely relates to your feelings between Strongly Agree and Strongly Disagree.

By looking at the ways that your organisation decides on how, when, and why to reward employees, to what extent do you agree with the following statements.

38. My employer develops procedures designed to collect accurate information necessary for making the decisions. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

39. My employer provides opportunities to appeal or challenge the decision. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

40. My employer has all sides affected by the decision represented. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

41. **My employer generates standards so that the decision can be made with consistency.** *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

42. **My employer hears the concerns of all those affected by the decision.** *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

43. **My employer provides useful feedback regarding the decision and its implementation.** *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

44. My employer allows for requests for clarification or additional information about the decision. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

Skip to question 45

Section 8: Organisational Justice - Interactional Justice

The questions in this section relate to your feelings of fair treatment within your department and organisation.

Interactional Justice refers to the perception of fairness of the treatment an employee receives from his/her management or supervision in the performance of formal procedures, or in the explanation of those procedures.

Please select the answer and tick the box that most closely relates to your
feelings between Strongly Agree and Strongly Disagree.

*By looking at the ways that your supervision or management allocate rewards and
explain the allocation, as per the company's procedures, to what extent do you agree with the following statements.*

45. In general, representatives of this company considered your viewpoint. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

46. In general, representatives of this company were able to suppress personal biases. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

47. In general, representatives of this company provided you with timely feedback about the decision and its implications. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

48. In general, representatives of this company treated you with kindness and consideration. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

49. In general, representatives of this company showed concern for your rights as an employee. *

Mark only one oval.

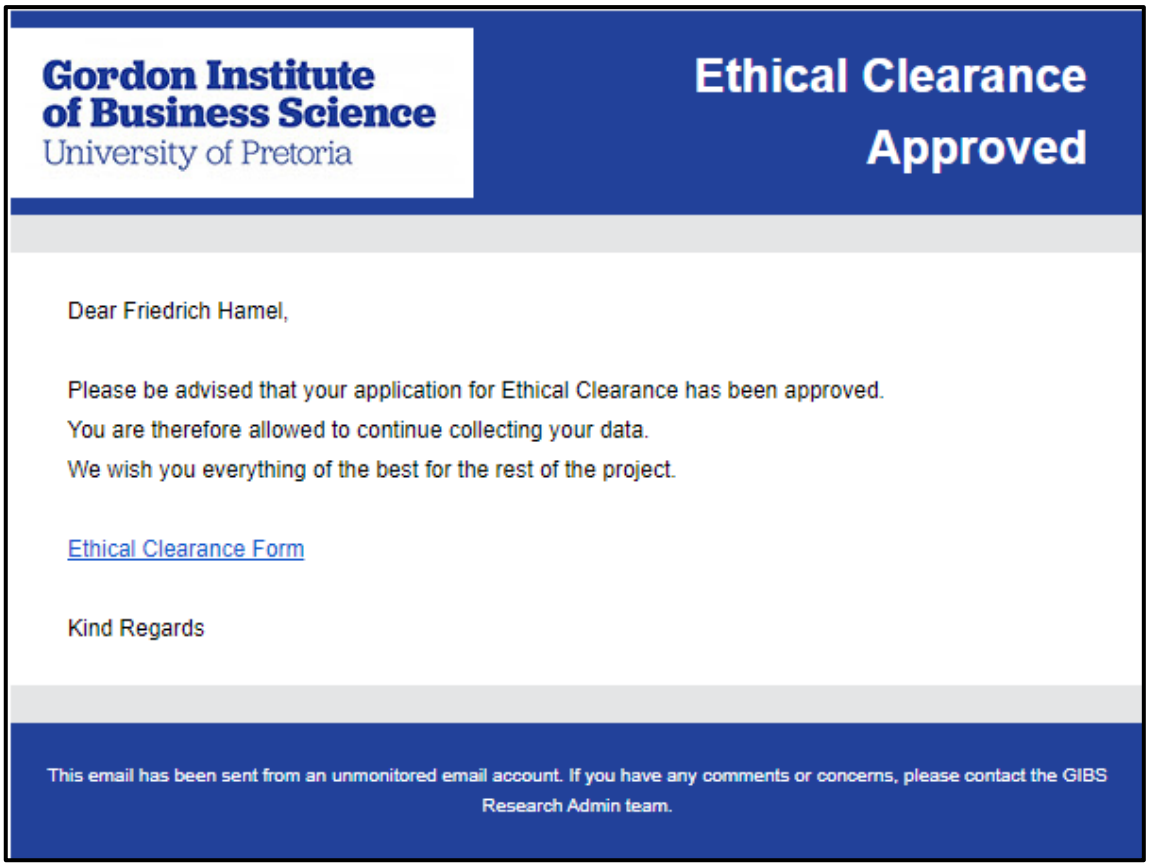
- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

50. In general, representatives of this company took steps to deal with you in a truthful manner. *

Mark only one oval.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

Appendix B: Ethical clearance



Gordon Institute of Business Science
University of Pretoria

Ethical Clearance Approved

Dear Friedrich Hamel,

Please be advised that your application for Ethical Clearance has been approved.
You are therefore allowed to continue collecting your data.
We wish you everything of the best for the rest of the project.

Ethical Clearance Form

Kind Regards

This email has been sent from an unmonitored email account. If you have any comments or concerns, please contact the GIBS Research Admin team.

Appendix C: Codebook

Variable coding			
Section 2	**Question**	**Assigned Variable**	**Label**
2.1	I hereby confirm my informed consent to participate in this questionnaire.	1	Yes
		2	No
Section 3	**Question**	**Assigned Variable**	**Label**
3.1	I am currently employed in the manufacturing sector in South Africa: Yes/No	1	Yes
		2	No
3.2	Please select the category that best fits your industry.	1	Manufacture of food and beverage
		2	Manufacture of Textile, clothing, leather, and footwear
		3	Manufacture of wood products, paper, publishing, and printing
		4	Manufacture of Petroleum and chemical products
		5	Manufacture of rubber and plastic products
		6	Manufacture of basic pharmaceutical products
		7	Manufacture of basic iron and steel
		8	Manufacture of steel, non-ferrous metal products, metal products and machinery
		9	Manufacture of computer, electronic and optical products
		10	Manufacture of electrical equipment and machinery
		11	Manufacture of motor vehicles, parts and accessories and other transport equipment
		12	Manufacturing of furniture
		13	Other
3.3	I have been employed in the manufacturing industry in South Africa for at least one year: Yes/No	1	Yes
		2	No
3.4	How many years working experience do you have?	1	Less than five years
		2	Five to ten years
		3	Ten to twenty years
		4	More than twenty years
3.5	How many years have you been employed in your current role?	1	Less than five years
		2	Five to ten years
		3	Ten to twenty years
		4	More than twenty years
3.6	What is your highest level of education?	1	Matric
		2	Certificate
		3	Diploma
		4	University degree - undergraduate level
		5	University degree - honors degree level
		6	Masters degree
		7	Prefer not to say
3.7	Please select your age category.	1	18 - 25 years old
		2	26 - 35 years old
		3	36 - 45 years old
		4	46 - 55 years old
		5	45 years and older

3.8	Please select your gender.	1	Male
		2	Female
		3	Prefer not to say
3.9	Please select a category that best describes your position in the organisation.	1	Operator
		2	Professional
		3	Technician
		4	Clerk
		5	Junior manager
		6	Middle manager
		7	Senior manager
		8	Director
		9	Other
		10	Prefer not to say
3.10	Please select a category that best describes the functional area that you work within.	1	Sales and Marketing
		2	Research and Development
		3	Manufacturing
		4	Finance
		5	Information Technology
		6	Corporate Services
		7	Human Resources
		8	Purchasing/Procurement
		9	Warehousing/Logistics
		10	Other
Section 4	**Question**	**Assigned Variable**	**Label**
	To what extent do you agree with the following statements:		
4.1	I work with intensity on my job.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
4.2	I exert my full effort to my job.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
4.3	I devote a lot of energy to my job.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
4.4	I try my hardest to perform well on my job.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
4.5	I strive as hard as I can to complete my job.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
4.6	I exert a lot of energy on my job.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree

		5	Strongly Agree
4.7	I am enthusiastic about my job.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
4.8	I feel energetic about my job.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
4.9	I am interested in my job.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
4.10	I am proud of my job.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
4.11	I feel positive about my job.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
4.12	I am excited about my job.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
4.13	At work, my mind is focused on my job.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
4.14	At work, I pay a lot of attention to my job.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
4.15	At work, I concentrate on my job.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
4.16	At work, I focus a great deal of attention on my job.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
4.17	At work, I am absorbed in my job.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree

		4	Agree
		5	Strongly Agree
4.18	At work, I devote a lot of attention to my job.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
Section 5	**Question**	**Assigned Variable**	**Label**
	By considering the reasons why you are presently involved in your work, to what extent do you agree with the following statements:		
5.4	Because I derive much pleasure from learning new things (Intrinsic Motivation)	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
5.8	For the satisfaction I experience when I am successful at doing difficult tasks (Intrinsic Motivation)	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
5.15	For the satisfaction I experience from taking on interesting challenges (Intrinsic Motivation)	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
Section 6	**Question**	**Assigned Variable**	**Label**
	To what extent do you agree with the following statements:		
6.1	I am fairly rewarded considering the responsibilities that I have.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
6.2	I am fairly rewarded in view of the amount of experience that I have had.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
6.3	I am fairly rewarded for the amount of effort that you put forth.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
6.4	I am fairly rewarded for the work that I have done well.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
6.5	I am fairly rewarded for the stresses and strains of my job.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree

		5	Strongly Agree
6.6	My employer develops procedures designed to collect accurate information necessary for making the decisions.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
6.7	My employer provides opportunities to appeal or challenge the decision.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
6.8	My employer has all sides affected by the decision represented.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
6.9	My employer generates standards so that the decision can be made with consistency.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
6.10	My employer hears the concerns of all those affected by the decision.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
6.11	My employer provides useful feedback regarding the decision and its implementation.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
6.12	My employer allows for requests for clarification or additional information about the decision.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
6.13	In general, representatives of this company considered your viewpoint.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
6.14	In general, representatives of this company were able to suppress personal biases.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
6.15	In general, representatives of this company provided you with timely feedback about the decision and its implications.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
6.16		1	Strongly Disagree
		2	Disagree

	In general, representatives of this company treated you with kindness and consideration.	3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
6.17	In general, representatives of this company showed concern for your rights as an employee.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree
6.18	In general, representatives of this company took steps to deal with you in a truthful manner.	1	Strongly Disagree
		2	Disagree
		3	Neither Agree nor Disagree
		4	Agree
		5	Strongly Agree

Appendix D: Assessment for the suitability of the data for factor reduction

Table 36 *Assessment of the strength of the inter-correlations among questions – EE Q1 to Q18*

Correlation Matrix																	
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q1
Q1. I work with intensity on my job.	1,000	0,587	0,605	0,516	0,449	0,573	0,356	0,369	0,365	0,259	0,242	0,309	0,442	0,453	0,447	0,398	0,465	0,452
Q2. I exert my full effort to my job.	0,587	1,000	0,721	0,615	0,602	0,652	0,399	0,424	0,434	0,349	0,335	0,379	0,498	0,564	0,535	0,497	0,456	0,547
Q3. I devote a lot of energy to my job.	0,605	0,721	1,000	0,677	0,628	0,733	0,398	0,408	0,432	0,285	0,286	0,361	0,496	0,561	0,483	0,512	0,438	0,586
Q4. I try my hardest to perform well on my job.	0,516	0,615	0,677	1,000	0,818	0,622	0,403	0,436	0,472	0,398	0,331	0,346	0,463	0,617	0,598	0,672	0,453	0,558
Q5. I strive as hard as I can to complete my job.	0,449	0,602	0,628	0,818	1,000	0,618	0,380	0,397	0,424	0,353	0,320	0,292	0,374	0,547	0,525	0,595	0,360	0,560
Q6. I exert a lot of energy on my job.	0,573	0,652	0,733	0,622	0,618	1,000	0,316	0,351	0,380	0,267	0,270	0,328	0,418	0,470	0,451	0,470	0,435	0,529
Q7. I am enthusiastic about my job.	0,356	0,399	0,398	0,403	0,380	0,316	1,000	0,842	0,726	0,586	0,783	0,780	0,523	0,543	0,526	0,499	0,392	0,433
Q8. I feel energetic about my job.	0,369	0,424	0,408	0,436	0,397	0,351	0,842	1,000	0,764	0,566	0,784	0,819	0,560	0,507	0,507	0,474	0,439	0,444
Q9. I am interested in my job.	0,365	0,434	0,432	0,472	0,424	0,380	0,726	0,764	1,000	0,709	0,767	0,754	0,535	0,556	0,566	0,537	0,465	0,518
Q10. I am proud of my job.	0,259	0,349	0,285	0,398	0,353	0,267	0,586	0,566	0,709	1,000	0,645	0,600	0,412	0,511	0,530	0,494	0,356	0,436
Q11. I feel positive about my job.	0,242	0,335	0,286	0,331	0,320	0,270	0,783	0,784	0,767	0,645	1,000	0,840	0,515	0,525	0,544	0,530	0,374	0,453
Q12. I am excited about my job.	0,309	0,379	0,361	0,346	0,292	0,328	0,780	0,819	0,754	0,600	0,840	1,000	0,583	0,540	0,551	0,499	0,422	0,482
Q13. At work, my mind is focused on my job.	0,442	0,498	0,496	0,463	0,374	0,418	0,523	0,560	0,535	0,412	0,515	0,583	1,000	0,674	0,656	0,581	0,583	0,522
Q14. At work, I pay a lot of attention to my job.	0,453	0,564	0,561	0,617	0,547	0,470	0,543	0,507	0,556	0,511	0,525	0,540	0,674	1,000	0,843	0,811	0,527	0,685
Q15. At work, I concentrate on my job.	0,447	0,535	0,483	0,598	0,525	0,451	0,526	0,507	0,566	0,530	0,544	0,551	0,656	0,843	1,000	0,777	0,556	0,653
Q16. At work, I focus a great deal of attention on my job.	0,398	0,497	0,512	0,672	0,595	0,470	0,499	0,474	0,537	0,494	0,530	0,499	0,581	0,811	0,777	1,000	0,564	0,692
Q17. At work, I am absorbed in my job.	0,465	0,456	0,438	0,453	0,360	0,435	0,392	0,439	0,465	0,356	0,374	0,422	0,583	0,527	0,556	0,564	1,000	0,682
Q18. At work, I devote a lot of attention to my job.	0,452	0,547	0,586	0,558	0,560	0,529	0,433	0,444	0,518	0,436	0,453	0,482	0,522	0,685	0,653	0,692	0,682	1,000

Source: Author's own, constructed from SPSS results (2023)

Table 37 *Assessment of the Strength of the Inter-Correlations Among Questions – IM Q19 to Q21*

Correlation Matrix			
	Q19	**Q20**	**Q21**
Q19. Because I derive much pleasure from learning new things.	1,000	0,736	0,529
Q20. For the satisfaction I experience from taking on interesting challenges.	0,736	1,000	0,538
Q21, For the satisfaction I experience when I am successful at doing difficult tasks.	0,529	0,538	1,000

Note. Author's own, constructed from SPSS results (2023)

Table 38 *Assessment of the Strength of the Inter-Correlations Among Questions – OJ Q22 to Q39*

Correlation Matrix																	
	Q2	Q2	Q2	Q2	Q2	Q2	Q2	Q2	Q3	Q3	Q3	Q3	Q3	Q3	Q3	Q3	Q3
Q22. I am fairly rewarded considering the responsibilities that I have.	1,000	0,822	0,816	0,767	0,763	0,489	0,518	0,414	0,431	0,470	0,470	0,531	0,480	0,372	0,460	0,482	0,543	0,511
Q23. I am fairly rewarded in view of the amount of experience that I have had.	0,822	1,000	0,761	0,751	0,691	0,423	0,428	0,447	0,425	0,461	0,431	0,513	0,452	0,366	0,436	0,425	0,481	0,438
Q24. I am fairly rewarded for the amount of effort that I put forth.	0,816	0,761	1,000	0,827	0,862	0,548	0,606	0,473	0,453	0,560	0,553	0,550	0,510	0,441	0,517	0,470	0,558	0,563
Q25. I am fairly rewarded for the work that I have done well.	0,767	0,751	0,827	1,000	0,817	0,475	0,469	0,480	0,448	0,481	0,497	0,482	0,501	0,463	0,500	0,470	0,586	0,506
Q26. I am fairly rewarded for the stresses and strains of my job.	0,763	0,691	0,862	0,817	1,000	0,557	0,539	0,431	0,432	0,508	0,491	0,468	0,463	0,425	0,455	0,427	0,535	0,549
Q27. My employer develops procedures designed to collect accurate information necessary for making the decisions.	0,489	0,423	0,548	0,475	0,557	1,000	0,757	0,613	0,722	0,650	0,638	0,576	0,492	0,417	0,486	0,464	0,540	0,595
Q28. My employer provides opportunities to appeal or challenge the decision.	0,518	0,428	0,606	0,469	0,539	0,757	1,000	0,689	0,624	0,727	0,667	0,669	0,556	0,533	0,539	0,514	0,514	0,582
Q29. My employer has all sides affected by the decision represented.	0,414	0,447	0,473	0,480	0,431	0,613	0,689	1,000	0,679	0,682	0,639	0,584	0,489	0,498	0,543	0,481	0,522	0,487
Q30. My employer generates standards so that the decision can be made with consistency.	0,431	0,425	0,453	0,448	0,432	0,722	0,624	0,679	1,000	0,670	0,658	0,572	0,507	0,450	0,533	0,465	0,489	0,527
Q31. My employer hears the concerns of all those affected by the decision.	0,470	0,461	0,560	0,481	0,508	0,650	0,727	0,682	0,670	1,000	0,666	0,647	0,574	0,546	0,529	0,492	0,523	0,572
Q32. My employer provides useful feedback regarding the decision and its implementation.	0,470	0,431	0,553	0,497	0,491	0,638	0,667	0,639	0,658	0,666	1,000	0,782	0,598	0,517	0,652	0,533	0,524	0,565
Q33. My employer allows for requests for clarification or additional information about the decision.	0,531	0,513	0,550	0,482	0,468	0,576	0,669	0,584	0,572	0,647	0,782	1,000	0,596	0,510	0,625	0,545	0,502	0,537
Q34. In general, representatives of this company considered your viewpoint.	0,480	0,452	0,510	0,501	0,463	0,492	0,556	0,489	0,507	0,574	0,598	0,596	1,000	0,647	0,610	0,617	0,602	0,663
Q35. In general, representatives of this company were able to suppress personal biases.	0,372	0,366	0,441	0,463	0,425	0,417	0,533	0,498	0,450	0,546	0,517	0,510	0,647	1,000	0,589	0,558	0,502	0,606
Q36.In general, representatives of this company provided you with timely feedback about the decision and its implications.	0,460	0,436	0,517	0,500	0,455	0,486	0,539	0,543	0,533	0,529	0,652	0,625	0,610	0,589	1,000	0,539	0,572	0,580
Q37. In general, representatives of this company treated you with kindness and consideration.	0,482	0,425	0,470	0,470	0,427	0,464	0,514	0,481	0,465	0,492	0,533	0,545	0,617	0,558	0,539	1,000	0,735	0,643
Q38. In general, representatives of this company showed concern for your rights as an employee.	0,543	0,481	0,558	0,586	0,535	0,540	0,514	0,522	0,489	0,523	0,524	0,502	0,602	0,502	0,572	0,735	1,000	0,744
Q39. In general, representatives of this company took steps to deal with you in a truthful manner.	0,511	0,438	0,563	0,506	0,549	0,595	0,582	0,487	0,527	0,572	0,565	0,537	0,663	0,606	0,580	0,643	0,744	1,000

Note. Author's own, constructed from SPSS results (2023)

Appendix E: Results of standardisation and creation of interaction variables for moderated regression, using IM_IntrinsicReward, OJ_DistributiveJustice, OJ_ProceduralJustice and OJ_InteractionalJustice as the independent variables

Table 39 *Standardisation and Creation of Interaction Variables*

Descriptive Statistics			
	Mean	Std. Deviation	N
Centered_IM_IntrinsicReward	0,00	0,50	218
Centered_OJ_DistributiveJustice	0,00	0,96	218
Centered_OJ_ProceduralJustice	0,00	0,85	218
Centered_OJ_InteractionalJustice	0,00	0,77	218
Centered_OJ_DistributiveJusticeXCentered_IM_IntrinsicReward	0,05	0,55	218
Centered_OJ_ProceduralJusticeXCentered_IM_IntrinsicReward	0,10	0,45	218
Centered_OJ_InteractionalJusticeXCentered_IM_IntrinsicReward	0,07	0,41	218

Note. Authors own based on SPSS output (2023)