THE IMPACT OF A MILD TRAUMATIC HEAD INJURY ON SELF EFFICAY AND WORK ADJUSTMENT

by

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DECLARATION

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The impact of a mild traumatic brain injury on self-efficacy and work adjustment

I declare that the above thesis is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

I further declare that I submitted the thesis to originality checking software and that it falls within the accepted requirements for originality.

I further declare that I have not previously submitted this work, or part of it, for examination at Unisa for another qualification or at any other higher education institution.

13th October 2025

SIGNATURE DATE

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DEDICATION

I dedicate this thesis to my late friend, colleague and confidant, Michael Friedman. Throughout the 20 years of working together, Michael on a monthly basis, asked me when I am going to register for my PhD. Michael sadly passed away in December 2020. I registered for my PhD in January 2021. This is for you, my dearest friend, I will forever miss you and our long work discussions.

SUMMARY

This research explored the impact of an mTBI on self-efficacy and work adjustment. Bandura (1997) defines self-efficacy as an individual's belief in their capabilities to execute actions required to achieve a goal. Research indicates that although most individuals recover from an mTBI within weeks to months, a proportion continue to experience persistent physical, cognitive, and emotional symptoms that may negatively affect daily functioning and occupational participation (Carroll et al., 2020; Cole & Bailie, 2015). The study highlights that workplace factors, including insufficient workplace support, contributed to difficulties in adjusting to work following an mTBI. A biopsychosocial (BPS) theoretical model was adopted, providing a comprehensive framework through which to investigate the interactive relationship between biological impairments, psychological factors, and the work environment. Bandura's self-efficacy theory was further utilised to understand the participants' beliefs in their physical, cognitive, and emotional capacity to cope with challenges during work adjustment following an mTBI. The impact of self-efficacy was explored through the primary sources of self-efficacy, including mastery experiences, vicarious experiences, verbal persuasion, as well as the regulation of emotional and physiological states. Participants included individuals who had previously been involved in a motor vehicle accident (MVA), sustained an mTBI, been employed in stable skilled positions, and had subsequently returned to work. A qualitative research method was employed, and 17 participants were initially selected through non-probability purposive sampling. Following data saturation, only 10 interviews were included in the final analysis. Participants were recruited from private neuropsychological practices in KwaZulu-Natal. Semi-structured interviews were conducted, the General Self-Efficacy Scale (GSE) was administered, and historical records were reviewed. A phenomenography approach was utilised to describe, compare, and contrast categories of the participants' collective experiences in order to gain deeper insight into the impact of an mTBI on self-efficacy and work adjustment. Self-efficacy emerged as a central construct, influencing the participants' perceived capacity to manage physical, cognitive, and emotional challenges following an mTBI. The study further identified workplace support and accommodation as key mediating factors that influenced self-efficacy and facilitated successful work adjustment following an mTBI.

Key words/concepts: Mild traumatic brain injury (mTBI), motor vehicle accident (MVA), Glasgow Coma Scale (GCS), phenomenography, biopsychosocial (BPS) model, self-efficacy, physical capacity, cognitive capacity, emotional capacity, work adjustment.

Table of Contents

CHAPTER 1: INTRODUCTION *1*

1.1 BACKGROUND AND MOTIVATION FOR THE STUDY **1**

1.2 EXPLAINING THE TITLE **7**

1.3 PROBLEM STATEMENT AND AIM OF THE STUDY **9**

1.4 THE DESIGN OF THE STUDY **11**

1.5 ETHICAL CONSIDERATIONS **13**

1.6 FORMAT OF THE STUDY **14**

1.7 CONCLUSION **15**

CHAPTER 2: LITERATURE REVIEW *17*

2.1 INTRODUCTION **17**

2.2 THE BRAIN **19**

2.3 TRAUMATIC BRAIN INJURIES **21**

2.3.1 Types of Brain Injuries 22
2.3.2 Categorising Brain Injuries 22
2.3.3 Traumatic Brain Injury Descriptions 24
2.3.4 The Evaluation of Brain Impairment - Whole Person Impairment 27

2.4 MILD TRAUMATIC BRAIN INJURIES **28**

2.4.1 Physical Challenges 33
2.4.2 Cognitive Challenges 34
2.4.3 Emotional Challenges 36

2.5 SELF-EFFICACY **44**

2.5.1 Cognitive Behavioural Theory and Self-Efficacy 45
2.5.2 Sociocultural Theory and Self-Efficacy 46
2.5.3 Humanistic Theory and Self-Efficacy 47
2.5.4 Distinguishing Self-Efficacy 49
2.5.5 Building Self-Efficacy 54
2.5.6 Self-Efficacy and Performance Outcome Expectations 59
2.5.7 Self-Efficacy and mTBI 61
2.5.8 Collective Self-Efficacy 62
2.5.9 Occupational Self-Efficacy 64

2.6 WORK **66**

2.7 WORK ADJUSTMENT **69**

2.8 CONCLUSION **77**

CHAPTER 3: RESEARCH PHILOSOPHY, PARADIGMS AND THEORETICAL FRAMEWORK *78*

3.1 INTRODUCTION **78**

3.2 RESEARCH PHILOSOPHY **78**

3.2.1 Ontology 80
3.2.2 Epistemology 81
3.2.3 Axiology 83

3.3 RESEARCH PARADIGMS **86**

3.4 METHODOLOGY 88
3.5 PHENOMENOGRAPHY 93
3.5.1 Theoretical Underpin of Phenomenography 96
3.5.2 Summary 100
3.6 THE BIOPSYCHOSOCIAL THEORETICAL MODEL 101
3.6.1 Application of the Biopsychosocial Theory Model 104
3.7 Self Efficacy Theory 107
3.7.1 Application of the Bandura's Self-Efficacy Theory 111
3.8 CONCLUSION 115
CHAPTER 4: RESEARCH DESIGN 117
4.1 INTRODUCTION 117
4.2 QUALITATIVE RESEARCH DESIGNS 117
4.3 SAMPLING AND RESEARCH SETTING 118
4.3.1 Convenience Sampling 119
4.3.2 Quota Sampling 119
4.3.3 Consecutive Sampling 119
4.3.4 Purposive Sampling 119
4.4 DATA COLLECTION 124
4.4.1 Semi Structured Interview 125
4.4.2 The General Self-Efficacy Scale 129
4.4.3 Historic Data 134
4.4.4 Summary of Data Collection 135
4.5 ANALYSIS OF PHENOMENOGRAPHY DATA 135
4.5.1 Process of Analysing the Phenomenography Data 135
4.5.2 Steps in Data Analysis 140
4.5.3 Summary of the Data Analysis Process 143
4.6 RELIABILITY AND VALIDITY OF PHENOMENOGRAPHY 148
4.6.1 Reliability 148
4.6.2 Validity 149
4.7 ENSURING RIGOUR AND TRUSTWORTHINESS 150
4.7.1 Credibility 151
4.7.2 Transferability 153
4.7.3 Dependability 154
4.7.4 Confirmability 154
4.8 ETHICAL CONSIDERATIONS 155
4.8.1 World Medical Associations' Declaration of Helsinki Ethical Guidelines 157
4.8.2 The Belmont Report 160
4.8.3 Applications of the Principles 161
4.9 MY POSITIONALITY AND REFLEXIVITY 165
4.10 CONCLUSION 167
CHAPTER 5: PRESENTATION OF RESULTS 169
5.1 INTRODUCTION 169
5.2 DEMOGRAPHIC PROFILE OF THE PARTICIPANTS 169
5.2.1 Participant A 170

5.2.2 Participant B 170
5.2.3 Participant C 171
5.2.4 Participant D 172
5.2.5 Participant E 172
5.2.6 Participant F 173
5.2.7 Participant G 173
5.2.8 Participant H 174
5.2.9 Participant I 174
5.2.10 Participant J 175
5.2.11 Participant K 175
5.2.12 Participant L 176
5.2.13 Participant M 176
5.2.14 Participant N 177
5.2.15 Participant O 177

5.3 HISTORICAL DATA 180
5.3.1 Historical Data Analysis 180
5.3.2 Comparative Analysis of an mTBI 183

5.4 DATA ANALYSIS 186
5.4.1 Stage One – First Reading and Summaries 187
5.4.2 Stage Two – Identification of Conceptions and Categories 189
5.4.3 Stage Three – Iteration and Articulating of Meaning and Core Categories 193
5.4.4 Stage Four: Formation of the Hierarchical Relationships 197

5.5 INTERPRETATION OF THE OUTCOME SPACE 247
5.5.1 Breadth of Impact and Effect and Self-Efficacy Regulation 250
5.5.2 Physical Impact as a Constraint on Task Mastery 253
5.5.3 Cognitive Impact and Self-Affirmation Processes 255
5.5.4 Emotional Impact and Self-Efficacy as Emotional Regulation 258
5.5.5 Workplace Support as a Determinant of Self-Efficacy 262

5.6 CONCLUSION 268

CHAPTER 6: CONCLUSION, LIMITATIONS AND RECOMMENDATIONS 270

6.1 INTRODUCTION 270

6.2 SUMMARITIVE INTEGRATED OUTCOME SPACE DISCUSSION 272

6.3 IMPLICATIONS FOR PRACTICE AND WORKPLACE SUPPORT 275

6.4 LIMITATIONS OF THE STUDY 279

6.5 FINAL CONCLUSION 281

APPENDICES 287

Appendix A: Ethics Approval 287

Appendix B: Request to Participate in the Study 288

Appendix C: Consent To Participate in This Study 292

Appendix D: Semi Structured Interview Questions 293

Appendix E: Self Efficacy Questionnaire 294

Reference list 295

List of Tables

TABLE 1 SYMPTOMS FOLLOWING AN MTBI 32
TABLE 2 THE DEMOGRAPHIC SUMMARY..179
TABLE 3 SOME ILLUSTRATIVE EXTRACTS FROM THE TRANSCRIPTS..188
TABLE 4 SOME ILLUSTRATIVE SUMMARISE EXTRACTS FROM THE TRANSCRIPTS 190
TABLE 5 ILLUSTRATIVE EXTRACTS CATEGORIES OF DESCRIPTIONS (FIRST ATTEMPT) 195
TABLE 6 CATEGORIES AND THEMES OF AWARENESS DESCRIPTIONS 201

List of Figures

Figure 1 Self-Efficacy Model 55
Figure 2 Self-Efficacy Judgement 59
Figure 3 The biopsychosocial theoretical framework adapted for this study 103
Figure 4 Major Processes of Self-Efficacy 111
Figure 5 *Ethical Principles of Research* 157
Figure 6 *Phenomenographic Data Analysis Stage Pertaining to this Study* 187
Figure 7 The Outcome Space – Impact of an mTBI on Self Efficacy and Work Adjustment 249

CHAPTER 1: INTRODUCTION

This chapter contextualises the study by relating the impact of a mild traumatic brain injury (mTBI) to self-efficacy in work adjustment. The focus of this research is to investigate self-efficacy and work adjustment following a mild traumatic brain injury (mTBI). Self-efficacy can be described as an individual's belief in their ability to organise and execute the behaviours required to achieve performance outcomes following significant life events (Bandura, 1995). Self-efficacy can determine an individual's course of action, and their efforts to overcome a traumatic event that they have experienced (Bandura, 1982). The study explores a traumatic event that has had an impact on the individual's life, specifically an mTBI following a motor vehicle accident (MVA). Traumatic brain injuries, and specifically an mTBI, will be explored in terms of their impact on an individual's life.

The research adopted a biopsychosocial (BPS) theoretical model as a guiding theoretical framework to investigate the multifaceted and interactive nature of the challenges faced following an mTBI during work adjustment (Engel, 1977). To complement the theoretical framework, the researcher adopted Bandura's self-efficacy theory (1997) as a supporting theory to gain deeper insight into participants' beliefs that influence their ability to adapt to work. Given that work constitutes a significant component of adult life, this research explored individuals' beliefs in their capacity to successfully adjust to work following an mTBI. The literature review, and understanding of the relevant theories, assisted the researcher in gaining a deeper understanding of the impact of an mTBI on self-efficacy and work adjustment.

The paragraphs below provide an outline of the study and the research process. The research aims and objectives are presented, followed by the rationale for the study, and an overview of the research problem. Lastly, definitions of key terms used in the study are provided, together with and an overview of the chapters.

1.1 BACKGROUND AND MOTIVATION FOR THE STUDY

Traumatic brain injuries constitute one of the most significant health concerns in the United States of America (US). According to the Centres for Disease Control and Prevention, there are indications that, every year in the USA, about 1.7 million people suffer from a TBI, of

whom between 75% and 90% are classified as mild to moderate. The annual costs of TBIs in the US, inclusive of medical costs and loss of work productivity, are estimated to be in the tens of billions of dollars (Lawrence et al., 2018). Mbalula (2022) noted that in South Africa, road fatalities have a negative impact on the South African economy and claims against the Road Accident Fund for the financial year 2023/2024 were estimated to increase to approximately R517,7 billion.

With regard to the reported incidence rates of TBIs, Lawrence et al. (2018) noted that the rate in Europe ranged from 91 per 100 000 to 546 per 100 000 in Spain. In Southern Australia, the incidence rate was noted as 322 per 100 000, and in South Africa it was recorded at 316 per 100 000. Many individuals with mTBIs, however, do not present to hospitals, and may not be recorded. Consequently, the statistics and numbers recorded are most likely an underestimate of the true number of incidences of TBIs, that resulted in hospital admission (Lawrence et al., 2018).

Road-accident-related fatalities remain high in South Africa compared with African nations (Mochan, 2016; Ncube, 2016). The International Transport Forum (ITF) 2013 Road Safety Annual Report ranked South Africa amongst the highest globally in terms of the number of road fatalities. Prof. Figaji (Head of Paediatric Neurosurgery) at the University of Cape Town reported that TBIs remain an under-researched area, despite the large burden they represent as the leading course of disability in South Africa (Gxolo, 2021). Gxolo (2021) notes that, according to Netcare South Africa, it is estimated that there are approximately 89 000 new cases of TBI reported every year in South Africa. Prof. Figaji stated that major concerns exist with regard to mTBI, as these are not diagnosed, and may lead to problems within a family, social, and work environment (Gxolo, 2021).

Given the above and the large number of mTBIs that result from road accidents, there is a profound impact on an injured individual's life and ability to recover, reintegrate and adjust to work. In addition, extant literature has revealed that mTBI is one of the most common neurological conditions, constituting approximately 70% to 90% of all the traumatic brain injuries. These mentioned individuals present with a Glasgow Coma Score (GCS) of 13 to 15, which falls in the range of the mTBI category (McInnes et al., 2017; Mikolic et al., 2020).

Varney and Roberts (2009) and Iverson (2005) noted that early mTBI research revealed that

an mTBI can be defined as an individual suffering a GCS score of between 13 and 15, with or without loss of consciousness (LOC). In addition, any LOC must be 30 minutes or less, with or without hospitalisation. However, if hospitalisation is required, it should be for less than 48 hours in order to be classified as an mTBI (Varney & Roberts, 2009).

The American Congress of Rehabilitation Medicine (ACRM) (1993) was the first organisation to provide a diagnostic criterion of mTBI and noted it as "a traumatically induced physiological disruption of brain function, as manifested by at least one of the following:

- Any period of loss of consciousness;
- Any loss of memory for events immediately before or after the accident;
- Any alteration in mental state at the time of the accident (e.g., feeling dazed, disoriented, or confused); and
- Focal neurological deficit(s) that may or may not be transient, but where the severity of the injury does not exceed the following:
    - LOC of approximately 30 minutes or less;
    - After 30 minutes an initial Glasgow Coma Scale (GCS) of 13 to 15; and
    - Post traumatic amnesia (PTA) not greater than 24 hours".

During the same period, The American Centers for Disease Control and Prevention (CDC) (2003) put forward a comparable, conceptual definition of mTBI as "any period of observed or self-reported transient confusion, disorientation, or impaired consciousness, dysfunction of memory around the time of injury, loss of consciousness lasting less than 30 minutes as well as observed signs of neurological or neuropsychological dysfunction".

Prince and Bruhns (2017, p. 2) note that the Word Health Organization (WHO) more recently provided an mTBI definition that differ from the ACRM diagnosis by simplifying the classification of altered mental status to "confusion or disorientation" and changing the "focal neurological deficit(s)" criteria of the ACRM definition to: "Other transient neurological abnormalities, such as focal signs, seizure, and intracranial lesion, which do not require surgery" (Prince & Bruhns, 2017, p. 2). The WHO definition allows for the GCS score of 13–15 to be assessed after a 30-minute timeframe, accommodating a delayed assessment of the GCS by a qualified healthcare worker and/or medical professional (Prince & Bruhns, 2017).

Blennow et al. (2016) stated that any impact to the head can produce an mTBI and many individuals may not even realise that this has occurred. There would, therefore, be no LOC and no hospitalisation, but they may present with other symptoms such as dizziness and vomiting, as well as headaches on the day after the injury occurred. Blennow et al. (2016) noted that following an mTBI, there may be no physical injury or organic damage to the brain. Blennow et al. (2016) described an mTBI as a closed, non-penetrating head trauma. An mTBI is, however, most accurately defined on clinical grounds, and not on validated imaging, to determine the presence of neuronal damage.

Following an mTBI, some individuals will stabilise quickly, however, most individuals will present without any neurologic deficit, while others may deteriorate and experience delayed symptoms. The first requirement in the management of an mTBI is establishing the diagnosis. Importantly, a period of LOC is not necessary for diagnosis, and mTBI syndromes have been identified in individuals who did not experience LOC (Van der Naalt et al., 2017; Ponsford et al., 2012).

McMahon et al. (2014) observe that the symptoms of mTBI can be described according to the following three groups:

- Physical symptoms such as headache, nausea and vomiting, dizziness, visual disturbances (seeing stars and/or double vision), slurred speech, ringing in the ears, and feeling stunned as well as poor co-ordination or balance and a lucid interval during which the individual appears conscious only to deteriorate later.
- Cognitive problems such as reduced short-term memory, amnesia, confusion, short-term intermediate-, and long-term memory, poor concentration, and slowness in answering questions or obeying commands, (tested following the injury).
- Emotional problems such as inappropriate emotions, depression and anxiety.

McInnes et al. (2017) stated that, although many individuals recover shortly after suffering an mTBI, there is a significant percentage of individuals who continue to present with persistent complaints following the trauma. Furthermore, while most individuals return to normal functioning within three months, evidence shows that approximately 5% to 15% continue to experience persisting symptoms including, physical difficulties (headaches, dizziness),

cognitive difficulties (memory and poor concentration), and behavioural and/or emotional difficulties (irritability, mood instability), for over a year (McMahon et al., 2014; Ponsford et al., 2012; McInnes et al., 2017).

Varney and Roberts (2009) note that an mTBI can cause immediate symptoms, but these injuries may take days or even months for symptoms surface. The prevalence of these symptoms can sometimes last months or years, and can vary substantially among individuals, due to individual differences, or partly due to differences in diagnostic criteria (McMahon et al., 2014). McInnes et al. (2017) stated that, in contrast to the prevailing views, symptoms following an mTBI did not, resolve within a three-month period, with approximately half of the individuals demonstrating long-term impairments. These long-term impairments or complaints can affect overall functioning and interfere with daily and social life as well as their work activities (McMahon et al., 2014). Van der Naalt et al. (2017) note that 50% of individuals who continue to suffer from the sequelae of an mTBI do not return to their pre-injury level of functioning within six months following the injury. These discrepancies in the subjective presentation of individual difficulties and symptoms following an mTBI, in the absence of neurological findings, such as a Magnetic Resonance Imaging (MRI), have become a point of both interest and controversy (McMahon et al., 2014; Van der Naalt et al., 2017). Silverberg and Iverson (2011) note that it is important to identify those individuals who are at high risk of long-term consequences following an mTBI.

Van Der Naalt et al. (2017) and Yenene et al. (2020) note that continuous attempts have been made to identify factors that can differentiate individuals who do not overcome an mTBI (also known as a "miserable minority") from those who are able to cope and deal with the consequences of the trauma. Iverson (2005), however, noted that changes or impairments in cognitive, behavioural, and psychological capacity following an mTBI differ from individual to individual and can be characterised by immediate and varied cognitive and/or psychological changes. Each individual reacts differently, and there are numerous factors that can affect the outcome, including age, race, gender, socio-economic status, as well as personality type.

As a result of the above, the necessity to understand an individual's emotional adjustment by exploring their premorbid personality traits (Gass, Rogers, & Kinne, 2017), coping style (Snell, Siegert, Hay-Smith, & Surgenor, 2011; Scheenen et al., 2017) and psychological mediators (as cited in Yenene et al., 2020) has been recognised as important factors in understanding work

adjustment following an mTBI. However, it must be acknowledged that the outcome would be affected by the severity and location of the impact to the head at the time of the trauma (Picon et al., 2021).

Andelic et al. (2012) stated that the most common changes following an mTBI are related to cognitive, emotional and behavioural symptoms. Extant literature indicates that there are many studies that aim to investigate these individual symptoms and differences in recovery trajectories, coping strategies and psychological adaptation, as well as investigations into spontaneous changes in preferred strategies over the time of recovery following an mTBI (Iverson, 2005; Scheenen et al., 2017). In addition, further literature notes that only a few studies address self-efficacy in an mTBI, and that some of these focus on the impact of the diagnosis threat on academic self-efficacy, rather than on performance outcomes or on the relations between self-efficacy and coping style, and life satisfaction (Scheenen et al., 2017).

Furthermore, while the predictive role of self-efficacy on acceptance of disability and emotional outcome was investigated in people with disabilities, these studies did not address the issues relating to individuals that suffered an mTBI, where such studies are lacking (Yenene et al., 2020). Yenene et al. (2020) examined the impact of self-efficacy and the acceptance of disability on emotional outcomes, including depression, post-traumatic stress disorder (PTSD), and quality of life (QOL) following an mTBI. The authors noted that self-limiting beliefs (low SE) may contribute to negative perception and may affect an individual's ability to accept the consequences as a result of the injury. Consequently, it was hypothesised that acceptance of disability would mediate the relationship between self-efficacy and emotional outcome (Yenene et al., 2020). Given the above, little research could be found relating to self-efficacy and work adjustment following an mTBI (Andelic et al., 2012). Bandura (1997) proposed that self-efficacy is a primary determinant of emotional and motivational states, as well as behavioural change. Accordingly, self-efficacy may play an important role in work adjustment. Therefore, the present research specifically addressed self-efficacy as a determinant of cognitive, emotional, and behavioural capacity in work adjustment following an mTBI.

The participants were selected from a database from a neuropsychologist's practice in Durban. These individuals had sustained an mTBI as a result of a MVA and had presented with a GCS of between 13 and 15, at least two to five years ago prior to the study. All participants were required to have been employed in a stable job for at least two to five years prior to the mTBI

to be over the age of 21 years. Finally, all participants were required to have returned to work following the mTBI.

Limited research has been conducted in South Africa to specifically explore the impact of an mTBI on self-efficacy and work adjustment. Available research has focused primarily on TBIs and return to work (RTW). Little is known about the impact of self-efficacy on work adjustment following an mTBI. Although each individual's experience is unique and valuable, a collective understanding of the individual's belief in their capacity to adjust to work following an mTBI remains limited.

The participants' collective experiences provided rich information and a deeper understanding of work adjustment following an mTBI. Furthermore, this information may be useful in assisting future mTBI sufferers and health-care providers. The collective experiences, descriptions, and knowledge generated by this study may assist in addressing workplace adjustment issues, particularly within in the South African context. The research may also assist individuals in making well-informed decisions during their process of adjusting to work following an mTBI.

The research findings may contribute to better understanding self-efficacy in work adjustment, and the influence of personal beliefs on long-term functioning. In addition, the findings may provide insight into the reasons why some individuals experience difficulties with work adjustment while others successfully adjust to work following an mTBI. As mentioned earlier, other factors, including age, socio-economic factors, and gender, and pre-existing physical or medical condition (such as paraplegia) may also influence work adjustment, however, these factors were excluded from this present study. Future studies may therefore be beneficial in examining the extent to which self-efficacy mediates cognitive and behavioural processes associated with factors such as age, race, gender, physical disability, and socio-economic status during work adjustment following an mTBI.

1.2 EXPLAINING THE TITLE

This section explores the study's title in greater depth. For the purpose of this research, a mild traumatic brain injury (mTBI) was described as any physiological disruption of the individual's brain function, irrespective of whether it relates to physical, cognitive, or emotional difficulties.

An mTBI was described by the American Congress of Rehabilitation Medicine (1993) as head trauma manifested by at least one of the following: a period of loss of consciousness; loss of memory regard certain events immediately before or after the injury; any alteration in mental state at the time of the injury, and focal neurological deficit(s) that may or may not be transient. In addition, the severity of injury in an mTBI does not exceed the following: loss of consciousness of less than 30 minutes; an initial Glasgow Coma Scale (GCS) score of 13/15 or more; and posttraumatic amnesia not greater than 24 hours (Kusher, 1998).

A GCS is used to objectively describe the extent of impaired consciousness in all types of trauma patients. The Scale takes into account three parameters, namely: best eye response (E); best verbal response (V); and best motor response (M). The levels of response in the components of the Glasgow Coma Scale are scored from 1 for no response up to normal values of 4 for eye-opening response; 5 for verbal response; and 6 for motor response. The total scale score thus has values between three and 15, with three being the lowest and 15 being the highest (Teasdale & Jennet, 1974). In addition, for the purposes of this study, a brief discussion of the evaluation of impairments and a review of the principles of disability assessment is provided as per the American Medical Association (AMA) Guides and specifically relating to the central and peripheral nervous systems (Cocchiarell & Anderson, 2005). The Road Accident Fund (RAF) in South Africa also introduced the inclusion of a whole-body impairment (WPI) score for the assessment of the disability for purposes of determining an individual's percentage impairment as a result of the injury suffered in a MVA for purposes processing a compensation claim.

Self-efficacy refers to the individuals' belief in their ability to execute specific behaviour, and determines how they feel, think, behave, and motivate themselves to achieve a given goal. It has been argued that this belief leads to diverse effects through cognitive, motivational, affective, and selection processes (Bandura, 2004). The study explores how individuals perceive their ability to perform tasks and influence outcomes in their work settings, identifying various levels of self-efficacy and the cognitive, behavioural and emotional factors that contribute to these perceptions.

Workplace adjustment refers to modifications made to both the individual and the work environment to facilitate effective work participation and performance despite the presence of a disability or health condition. Such adjustments may include changes to work processes, job

tasks, workplace practices, procedures, equipment, or the physical work environment to minimise barriers to work functioning and enhance productivity (Bell, 2018; Shaw et al., 2013). It concerns how individuals approach the process of adjusting to their work environment, including the strategies they employ, the challenges they encounter, and their beliefs and perceptions regarding success or failure in achieving work adjustment.

This study investigates how individual construct their experiences of self-efficacy and how these beliefs influence their cognitive, emotional, and behavioural ability to adjust to work following an mTBI. The researcher hopes to gain insight into the relationship between self-efficacy and work adjustment, as well as the ways in which these constructs influence one another. This approach allows for a more comprehensive understanding of how individuals navigate their work adjustment experiences following an mTBI.

1.3 PROBLEM STATEMENT AND AIM OF THE STUDY

The aim of this research is to explore self-efficacy and work adjustment in order to gain insight into participants' beliefs in their ability to adjust to work following an mTBI. The study aims to provide rich information and to gain insight into the participants' perceptions and beliefs regarding their physical, cognitive, and emotional capacity to adapt to work following an mTBI. The underlying problem addressed by this study is that there is limited understanding of the different ways in which individuals experience self-efficacy during the process of work adjustment following an mTBI.

While existing literature acknowledges that self-efficacy plays an important role work adjustment, less is known about participants' varied experiences and how these variations influence their adjustment to work, particularly within the South African context. Understanding these variations is important, as it provides a more comprehensive understanding of individuals' collective experiences, including their perceived physical, cognitive, and emotional capabilities, as well as their ability to seek workplace support during the process of adjusting to work following an mTBI.

The objectives of the study are:

- To explore the different ways in which individuals experience self-efficacy in relation

to physical functioning during work adjustment following an mTBI;

- To explore the variations in how self-efficacy influences cognitive functioning during work adjustment following an mTBI;
- To explore the different ways in which self-efficacy influences emotional functioning during work adjustment following an mTBI;
- To explore how participants experience environmental conditions in relation to their self-efficacy during work adjustment following an mTBI;
- To explore how the participants experience workplace support and interventions in relation to their perceived self-efficacy during work adjustment following an mTBI.

The research question guiding this study is: How do individuals perceive, understand, and experience self-efficacy in relation to work adjustment following an mTBI?

Only individuals who were previously employed in a stable, secure environment for at least two to five years prior to their brain injury, and who had sustained an mTBI with no other injuries, were included in the study. The participants had previously undergone a neuropsychological assessment for purposes of their RAF claim. Once participants agreed to participate in this study and provided informed consent, their historical data, including medical records, the classification of the mTBI using the GCS, impairment rating using the MSCHF, and relevant psychological tests previously administered were reviewed where relevant to the study. Interviews were subsequently arranged with participants, and data were collected through the use of semi-structured interview questions and the administration of the General Self-Efficacy Scale (GSE). The data obtained from these were analysed to gain a deeper understanding of participants' self-efficacy and their experiences in adjusting to work following an mTBI.

Each individual's experience is unique and valuable, however, examining these experiences collectively provides a more comprehensive understanding how self-efficacy influences work adjustment following an mTBI. Through the application of phenomenography, the study seeks to explore the interconnectedness of participants' beliefs regarding their experiences of work adjustment. The collection and analysis of participants' experiences of self-efficacy and its impact on their ability to adjust to work provide rich information that helps to describe, compare, and contrast the significant aspects and categories of experience, while generating

new insight into how individuals' beliefs influence their ability to adjust to work following an mTBI.

Additionally, the researcher sought to gain insight into the dynamic relationship between self-efficacy and work adjustment. The findings may also provide valuable insight for organisations seeking to create supportive and accommodating work environments and may identify strategies that enhance or impede self-efficacy during work adjustment following an mTBI.

1.4 THE DESIGN OF THE STUDY

This study focuses on obtaining rich and in-depth information regarding participants' experiences of self-efficacy and their beliefs in their capacity to adjust to work following a road accident in which they sustained an mTBI in South Africa. Each individual may exhibit different levels of self-efficacy across various tasks or their work domains during work adjustment. In this phenomenographic study, the researcher attempted to capture how participants constructed their experiences regarding their beliefs about their abilities to adjust to work. In addition, the researcher sought to provide valuable insight into the participants' perceptions, including how these beliefs influence their work adjustment.

The researcher adopted a BPS theoretical model and provided an overarching theoretical framework that integrates the interaction between the biological, psychological, and social factors (Engel, 1977). The BPS theoretical model further assists in identifying the cause, manifestation, and outcome of an individual's well-being as well as integrating all aspects of human behaviour (Lewis, 2008). Dogar (2007) noted that the BPS theoretical model considers the importance of human health in terms of three domains, namely: biological factors (i.e. the mTBI itself); psychological factors (i.e. self-efficacy, cognitive, behavioural, and emotional factors); and social factors (which in context of this study, relate to the workplace).

A qualitative research approach was followed. Mouton (1996) argues that qualitative research is particularly effective for eliciting rich and in-depth data. Qualitative research includes methodologies such as interviews, questionnaires, structured observations, and experiments. In qualitative research, the data are descriptive and relate to the phenomenon being observed and are not intended to be statistically measured such as the construct of self-efficacy.

The prospective participants were selected through the application of a non-probability purposive sampling technique (Ritchie & Lewis, 2003). Purposive sampling allowed the researcher to select the participants specifically because of their relevance to the research questions. Consequently, in this study, only participants who had sustained an mTBI and who were employed in a stable, secure environment for at least two to five years prior to their injury were included. Participants who had sustained an mTBI were purposively selected from a database at a neuropsychologist's practice in KwaZulu-Natal.

Mack et al. (2005) noted that the number of participants in a phenomenographic study ought ordinarily to range between 10 and 30 individuals. In addition, the sample should be sufficiently diverse to ensure variations in experiences, however, it is also noted that a glut of data may undermine effective analysis in phenomenographic research (Stenfors-Hayes et al., 2013). At the time of the interviews, participants were required to have returned to work. The descriptive data obtained during the interviews, and the score from the GSE Scale and relevant the historical data, were subsequently analysed to gain insight into the different ways the participants perceived and experienced workplace adjustment following the mTBI.

Phenomenography was used as the main form of data analysis. Phenomenography is a qualitative research approach that has contributed significantly to understanding the different ways in which individuals experience and conceptualise phenomena (Stenfors-Hayes et al., 2013). Phenomenography provides a lens through which research questions can be examined and offers direction to conducting empirical research (Stenfors-Hayes et al., 2013). In phenomenographic research, the researcher studies the different ways in which people experience, understand and conceptualise a given phenomenon, rather than studying the phenomenon itself (Marton, 1986). Phenomenography is described as an approach that focuses on the way in which participants experience a phenomenon and the different way of seeing, understanding and relating to it (Marton, 1986). It seeks to identify both the variation and the interconnectedness in individuals' experiences of a phenomenon. Once these variations have been identified, the researcher can categorise the data into descriptive categories based on the similarities, differences, and relationships evident within the participants' accounts (Marton, 1986).

Marton (1986) further noted that it is not possible to describe a world that is entirely independent of the descriptions constructed by those experiencing it. These descriptions lead

to the assumption that different ways of understanding a phenomenon are related to the different ways in which it is experienced. Phenomenography therefore allowed the researcher to explore and understand participants' experiences by examining self-efficacy as a mediator of cognitive, behavioural, and emotional processes during work adjustment following an mTBI. Further details regarding the analytical procedures followed in this study are provided in Chapter Four (Research Methodology).

1.5 ETHICAL CONSIDERATIONS

All applicable ethical considerations were adopted and strictly followed at all times during this study. The Health Professions Council of South Africa (HPCSA) Code of Ethics had been perused, and the researcher complied with all relevant ethical principles applicable to this study. Picardi and Masick (2014) identified additional principles which have been outlined under the Research Methodology chapter (Chapter 4).

The researcher ensured all times that the participants were given sufficient information relating to the research procedure, purposes, and benefits of the study. Participants were also given the opportunity to ask additional questions and to withdraw from the study at any time. The researcher acknowledges that respect for participants had to align with the principle of voluntary consent. In this context, participants were required to have legal capacity to give their consent to participate in the study and have freedom to opt out of the study at any time should they want to do so. Appendix C shows the consent form that was signed by all participants. Anonymity was maintained at all times and the researcher used pseudonyms and assigned letters of the alphabet to each participant upon obtaining consent for participation. The measures further enhanced confidentiality and protected the participants identities, as reflected in the consent form.

In light of the above, although the study was considered low risk, discussing experiences following an mTBI had the potential to evoke emotional discomfort, which was managed through appropriate support and referral procedures. The participants were informed that, for purposes of this study, the research focused on identifying the collective experiences of participants and developing a collective psychological explanatory framework for understanding their behaviours and experiences of work adjustment following an mTBI. Any potential discomfort experienced by the participants during the interviews, was addressed

immediately by the researcher (Sweeney et al., 2018). Further psychological support was offered in the event that any participant experienced an adverse reaction**.** If a participant was identified as requiring additional intervention**,** appropriate support was offered to address any psychological discomfort, including debriefing sessions and referrals to counselling services (Sweeney et al., 2018).

1.6 FORMAT OF THE STUDY

This section of the study provides a summary of the content as well as the structural layout of this thesis. The study content of each chapter will be briefly described below.

Chapter 1 provides an introduction and background to the study as well as the motivation and the rationale for the research, the objectives and methodology, and a short overview of the research.

Chapter 2 provides a substantial review of the specific literature that contributes to the research problem and objectives. The literature review provides an overview of previous published literature and places this research in context through an analysis and discussion of existing knowledge. It establishes the context of road accidents globally, with a particular focus on South Africa, and briefly examines their impact on the economy and individuals. The literature review also examines the brain, traumatic brain injuries, and specifically mild traumatic brain injuries (mTBIs). Furthermore, the literature review explores self-efficacy, including physical, cognitive, and emotional processes. The review further focuses on the individual in the workplace and the concept of work adjustment. Work-related factors that may influence work adjustment following an mTBI, such as job satisfaction and work performance, are also discussed.

Chapter 3 addresses and conceptualises the discussion of research philosophies, paradigms, and theoretical frameworks. An overview of the most prominent research paradigms **is** provided**,** including their philosophical assumptions**,** such as ontology and epistemology. The use of the biopsychosocial (BPS) model and its applicability as the theoretical framework for this study are also discussed. The BPS model is regarded as an integrated framework for understanding health, illness, and trauma, as well as the psychological and social factors that influence human functioning, including work. For the purposes of this study, the BPS model

was adopted, and consideration was given to the relevant determinants of the trauma sustained (i.e. a mild traumatic brain injury) and its effects on the individual's self-efficacy and work adjustment. The model provides for the integration of psychological factors, such as self-efficacy, and this construct is explored in detail. The model also incorporates the individual's social context, within which work adjustment is explored and discussed. The contribution of these concepts assists in understanding self-efficacy in relation to work adjustment following an mTBI.

Chapter 4 offers a discussion of various methodologies, the value of the methodology, and data collection methods. The researcher also discusses the rationale for selecting the specific research method, the procedures followed during data collection, and the method used for data analyses in this qualitative study.

Chapter 5 includes the presentation and analysis of data collected from participants during the interviews. Through the use of phenomenography, the researcher presents categories of description related to participants' ways of experiencing self-efficacy and work adjustment, based on both the interview data and relevant historical data. The chapter further provides a comparative analysis of the categories in relation to the relevant literature.

Chapter 6 provides a summary of the research findings and conclusion, as well as recommendations and possible interventions. The chapter further considers limitations of the study, future research directions, and recommendations for future investigation, where applicable.

1.7 CONCLUSION

The aim of the study was to explore self-efficacy and work adjustment following an mTBI. The study utilised a qualitative research approach and a BPS theoretical model was adopted, together with Bandura's self-efficacy theory. In addition, theories on work and work were explored in support of the research problem. A brief review of the brain and, specifically, mTBI was undertaken. The participants selected for the study had previously been involved in a road accident and, as a consequence, had sustained an mTBI. They had previously submitted a claim to RAF in South Africa, for which they had undergone a neuropsychological assessment at a neuropsychologist's practice in Durban, KwaZulu-Natal.

It was hoped that the findings of this research would contribute to the broader literature on self-efficacy and work adjustment following an mTBI. It was further hoped that this research would highlight relevant areas and provide a better understanding of how self-efficacy can contribute towards work adjustment following an mTBI. The research sought to achieve this by systematically investigating the interplay between self-efficacy and work adjustment following an mTBI in order to provide valuable insights that may assist organisations in creating supportive environments that enhance employee self-efficacy during work adjustment following an mTBI. The knowledge gained from the study is likely to contribute to the development and improvement of interventions aimed at facilitating successful work adjustment following an mTBI.

CHAPTER 2: LITERATURE REVIEW

A literature review is essential in conceptualising the research topic, clarifying the research objectives and situating the study within the broader scholarly field. A literature review further provides a comprehensive and systematic analysis of similar and previous research relating to the researcher's topic, thereby establishing a foundation of knowledge to support, extend and/or to critically evaluate current understanding. The literature review also enables the researcher to identify and critique extant literature on a specific topic in order to justify the research. The literature review should also add to the overall knowledge of the research topic, as well as demonstrate the researcher's understanding of the broader field of study. A literature review should provide a description and critical evaluation of work related to the research topic. In this study, the literature review critically examines the role of self-efficacy as it relates to physical, cognitive, and emotional functioning in work adjustment following an mTBI.

2.1 INTRODUCTION

Mochan (2016) noted that head injuries are relatively common in South Africa, and may have significant and often life-altering consequences. According to government statistics, the most common cause of head injuries are MVA which make up about 50% of all the cases (Mochan, 2016). Other head injuries related to falls, which account for about 25% of cases, while violence accounts for some 20% of cases, with unknown causes numbering around 5%. Mochan (2016) noted that it has been estimated that 89 000 new cases of TBI are reported every year in South Africa. Paniak et al. (2001) further noted that the incidence of mTBI in the general population sees at least 130 cases per 100 000 persons. Given the above, the outcomes of a head injury vary considerably depending on severity and individual factors. However, even mild injuries may have wide-ranging effects on physical, cognitive, emotional, and occupational functioning.

Although the structural and functional anatomy of the brain is broadly relevant, it falls outside the scope of this study. The researcher, for purposes of self-development, however extensively engaged the literate regarding the structure of the brain, so as to understand the impact of a TBI and specifically relevant to an mTBI and was included for contextual understanding.

The primary focus of this study is the influence of self-efficacy on work adjustment following mTBI. This literature review provided a brief discussion of the brain and TBIs and specifically an mTBI. The impact of self-efficacy and work adjustment are discussed in detail following an mTBI. The study discusses typical brain injuries and the categories of a TBI and specifically related to an mTBI, along with the consequences thereof on the individual's belief regarding their ability to adjust to work.

Self-efficacy is addressed in detail as it relates to the various literature sources. The literature examines self-efficacy and the impact thereof on physical, cognitive and psychological symptoms that could assist across multiple functional domains of the brain. Self-efficacy is known to be positively associated with adaptive health outcomes, including engagement in self-care management, physical functioning, and psychological wellbeing (Schmitt et al., 2014; Parker et al., 2018). The literature focuses on self-efficacy as well as on the impact of self-efficacy on various cognitive, emotional and behavioural processes, and specifically following an mTBI. Numerous sources of literature indicate that any neurological injury to the brain can produce physical, emotional, psychological, cognitive, and behavioural changes that would vary depending on the nature of the brain injury, the individual and the environment, and that these areas will be addressed during the literature review.

Self-efficacy has been identified, as a mediator or key factor, in assisting the individual in adjusting to work following an mTBI. Self-efficacy was explored in context of the consequences of an mTBI. The literature review explored to self-efficacy in dealing with physical challenges as well as cognitive and emotional factors following an mTBI. The literature also explored self-efficacy in relation to work, the work environment, and in context, occupational self-efficacy was reviewed.

Furthermore, in the above context, factors that may have impacted on the individual's work adjustment were explored. A discussion on the prevalence of an mTBI and its impact on an individual's work adjustment were investigated. Given that the research setting is within a workplace, work and work psychology also receive consideration. In addition, areas of support and accommodation needed, as well as work related factors that could impact on work adjustment in relation to work performance and work success, were discussed as relevant in the context of the work adjustment.

2.2 THE BRAIN

The brain is the most complex and delicate organ of the body and functions as a control centre (Bailey, 2019). The brain's structure consists of billions of nerve cells organised into specialised functional areas. These are involved in the control of our behaviour, thoughts, beliefs and emotions, as well as organ function and movement (American Association of Neurological Surgeons (thereafter AANS, 2022). The brain influences physical, cognitive, and emotional functions, including coping with challenges and stressful events, including, having adjust to work following an mTBI (AANS, 2022).

The brain plays a critical role in reasoning and problem-solving, creative thinking, controlling motor functions, and sensory processing (Bailey, 2019). Anatomically, the brain is divided into four lobes, viz. the frontal, parietal, temporal, and occipital lobes (Kolb & Whishaw, 2015; Salazar, 2017; Bailey, 2019).

There seems to be emerging evidence suggesting that an mTBI is increasingly conceptualised as a widespread disruption of white matter connectivity and frontal lobe functioning. The frontal lobe is particularly important for executive functioning and is associated with reasoning skills, problem-solving, self-regulating behaviours, attention, memory and controlling emotions. It also serves as a mediator between cognition and emotion through executive control processes. (AANS, 2022; Bonnelle et al., 2011; Lezak et al., 2012; Sharp et al., 2014; Salazar, 2017; Kolb & Whishaw, 2015).

Shenton et al. (2012) suggested that an mTBI remains a controversial diagnosis because the brain often appears normal. However, advanced imaging techniques have demonstrated microstructural damage to white matter resulting in functional consequences of an mTBI (Shenton et al., 2012; Sharp et al., 2014). Bonnelle et al. (2011) stated that an mTBI, along with other forms of TBI, has been associated with diffuse axonal injury (DAI). The subcortical white matter connects the cortical and subcortical regions, and is particularly vulnerable due to its structural organisation (Johnson et al., 2013). DAI refers to widespread disruption of white matter, even in the absence of visible abnormalities on conventional computed tomography (CT) and MRI (Johnson et al., 2013; Sharp et al., 2014; Shenton et al., 2012). However, these conventional tools do not adequately detect an mTBI related to DAI. The abovementioned disruptions have been associated with difficulties in areas such as executive functioning,

sustained attention and information processing speed (Kolb & Whishaw, 2015; Sharp et al., 2014; Johnson et al., 2013; Shenton et al., 2012). These impairments are particularly relevant in work environments, including workload management and behavioural regulation during work adjustment following an mTBI.

The frontal lobes, including the prefrontal cortex, are highly susceptible to injury in mTBI due to their anatomical location and their involvement in acceleration-deceleration forces. These frontal regions are central to executive functioning. Executive functioning refers to cognitive processes that enable individuals to regulate behaviour, including planning, inhibition, cognitive flexibility, goal-directed behaviour, and emotional regulation (Stuss & Levine, 2002; McAllister & Flashman, 2012; Kolb & Whishaw, 2015). Executive functions are described as the set of cognitive skills necessary for controlling and self-regulating an individual's behaviour. Executive functions allow the individual to establish, maintain, supervise, correct, and carry out a plan of action.

This set of cognitive functions inform everyday functioning and supports daily activities (Lezak et al., 2012). Executive functioning is further understood to coordinate thought processes and behavioural actions in a goal directed manner (Diamond, 2013; Kolb & Whishaw, 2015; Purves et al., 2018). The above processes interact dynamically resulting in coordinated cognitive control during the execution of behaviours (Diamond, 2013). Executive functioning is particularly relevant in workplace adjustment, when individuals are required to manage and prioritise job demands and regulate emotional responses (Stuss & Levine, 2002). Impairment in executive functioning can therefore significantly impair work adjustment following an mTBI especially when the jobs requiring attention, multitasking, decision-making and problem-solving. Such impairments may result in reduced confidence and may contribute to reduced self-efficacy in ability to adjust to work following an mTBI.

Furthermore, the temporal lobes, including medial temporal structures, are similarly susceptible (Bigler, 2007). The temporal lobe, following an mTBI, has been linked to memory difficulties, emotional dysregulation resulting in reduced cognitive efficiency (Bigler, 2007; Levine et al., 2008).These temporal lobe disruptions have also been associated with increased anxiety and reduced stress tolerance, and taken together could impact on self-efficacy and workplace adjustment (McAllister & Flashman, 2012).

Higher level cognitive functions are associated with greater self-efficacy beliefs, and vice versa and a strong belief in one's abilities (self-efficacy) can be meditated by cognitive capacity (Redifer et al., 2021; Phillips & Gully, 1997).

Furthermore, intact or high levels of executive functioning may support adaptive coping, resilience, and sustained engagement in work-related activities, even in the presence of cognitive or emotional symptoms. Dare et al. (2022) suggest that higher executive functioning is associated with stronger self-efficacy beliefs and vice versa, and that effective executive functioning can in turn contribute to a stronger sense of self-efficacy, where a strong belief in one's abilities (termed self-efficacy) can facilitate better executive functioning. For purposes of this research, executive functions are understood as integral to the individual's ability to function and adapt in the workplace.

2.3 TRAUMATIC BRAIN INJURIES

A traumatic brain injury (hereafter TBI) refers to a disruption in the normal function of the brain caused by an external force, such as a bump, blow or jolt to the head from events such as a MVA or a fall, when the head suddenly and violently hits an object; or when an object pierces the skull and enters brain tissue, such during interpersonal violence. For purposes of this study, such a disruption in normal brain function is investigate following an MVA. The AANS (2022) identified the following clinical signs of alteration in the normal brain:

- loss of or decreased consciousness;
- loss of memory for events before or after the event (amnesia);
- focal neurological deficits such as muscle weakness, loss of vision, or change in speech; and
- altered mental state, such as disorientation, slow thinking, or difficulty concentrating.

Lezak et al. (2012) state that a TBI can be classified based on the severity of the injury, and includes mild, moderate, and severe cases. It is also possible to sustain a TBI without loss of consciousness, which is referred to as a mild injury; and there are numerous such cases where, following a given injury, the individual paradoxically presents with a normal brain scan. Furthermore, while certain mild injuries may result in a brief change in mental state or

consciousness, other injuries can result in extended periods of unconsciousness, with an individual entering a comatose state or depending on the extent of damage to the brain, even succumbing to death.

2.3.1 Types of Brain Injuries

The severity of TBIs may vary, and may affect people differently. For example, there is a period after the injury during which the brain spontaneously tries to repair itself (Mochan, 2016). Recovery from a brain injury depends upon the area and seriousness of the injury. Each individual therefore requires a rehabilitation approach unique to his or her own case (Mochan, 2016).

Brain injuries are further categorised according to whether the injury is an open (penetrating) or closed trauma (Mochan, 2016). A non-penetrating injury refers to a closed injury without a skull fracture, while an open head injury would present with a fractured skull, and some form of penetration. In addition, an injury can be further observed to be either localised or focal (confined to one area of the brain), or diffuse (occurs in more than one area of the brain) (Mochan, 2016). Beyond this, primary injuries occur at the time of injury, while secondary injuries occur after the initial injury, usually within a few days. Secondary injury may be caused by a lack oxygen to the brain, resulting in increased intracranial pressure (Model Systems Knowledge Translation Centre (hereafter MSKTC), 2022).

2.3.2 Categorising Brain Injuries

There are three main categories of TBI, namely: severe, moderate and a mild head injury, and the severity of the injury is assessed through the use and application of the Glasgow Coma Scale (GCS) (Blennow et al., 2016), which was first published in 1974 at the University of Glasgow by neurosurgery professors Graham Teasdale and Bryan Jennett (Shobhit & Iverson, 2022).

In South Africa in 2012, the RAF introduced the use of the American Medical Association Guide (AMA) Guide to the evaluation of permanent impairment (Cocchiarella & Andersson, 2005). The AMA guide was first published in 1958, and the first book published in 1971, in response to a public need for a standardised objective approach to the evaluation of a medical

impairment. For purposes of this study, the evaluation of medical impairment relates to the individual's mental status, cognition, and higher integrative functioning (hereafter MSCHIF) (as per chapter 13 of the AMA guide briefly reviewed above) (Cocchiarella & Andersson, 2005).

Given the above, the discussion that follows details the classification or the severity of the brain injury according to the GCS, as well as the evaluation of the impairment as a result of the brain injury based on the metal status, cognition, and health integrative functioning impairment rating as per the Guide to the Evaluation of Permanent Impairment (GEPI).

2.3.2.1 Glasgow Coma Scale (GCS)

The GCS is used to objectively describe the extent of impaired consciousness. The scale assesses the individual according to three aspects of responsiveness, namely: eye-opening response (E); motor response; (M) and verbal responses (V). The levels of response for each aspect are scored from 1 (no response) to 4 (eye-opening responses); 1 (no response) to 5 (verbal responses); and 1 (no response) to 6 motor response (Shobhit & Iverson, 2022), elaborated as follows:

(E) Eye response (4)

1. No eye-opening
2. Eye opening to pain
3. Eye-opening to sound
4. Eyes open spontaneously

(V) Verbal response (5)

1. No verbal response
2. Incomprehensible sounds
3. Inappropriate words
4. Confused
5. Orientated

(M) Motor response (6)

1. No motor response

2. Abnormal extension to pain
3. Abnormal flexion to pain
4. Withdrawal from pain
5. Localising pain
6. Obeys command

The total GCS has a value between 3 and 15, where 3 indicates the lowest level of responsiveness indicating unconscious, and 15 being the highest, with the individual being conscious, oriented and alert.

Shobhit and Iverson (2022) note that GCS modifiers are used to describe or provide details so that the score is neither misinterpreted or misleading, and these modifiers are used to provides more accuracy. For example, when an injured party needs to be intubated, such a person would not be able to verbalise. Normally a V is scored out of 5, and the score would then be zero. A GCS modifier should then be used, where the score would be indicated as Vt.

Medical practitioners and paramedics always aim to obtain an accurate GCS at the time of the injury. There are times or circumstances when the GCS is not obtainable, despite every effort, and taking cognisance of the issues discussed above (Hart et al. 2009; Shobhit & Iverson, 2022). In such a case, the total score should not be reported, and the individual scores ought to include all possible modifiers and components to elevate any confusion (Shobhit & Iverson, 2022). Shobhit and Iverson (2022) state that the reliability of the GCS has been extensively study. Although its reproducibility has been questioned, there have shown exceptions. They noted that a systematic review of all 53 published reports in 2016 concluded that 85% of the findings in qualitative studies showed substantial reliability. Hart et al. (2009) noted that the construct validity of the overall total GCS scoring accuracy was 33.1%, while the highest accuracy was observed on the verbal component of the GCS (69.2%). The eye-opening component was the second most accurate (61.2%).

2.3.3 Traumatic Brain Injury Descriptions

Hoofien et al. (2001) note that the relationship between the GCS score and classification of a traumatic brain injury in most cases are always reported as follows:

- A severe brain injury is classified with a GCS of 3 to 8
- A moderate injury is classified with a GCS 9 to 12
- A mild injury is classified with a GCS 13 to 15

Given the above classification, the paragraphs below provide a discussion relating to the severity of the brain injury, as well as an evaluation of the impairment as a result.

- **Severe Traumatic Brain Injury** (not the focus of this study) is described and relates to the post-traumatic onset of cerebral neurological dysfunction and results in neuropsychological deficits and in permanent disabling impairment of cerebral neurological function (Hoofien et al., 2001).

- **Moderate Traumatic Brain Injury** does not form part of this study. A moderate brain injury is usually diagnosed when a person suffered some injury or trauma to the head and resulted in more than 30 minutes of unconsciousness, but less than 24 hours, and characterised by post-traumatic onset of cerebral neurological dysfunction that results in impairment of neurological function (Hoofien et al., 2001). The American Association of Neurological Surgeons (2022) noted that from their research, about 60% of individuals who suffered a moderate head injury will make a positive recovery, about 25% continue to present with moderate impairments and related disabilities, 7% to 10% result in death or a persistent vegetative state, and the remainder will have a severe degree of disability. For a moderate TBI, this means that the impairment is likely to result in some changes in the individual's employment capacity, or a reduced quality of life that could result in partial loss of life roles and/or amenities (Hoofien et al., 2001).

- **Mild Traumatic Brain Injury** (mTBI) is described as an injury that may result from some external physical force to the head. The injury would be characterised by confusion or disorientation, loss of consciousness for 30 minutes or less (Carroll et al., 2004). Carroll et al. (2004) further indicated that an mTBI is also characterised by post-traumatic amnesia that lasts less than 24 hours, and must be unrelated to other cause and/or factors including drugs, alcohol, medications, or a previous injury. In other words, the individual affected by the injury has to experiences confusion and/or

disorientation for at least 30 minutes and unable to remember what happened from the time of the accident within a period of 24 hours. Scheener et al. (2017) indicated that more than 80% of all TBIs can be considered as mild, making the mTBI one of the most common neurological disorders in the world.

For more accurate assessments, neuroscience may also make use of techniques such as brain imaging (i.e. brain scans) to investigate brain injuries. The two most widely used brain imaging techniques are PET scans (Positron Emission Tomography) and MRI scans (Magnetic Resonance Imaging). Both the above techniques can provide a more accurate images of the brain structure, although an MRI is better at detecting changes over a period of time. In some cases, a brain imaging scan may be requested, such as in the event of an mTBI.

Given the above, there ae indications that the above, including brain imaging, still overlooks the variations in the severity of the injury as well as clinical needs and prognosis. A recent report by the National Academies of Sciences, Engineering, and Medicine recommended updating of the classification system. This resulted in the development of a new clinical, biomarker, imaging, and modifier (CBI-M) framework and a proposed next-generation TBI classification systems (Menon et al., 2025). The CBI-M expands the classification beyond severity and a move toward more precision in TBI classification, where the injury can be defined by biological and functional profiles rather than just the severity alone. However, the GCS will remain the central classification of the TBI but would include the following (Menon et al., 2025).

- Clinical presentation (symptoms, GCS, and a neurological examination)
- Biomarkers (blood-based or physiological markers)
- Neuroimaging findings
- Modifiers (age, prior injury, psychiatric history, etc.).

Menon et al. (2025) noted that further research is needed to validate the above classification to ensure that the CBI-M framework would be effectively integrated into the classification of the severity of the injury.

Given the above, the classification of a brain injury however falls outside the scope of this study. The participants' GCS were taken from their historic information, to illustrate the

classification of the mTBI. Interestingly, biomarkers and age modifiers were not considered while modifiers such as prior injuries and psychiatric history were considered during the sampling process as inclusion factors.

2.3.4 The Evaluation of Brain Impairment - Whole Person Impairment

In recent years, when an individual has been involved in a road accident in South Africa, the evaluation of brain impairment has been conducted through assessment of the criteria as set out in the American Medical Association (AMA) Guides, and specifically relating to the central and peripheral nervous systems (Cocchiarell & Anderson, 2005). The purpose of the AMA Guides is to evaluate impairment following an injury and specifically for the purpose of this research reference is made to the evaluation of the impairment of as a percentage of the whole person impairment (WPI) of the brain functioning (Cocchiarell & Anderson, 2005).

The reason for the inclusion of this impairment classification is based on the introduction and inclusion of the impairment rating by the RAF in South Africa. The RAF introduced the inclusion of a WPI score for the assessment of the disability for the purposes of determining the individual's percentage impairment as a result of the injury suffered in a MVA for purposes of processing their claim for compensation. The AMA Guide provides details the evaluation of impairments relating to any type of injury suffered (Cocchiarell and Anderson, 2005). The impairment rating criteria for neurological impairments include an assessment of the ability to perform activities of daily living and involve limitations related to physical performance (walking, climbing, lifting, finger dexterity) or mental performance (such as cognition) (Cocchiarell & Anderson, 2005). The assessment of cognition, including brain dysfunction, affect many overlapping functions. The evaluation includes various evaluations of brain function and cognitive areas (Cocchiarell & Anderson, 2005).

The following discussion is included as the participants' mental status, cognition, and higher integrative function score (MSHCIF) are included for the purposes of this study based on the historical data obtained (Cocchiarell & Anderson, 2005).

- **State of Consciousness and Level of Awareness** involves the assessment of the cerebral functioning and to determine the presence of the level of consciousness of awareness, and thereafter, impairments due to episode loss of consciousness or awareness. The criterion for the

impairment is based on the state of consciousness, the GCS, as well as the individual's performance on the activities of daily living (ADL), which are then calculated to determine the percentage impairment and class.

- **Mental Status, Higher Cognition and Integrative Function (MSHCIF)** include the evaluation of the general effects of brain symptoms, such as neurological deficiencies that are the result of a brain injury. Mental status tests are administered to screen the individual's executive functioning, orientation, attention, memory, immediate recall, abstract reasoning, motor speed, educational achievement, and activities of daily living. These are calculated based on various scores and then classified (i.e. Class 1–4) as a percentage of whole person impairment (WPI). For the purposes of this research, historical data relating to the MSHCIF scores will be perused and included to provide further insight into the degree of impairment relating to the participants' mTBI as determined by medical experts.
- **Use and Understanding of Language** involve the comprehension and understanding of language impairments or difficulties in terms of aphasia, a condition in which language functions are either defective or absent, and dysphasia, which is a language disorder that causes communication difficulties**.**
- **The influence of Behaviour and Mood** illustrate the relationship between neurology and psychology. Emotional disturbances may originate from verifiable neurological impairments (i.e. a head injury). Psychological features can range from irritability, aggression, and withdrawal as well as depression, emotional vulnerability, and anxiety.
- **Whole Person Impairment Rating** is the final step in determining the whole person impairment (WPI) rating and involves combining or including the most severe impairment from the four categories noted above. For purposes of this study, only those individuals who suffered an mTBI and no other injuries were selected to participate.

2.4 MILD TRAUMATIC BRAIN INJURIES

This section explores an mTBI, that may have resulted in changes or impairment of an individual's behaviour and employment capacity. The research focuses on the individuals' experiences relating to their belief in their capacity to adjust to work following an mTBI. The focus is on individuals' beliefs relating to physical, cognitive, and emotional factors and work adjustment following an mTBI. From a psychological point of view, literature suggests that an mTBI can cause impairment in individuals' physical functioning, cognitive capacity, as well as emotional functioning (Blennow et al., 2016; McInnes et al., 2019).

Most individuals with mTBI recover quickly, but there is evidence that these individuals present with persistent symptoms, and the underlying pathophysiology is largely unknown McInnes et al., 2019; Ponsford et al., 2012; Yenene et al., 2020). McInnes et al. (2019) note that, although symptom resolution is thought to occur within three months post-injury, there are individuals who experience persistent symptoms, although the number of individuals reporting symptoms appear to be low, despite clear evidence of longer-term pathophysiological changes resulting from mTBI. Ponsford et al. (2012) note that although most mTBI sufferers experience a full recovery, approximately 15-25% reported persistent somatic, cognitive, and emotional complaints that interfere with work activities. McInnes et al. (2019) further noted that, amongst the many sequelae of mTBI, physical, cognitive, and emotional impairment can be paramount in contributing to long-term dysfunction. There is also that a single concussion can disrupt neurological mechanisms, resulting in impairment across domains of functioning.

Research has revealed that an mTBI constitutes between 70% to 90% of all traumatic brain injuries (Yenene et al., 2020). Sterr et al. (2006) stated that an mTBI typically induces a range of symptoms, such as headaches, blurred vision, poor concentration, sleep disturbance, depressed mood, and/or irritability. Some symptoms appear shortly after the trauma, while other symptoms may not appear for hours, days or months after the injury (Sterr et al., 2006). It has been noted that most symptoms generally improve over time, and most people with an mTBI feel better within a couple of weeks and may recover fully (Centre for Disease Control and Prevention, 2022). However, beyond the typical recovery interval of one to three months, at least 15% of individuals with a history of mTBI continue to consult medical practitioners due to persistent problems. Sterr et al. (2006) reported that physiological symptoms such as fatigue, headaches, and sleep disturbances, as well as behavioural symptoms such as irritability and cognitive symptoms across multiple functional domains, including forgetfulness and concentration difficulties, were often reported by individuals suffering from mTBI within 10 days of the injury.

Other researchers have reported that the symptoms mentioned above persisted even several years post injury (Paniak et al., 2001; Sterr et al., 2006). The clinical validity of these sequelae is not undisputed, partly because there is no readily evident physiological damage or deficit that could be made accountable (Sterr et al., 2006). Symptoms of mTBI affect people differently including how they cope, how they feel, think and act (Centre for Disease Control and Prevention, 2022; Yenene et al., 2020). It has also been suggested that one may question

the correctness of the assumption that an mTBI is fully recoverable in all cases (Sterr et al., 2006; Yenene et al., 2020). Consequently, alternative explanations, such as involvement in litigation and pre-morbid psychological problems, have also been cited as possible factors for the continuation of the difficulties following an mTBI.

Further literature also states that symptoms after an mTBI may be difficult to identify or treat, masked by symptoms that are similar to those of other health problems. The following was noted (Centre for Disease Control and Prevention, 2022):

- Some individuals may not recognise or admit that they are having problems following an mTBI and specifically relating to those individuals with higher self-efficacy.
- A person may not understand how the symptoms they are experiencing affects their work activities following an mTBI and specifically relating to those individuals with possibly weaker self-efficacy.
- Problems may be overlooked by the person with the mTBI, family members, employers, and healthcare providers alike.

Salazar (2017), Corr (2006), Devinsky et al. (1995), Dingman (2019) as well the Centre for Disease Control and Prevention (2022) noted the following symptoms following :

- Physical symptoms may include light or noise sensitivities, dizziness or difficulties relating to their ability to balance, nausea or vomiting, and visual problems, Slurred speech. restless, drowsy, falls asleep and cannot wake up, sleeping less or more than usual and/or being unable to or having trouble sleeping, feelings of tiredness or lack of energy and headaches. In fact, some medical experts noted that even in the case of an mTBI, an individual should seek immediate medical assistance when presenting with physical symptoms.
- Cognitive symptoms may include attention or concentration problems, feelings of being slow, feeling overwhelmed, problems with short- or long-term memory, and trouble thinking clearly.
- Emotional and behavioural symptoms may include a low mood, anxiety, irritability or increased levels of aggressiveness, reduced appetite, feeling more emotional and feelings of sadness, and executive dysfunction symptoms.

The most commonly experienced symptoms among individuals who suffered mTBI were attention and memory deficits, distress, anxiety, and motivational difficulties (Silverberg &Iverson 2011; McInnes et al., 2017). These symptoms were not necessarily determined solely by injury, but could also be influenced by psychological and perceptual factors (Silverberg & Iverson 2011; Shenton et al., 2012; McInnes et al., 2017). Relevant to this study, the above perspective aligns with Albert Bandura's self-efficacy theory, suggesting that individuals' beliefs about their capabilities may be influenced by both symptom perception and functional recovery following mTBI.

Similarly, research by Paniak et al. (2001) identified the most common symptoms reported by mTBI sufferers and thereafter, following completion of a PCL (problem check list) and ranked from 1 – 10, are those summarised in the table below. Iverson (2005) noted that fatigue, was a frequent and significant symptom reported following a mTBI, alongside symptoms such as headaches, dizziness, and poor attention and memory. Corr (2006) noted that it is somewhat unfortunate that social and biological perspective are often viewed separately, and incompatible, but that more recently social research has examined the important implications for the way in which the brain and behaviour relate.

Van Pareen (2002) stated that an mTBI could lead to physical difficulties, including for example, sight, and hearing, cognitive difficulties, which involve the processing of information, including visual auditory (observations), memory, retention, and attention, as well as emotional factors including depression, fear, anxiety and anger. McInnes et al. (2017) conducted a systematic review and found that individuals with an mTBI most frequently reported symptoms such as fatigue, headaches, memory difficulties, poor concentration, irritability, and sleep disturbances. Similarly, Silverberg and Iverson (2011) identified fatigue, cognitive slowing, and emotional dysregulation as among the most persistent and functionally impairing symptoms following an mTBI.

Interestingly, irrespective of the source, fatigue was ranked first, followed by headaches, and forgetfulness covering multiple functional domains, including physical, cognitive, and emotional symptoms.

Table 1 *Symptoms following an mTBI*

Symptoms Endorsed by mTBI			**Symptoms Endorsed through PCL**		
Rank	Symptoms	%	Rank	Symptoms	%
1	Fatigue	31	1	Fatigue	91
2	Headaches	25	2	Headaches	78
3	Forgetfulness	19	3	Forgetfulness	73
4	Poor Concentration	14	4	Sleep Problems	70
5	Word-Finding Difficulties	13	5	Doing Things Slowly	69
6	Irritability	13	6	Poor Concentration	64
7	Mood Swings	12	7	Anxiety	63
8	Doing Things Slowly	9	8	Irritability	62
9	Temper Outbursts	9	9	Word Finding Difficulties	61
10	Dizziness, Noise Sensitivity, Restlessness	8	10	Balance, Distractibility, Difficulty Clear Thinking	59

Note. Adapted from Paniak et al. (2001, p. 327). *N* = 118. mTBI = mild traumatic brain injury.

While the above studies provided important foundational insight into mTBI symptoms, more recent research has consistently identified a cluster of physical, cognitive, and emotional symptoms following an mTBI and has moved beyond symptom ranking toward a multidimensional understanding of the clusters of symptoms within broader three broader domains (Ownsworth & McKenna, 2004; Van Velzen et al., 2011; Corrigan & Hammond, 2013). The first physical domain including symptoms such as fatigue, dizziness, poor sleeping patterns and headaches. The second cognitive domain include symptoms such as poor concentration, memory problems and slow processing. The third behavioural and emotional domains include symptoms such as irritability, reduced tolerance to stress, decreased efficiency, depression and anxiety. These emerging domains are consistently identified in the literature as predictors of persistent impairment and reduced occupational functioning following traumatic brain injury, particularly cognitive inefficiencies, emotional dysregulation, and reduced self-efficacy (Ownsworth & McKenna, 2004; Van Velzen et al., 2011; Corrigan & Hammond, 2013).

For purposes of this study, the researcher incorporated the BPS theoretical model (see Chapter Three), which includes the three domains such as the body, the mind and the social/work environment and the complex interrelation between these three domains (Levy-Storm et al., 2018). The research then considers self-efficacy and the collective experiences relating to the participants' belief in their cognitive, behavioural and psychological capacity to adjust to work following an mTBI. All these difficulties, following an mTBI could potentially impact self-efficacy. With reference to Bandura's self-efficacy theory (as discussed below) it is notable

that task mastery experiences, vicarious experiences, and social persuasion rely on all of the above physical difficulties, cognitive and emotional factors in order for the individual to execute behaviours needed to adjust to work (Bandura, 1997; Schmitt et al., 2014; Brands et al., 2019; Silver et al., 2011).

2.4.1 Physical Challenges

From a physiological viewpoint, high self-efficacy is positively associated with good physical health and general wellbeing, including healthy physical functioning as well as the individual's tolerance and management of their physical symptoms and health conditions generally(Schmitt et al., 2014; Blanchard et al.; 2015; Parker et al., 2018). Schmitt et al. (2014) noted that higher self-efficacy was linked to better reported physical, cognitive, and social functioning, even after accounting for disease factors and depression (Parker et al., 2018). Blanchard et al. (2015) reported that high self-efficacy, including confidence and expected benefits, was associated with greater physical activity adherence and recovery following a traumatic event. The chronic physical effects following an mTBI can impact an individual's activities of daily living and general quality of work life, and could compromise the individual's health and general wellbeing.

Furthermore, given the high incidence of mTBI, the consequences can have a drastic impact on the individual's socio-economic functioning. As noted earlier, the assessment of the participants' MSHCIF scores was included and provided some insight into their ability to cope with activities of daily living. Cocchiarell and Anderson (2005) note that the purpose of the AMA guide is to evaluate impairment following an injury, specifically, for the purpose of this research, reference is made to the evaluation of the WPI. The AMA guide provides details for evaluation of impairments relating to any type of injury suffered (Cocchiarell & Anderson, 2005). The impairment rating criteria for neurological impairments include an assessment of the ability to perform activities of daily living and involve limitations such as physical performance (walking, climbing, lifting, finger dexterity) and/or mental performance. Slabbert and Edeling (2012) state that classes and percentages of WPI are defined as follows:

- Class 0: Normal (0 percent): defined as "normal".
- Class 1: Mild abnormalities (1 percent to 10 percent): defined as "alteration in MSCHIF

but the individual is able to assume all usual roles and perform ADLs;

- Class 2: Moderate abnormalities (11 percent to 20 percent): defined as "alteration in MSCHIF that interferes with ability to assume some normal roles or to perform ADLs";
- Class 3: Severe abnormalities (21 percent to 35 percent): defined as "alteration in MSCHIF that significantly interferes with ability to assume normal roles or to perform ADLs"; and
- Class 4: Most profound abnormalities (36 percent to 50 percent): Defined as "alteration in MSCHIF that prohibits performance of normal roles or performance of ADLs".

2.4.2 Cognitive Challenges

Cognitive challenges refer to an individual's ability to assess a situation, including difficulties that arise as a consequence of an mTBI. Cognition refers to the processes by which a person uses input from the environment to transform, reduce, elaborate, and learn (Killen & Glenberg, 2010; Brands et al., 2019). Cognitive abilities refer to the mental capacities involved in knowledge acquisition, reasoning, memory, attention, and problem-solving. These are often seen as relatively stable traits that influence how individuals process information and perform tasks.

In contrast, for the purposes of this study, self-efficacy as proposed by Bandura (1977) state that cognitive processes are understood as the individual's dynamic belief in their ability to succeed in specific situations or to accomplish a task. It is not a measure of actual skill, but rather the confidence to use one's skills effectively under challenging conditions (Brands et al., 2019). A counter-position is that self-efficacy is merely a reflection of an individual's past experiences and ability to deal with obstacles in achieving performance (Talman et al., 2018; Pajares & Kranzler, 1995). Self-efficacy has also been viewed as the individual's belief in surpassing previous performance, with the power to predict future performance. Self-efficacy research further describes it as a future-oriented, predictive construct, where measures involve statements of confidence regarding the ability to achieve a future performance goal (Bong & Skaalvik, 2002). High self-efficacy significantly predicted cognitive functioning in individuals and highlighted the importance of confidence in managing a traumatic event (Schmitt et al., 2014; Soeker, 2017).

The researcher understands cognitive ability to refer to the individual's capacity, while self-efficacy refers to the individual's belief in their own cognitive capacity. When individuals use cognitive processes such as memory, they draw on previous experience to cope with new challenges and align these with task performance or behaviour. It is noted that cognitive impairments (such as those following an mTBI) can lower self-efficacy if the person doubts their abilities, even if temporarily. Self-efficacy may mediate the impact of cognitive limitations following mTBI through adaptive strategies, resilience, and goal setting.

Corr (2006) further noted that specific cognitive impairments are linked to specific functions, such as reduced concentration and problem-solving abilities. Following an mTBI, an individual may present with feelings of being overwhelmed, which may further impact cognitive abilities. Cognitive abilities are referred to as the means by which an individual believes in his/her ability to achieve a goal; for purposes of this study, this refers to participants' belief in their cognitive capacity to adjust to work. Rock et al. (2014) note that reduced cognitive abilities, whether perceived or actually caused by an mTBI, can significantly impact an individual's mental status and may further cause a depressed mood and increased levels of anxiety.

As part of the study, the participants' historical results from the Raven's Standard Progressive Matrices (SPM) are incorporated in the research. The SPM is a non-verbal test that provides information about an individual's capacity for analysing and solving problems, abstract reasoning, and the ability to learn, using spatial and logical skills, as well as observation and perception skills (Raven, 2000). The SPM has good internal consistency, with an alpha coefficient of 0.92; split-half coefficient of 0.81; and test-retest coefficient of 0.69, indicating acceptable reliability. The SPM is considered a valid psychometric measure (Al-Bokai & Al-Subaihi, 2021). The test consists of 60 items, with raw scores ranging from 0 to 60 (N-score). The N-score is converted to a stanine and percentile ranking using appropriate norms (Al-Bokai & Al-Subaihi, 2021). A stanine score ranges from 1 to 9, with a mean of 5. A score of 1–3 is below average; 4 is just below average; 5 is average; 6 is just above average; and 7–9 is above average. The percentile rank indicates the percentage of the norm group who scored lower than the individual.

For purposes of this research, test scores post-mTBI are considered in relation to participants' descriptions of their functioning prior to the mTBI, as well as historical data on qualification levels and pre-morbid work capacity.

2.4.3 Emotional Challenges

An emotional challenge constitutes any human action that can be directly observed, or any feelings or mental processes that form part of an individual's psychological make-up, even if this cannot be directly observed (Tamayo, 2011). Emotional challenges refer to the experience of emotions, such as, for example, sadness, a depressed mood and anxiety. Emotional difficulties or challenges influence how the individuals respond to internal and external events, and are shaped by both biological and social factors (Silver et al., 2011; Scherer, 2005; Gross, 2015). Emotional challenges, following an mTBI, can significantly affect an individual. It is noted that when the individual presents with emotional challenges, even when not expected from an mTBI, their emotional vulnerabilities are often not acknowledged, even though the impact thereof significantly affected the individual's ability to reintegrate into their daily living, including their work environment (Silver et al., 2011; Prince and Bruhns, 2017; Ownsworth & Haslan, 2016).

Emotional challenges or difficulties have been described as having more to do with specific actions that an individual might take, whether it is observable or not. Emotional challenges are then described as the way in which an individual responds following a specific situation including following an mTBI (Silver et al., 1995 and Silver et al., 2011). Two individuals in the exact same situation could experience the same emotions, but may react in different ways. It would then be fair to assume that individuals with a high self-efficacy compared to those with a low self-efficacy in a similar situation may exhibit different emotional reactions to the issues suffered following an mTBI. Selzler et al. (2016) stated that high self-efficacy can lead to better rehabilitation outcomes and would then play an important role in behaviour change and emotional stability.

Tamayo (2011) further states that these emotional difficulties do not necessarily relate to one specific aspect, but could instead be related to attaining changes in the individual's emotion and/or thoughts. Self-efficacy refers to the individual's belief to influences emotional control in the face of challenges. Such emotional difficulties can also be regulated by higher self-efficacy through the reinforcement so as to achieve certain tasks and promote psychological wellbeing (Corr, 2006; Tamayo, 2011; Silver et al., 2011; Brands et al., 2019). Strong emotional regulation (e.g., managing anxiety or frustration) can enhance self-efficacy by

enabling individuals to stay focused and confident. Low self-efficacy can intensify negative emotional responses (e.g., fear of failure, hopelessness), which may lead to avoidance or disengagement (Tamayo, 2011; Silver et al., 2011; Brands et al., 2019).

Any changes in the individual's conditions can cause changes in their emotions. In addition, any change in the biological component of the brain, including an mTBI, is also considered an efficient cause for changes in an individual emotional status. Moreover, environmental conditions including work demands could trigger changes (i.e. nature) that requires a cause (i.e. an adaptive function), with an abstract description of the changes in the state of the individual (Tamayo, 2011; Brands et al., 2019).

This study investigates the impact of an mTBI on the self-efficacy and the individual's belief in their emotional capacity to adjust to work. Bandura (1997) describes self-efficacy as being shaped by an individual's belief in their capacity to exercise control over challenging demands, including emotional challenges. These causes, especially following an mTBI, could lead to various emotional difficulties, such as for example depression, increased anxiety, fear, and overall emotional vulnerabilities. It is often difficult to know whether these changes are directly result from an mTBI insult, or indirectly result from the experiences of trauma, fear, anxiety and frustration, and an altered way of life (Losoi et al., 2015; Corr, 2006).

Self-efficacy can shape how an individual acts in response to their emotional vulnerabilities, such as for example depression anxiety, low mood, irritability, and frustration and specifically following a TBI including an mTBI (Bandura, 1997; Brands et al. 2019). Schmitt et al. (2014) noted that higher self-efficacy was linked to better reported social functioning, even after accounting for depression. These emotional vulnerabilities can negatively impact participant beliefs, resulting in absenteeism and/or avoidance behaviours, as well as poor performance and inability to adjust to work following an mTBI (Beauchamp et al., 2015; Losoi et al., 2015; Brands et al. 2019).

For purposes of this study, the researcher included the historic post-accident data relating to the participants' depression and anxiety assessments as conducted at the time of their neuropsychological assessments. The participants' historical data from the Beck Depression Inventory (BDI-II English version) and Beck Anxiety Inventory (BIA), as conducted at the

time of their neuropsychological assessments, are incorporated in the research together with a discussion on depression and anxiety.

2.4.3.1 Depression

Depression often seems to develop as individuals navigate their physical symptoms, cognitive challenges, and behavioural difficulties following an mTBI. Depression can lead to heightened emotional vulnerability, in conjunction with consequences such as fatigue, pain, and cognitive challenges following an mTBI and these challenges may lead to reduced self-confidence and perceived competence (Arciniegas & Wortzel, 2014). Interestingly, Irons (2014) notes that, without any physiological changes in the brain and body, people would not experience a feeling of being depressed. The nature-nurture debate and counter arguments draw into question whether or not depression is caused by biological factors, or whether depression is experienced as a result of environmental stress factors (Arciniegas & Wortzel, 2014; Soeker, 2017; Brands et al., 2019).

Biological factors are related to depression through complex biopsychosocial interactions resulting in a mood disorder when the individual's specific biological, psychological, and social characteristics interact, causing emotional vulnerabilities (Arciniegas & Wortzel, 2014; Soeker, 2017; Brands et al., 2019). Furthermore, depression is a major psychological disorder, and consists of a cluster of symptoms relating to emotional, physical and cognitive difficulty (Irons, 2014). The most important abnormality can be described as a low mood. Depression can have an impact on all spheres of an individual's life, including reduced self-confidence, inability to stay focused, poor concentration levels, ability to stay motivated, as well as causing physical difficulties, such as headaches, and poor sleeping patterns (Silverberg &Iverson, 2011; Brands et al., 2019). Furthermore, there seems to be a correlation between a mood disorder (including depression and anxiety) and an individual's belief in cognitive performance in the sense that emotional difficulties can worsen cognitive performance (Beaudreau & O'Hara, 2008).

According to the American Psychiatric Association (2022) and Irons (2014) the criteria and classification of depression can be described by the presence of five or more symptoms as listed below, with at least one of these, being either a depressed mood or loss of pleasure. In addition, these symptoms need to have been present in the two weeks leading up to diagnosis, and

represent a change in previous functioning.

The following symptoms are detailed:

1. Depressed mood, reported by the individual or others, that is present most of the day and nearly every day;
2. Clear loss of interest or pleasure in most, if not all, activities;
3. Decreased or increased appetite or significant weight loss or gain;
4. Insomnia or hypersomnia most days;
5. Psychomotor agitation or retardation;
6. Loss of energy or feeling fatigued nearly every day;
7. Feeling worthless or inappropriately guilty most days;
8. Decreased ability to concentrate or think, or difficulties in making decisions; and
9. Repeated thoughts of death, suicidal ideation, suicidal attempts, or making of specific plans to commit suicide.

Following an mTBI, an individual could experience changes in the brain, and it cannot be excluded that they may present with some psychological difficulties (Kahn; 2008; Brands et al., 2019). Depressive symptoms in the workplace are normally difficult to identify, frequently resulting in decreased productivity, error-proneness, and absenteeism. Kahn (2008) noted a range of behavioural indicators of depression in the workplace, including social withdrawal, increased absenteeism, irritability, reduced productivity, and poor self-care. Kahn (2008) describe a range of behaviours that may indicate symptoms of depression in the workplace, including the following:

- social withdrawal from meetings and lunch time staff rooms and meals;
- physical complaints or increased use of sick leave and/or medical facilities;
- sadness;
- fatigue that seems like “laziness”;
- increased levels of irritability;
- increase in interpersonal conflict;
- absenteeism;
- reduced productivity as a result of a lack of motivation to complete tasks;

- increased rate of errors and greater tendency for accidents;
- increased passivity;
- increased concern/complaints from colleague and/or co-workers;
- weight change or poor hygiene or self-care; and
- increased use of alcohol and drugs.

Many behaviours identified as indicators of workplace depression (e.g., withdrawal, irritability, reduced productivity, absenteeism, and fatigue) are commonly observed in individuals following an mTBI (Kahn, 2008, Brands et al., 2019). However, in the context of mTBI, these behaviours are not necessarily always reflective of mood disorder such as depression but, may instead be as a result of a combination of cognitive fatigue and reduced executive functioning (Kahn, 2008; Brands et al., 2019).

As earlier noted, as part of the study, the participants' historical results from the Beck Depression Inventory (BDI-II English version) were incorporated in the research. The BDI has good reliability and validity, and the test-retest reliability of the BDI ranged from 0.72 to 0.92, which means that the scores prove themselves to be consistent over time. The internal consistency of the BDI-II was 0.99, which means that the items on the questionnaire relate to each other and measure the same construct, making BDI a good instrument for the screening of depression (Lasa et al., 2000).

This self-report questionnaire has a total score that ranges from 0 to 63, and a participant's score was previously obtained as part of the historical data during the assessment of that participant's depressive symptoms post-injury together with their assessment data. At the time of this research, the depression score for purposes of this study was used together with some selected items of the questionnaire. Losoi et al. (2015) noted that the some of the 21 symptoms from the BDI-II were believed to have an overlap with the symptoms of an mTBI, and were most representative of depression. The researcher used the some of the selected items to correlate with the data. These symptoms were: sadness, loss of interest, loss of pleasure, pessimism, past failure, guilt feelings, punishment feelings, self-criticality and crying.

Depression is classified in terms of the following four to six levels based on the score obtained in the inventor as noted below (Lasa et al., 2000):

- Ups and downs that are considered normal (score of 1–10).
- Mild mood disturbance (score of 11–16), which involves a reduction in mood that is likely to cause relatively minor difficulties or impairments in daily functioning.
- Borderline depression (score of 17–20) to moderate depression (score of 21–30), which includes a greater number of symptoms than mild depression, with an associated greater impact on functioning.
- Severe depression (score of 31–40) to extremely depressed (score above 40), without psychotic features, where there is significant impairment requiring professional support and/or immediate intervention

Bandura's self-efficacy theory suggests that task mastery, even in terms of the achievement of a small task, can counteract a depressive mood, while self-advocacy can result in increased capacity to seek validation and resources to adjust to work (Bandura, 1997). This interaction of emotional vulnerability, resilience, and self-advocacy, aligns with the BPS model, which emphasises the interplay between biological, psychological, and work adjustment following an mTBI (Arciniegas & Wortzel, 2014, Bombardier, et al., 2010). Although there are various other conditions that could lead to the diagnosis of depression, for purposes of this research, the specific focus would be on depression as a result of having suffered an mTBI, the impairment of functioning associated with the consequences, and distress as a result during work adjustment.

2.4.3.2 Anxiety

Anxiety has been described as a frequent psychological consequence following an mTBI, and can be driven by both neurophysiological disruption and psychosocial stressors (Silverberg & Iverson, 2011; Osborn et al., 2016). Corr (2006) states that depression and anxiety share many common features, and are often co-morbid, especially when viewed and assessed from a biological point of view. In addition, these two psychological conditions respond to similar pharmacological treatments. Anxiety is a common consequence following traumatic brain injury, with significantly higher prevalence compared to non-injured populations (Osborn et al., 2016). Furthermore, anxiety has been shown to negatively influence work adjustment following injury thereby impacting vocational functioning and workplace adjustment (Brands

et al., 2019; Watkin et al., 2019; Kapur, 2020). Anxiety can have a negative impact on the health and well-being of individuals (Brands et al., 2019; Watkin et al., 2019; Kapur 2020). Watkins et al. (2019) also noted that individuals with higher anxiety levels were less likely to achieve full return to work 12 months post-injury.

From a biopsychosocial perspective, it would appear that anxiety emerges from the interaction of biological injury i.e., mTBI, and that this would impact on the individual's psychological responses to coping, and specifically coping with the challenges to adjust to work. Individuals who have sustained a TBI, including an mTBI, have demonstrated elevated level of anxiety symptoms compared to non-injured populations (Dehbozorgi et al., 2024). Bandura (1997) states that diminished beliefs in an individual's capacity to meet performance demands could lead to increased anxiety, while, if in place, task mastery and supportive feedback can help to mitigate the consequences of anxiety. Anxiety symptoms may contribute to reduced work adjustment and reduced levels of occupational functioning in complex or demanding occupational environments (Watkin et al., 2019).

According to the American Psychiatric Association (2022), anxiety is characterised by persistent worry, physiological arousal, and behavioural avoidance. The typical symptoms can include the following:

- Edginess or restlessness;
- Difficulty sleeping (due to trouble falling asleep or staying asleep, restlessness at night, or unsatisfying sleep)
- Sleep disturbance and difficultly falling or staying asleep
- Tiring easily, more fatigued than usual;
- Difficulty concentration or feeling as though the mind goes blank;
- Irritability (which may or may not be observable to others);
- Feeling overwhelmed or on the edge
- Increased muscle aches or soreness;
- Reduced performance or withdrawal from work tasks.

As part of the study the participants' historical results from the Beck Anxiety Inventory (BAI) are incorporated in the research. The BAI has good reliability and validity, and the test-retest

reliability of the BAI ranged from 0.75 to 0.81, which means that the scores are consistent over time. The internal consistency of the BAI was 0.92, which means that the items on the questionnaire relate to each other and measure the same construct. BAI was found to be a good instrument for the screening of general anxiety (Beck et al., 1988).

When measured on the BAI, anxiety is classified in terms of the following four to six levels based on the score obtained in the inventor as noted below (Beck et al., 1988):

- Low anxiety (score of between 1 - 21);
- Moderate anxiety (score of between 22 - 35) and includes a greater number of symptoms than in low anxiety, with an associated greater impact on impairment of functioning; and
- Severe anxiety (score of 36 and above) there is potentially concern regarding the individual's general functioning.

In addition, there are indications that anxiety can further impact upon an individual's cognitive functioning and lead to cognitive dysfunction including, reduced attention and lack of concentration, such as memory, reduced attention and slower processing speed, that could undermine the individual's confidence in daily functioning (Ponsford et al., 2014; Rock et al., 2014). Corr (2006) noted that cognitive problems account for more for depression and anxiety, and have tended to replace or supplement the more traditional view that behavioural issues cause the symptoms. Anxiety is further regarded as one of the most common mental health problems in both men and woman (Rector et al., 2008).

Corr (2006) further stated that individuals with depressive problems presented with more explicit memory problems (i.e., long-term memory and were concerned with recollection of facts and event), as well as positively valanced material (combining facts). Individuals were also found to have difficulty retrieving happy memories, and sometimes show a bias in favour of retrieving negative self-referential material. Corr (2006) noted that few studies showed a bias within implicit memory (i.e. unconscious or automatic memory). Interestingly, relating to anxiety symptoms, this did not show explicit memory bias, but instead, there is evidence for an implicit memory bias. Although there are various other conditions that could lead to the diagnosis of anxiety, for purposes of this research, the specific focus is having suffered an

mTBI and impairment of functioning that is associated with the consequences and distress resulting from and/or during work adjustment.

Corr (2006) noted that certain behaviours could also be classified in terms of cognitive functions, such as reduced learning capacity, while other would be classified as modification of behaviour, such as retention of acquired information thinking that would entail the organisation and processing of information and expressive functions, that would entail the communication of elements such as planning and decision-making. Corr (2006) described the above in context of executive functioning and becomes pivotal in the assessment of the individual's belief in their capacity to adjust to work following an mTBI. Self-efficacy is referred to as a mediator, and relates to the role the individual plays in problem-solving, and the impact on their perceived ability to function (Parker et al., 2018; Haggbloom et al., 2002). Corr (2006) states that executive functions are required in order to integrate the behaviour effectively through the physically, cognitively, and emotional processes so as to enable the individual to successfully engage in purposive behaviour in their work environment, and to adjust to work following an mTBI.

Impairments in executive function tends to have a negative impact on all domains of human functioning (Parker et al., 2018; Haggbloom et al., 2002). For example, poor self-control and independence are typical features of executive dysfunctions, where individuals suffering with executive dysfunction would have great difficulty with modifying their behaviour, as well as changes (Corr, 2006). High self-efficacy may have an impact on the way the individual then copes and behaves within the social and work environment (Moore; 2016). Understanding and explaining why people behave or react in a certain way has been studied for years, and a nuanced understanding of self-efficacy grew out of the research of Bandura. Haggbloom et al. (2002) and Moore (2016) note that Bandura is regarded as one of the most highly cited academics on the topic in the world.

2.5 SELF-EFFICACY

Self-efficacy serves as the central explanatory construct within this study and refers to the level of a person's belief in his or her ability to successfully perform a given behaviour (Bandura, 1977). Albert Bandura has been described as a guru of self-efficacy, and he has been one of

the most influential social cognitive psychologists of our time. Bandura achieved his master's degree in 1951, and his PhD in clinical psychology in 1952. In 2014, Bandura was awarded the National Medal of Science by President Obama (National Sate Foundation, 2014) and until his death on the 26th July 2021, while still a Professor Emeritus at Stanford University. Bandura's self-efficacy theory considers the unique way in which individuals acquire and maintain behaviour, while also considering the social and/or work environment in which individuals perform their behaviour in his or her capacity to execute the behaviours necessary to produce specific performance attainments (Bandura, 1977).

Self-efficacy theory, as proposed by Bandura (1977, 1986), has been widely accepted and applied across various disciplines, including education, health, rehabilitation, and industrial or organisational psychology. The relevance thereof for purposes of this study relate to the health and rehabilitation, as well as within the context of organisational psychology within the use of BPS framework as a guiding theoretical model. As defined by Bandura (1977), self-efficacy refers to an individual's belief in their ability to succeed in specific situations, or to accomplish a given task. In a work context, self-efficacy might influence the way in which an individual approaches challenges, such as adjusting to work, and persevering in the face of difficulties i.e. consequences of an mTBI. Bandura's self-efficacy theory considers a person's past experiences, which factor into whether behavioural action will occur. These experiences influence reinforcements and expectations, which shape whether a person will engage in specific behaviour, and the reasons why a person engages in that behaviour (LaMorte, 2022) and is normally the objective of study the field of psychology. In light of the above, various theoretical perspectives offered views in support of or against the theory's conceptual foundations and its applicability in research. For purposes of this study, the researcher briefly discussed some of the theories forwarded both in support of and against Bandura's self-efficacy theory.

2.5.1 Cognitive Behavioural Theory and Self-Efficacy

Cognitive behavioural theorists embrace self-efficacy as a mechanism of behaviour change. Dr. A Beck, an American psychiatrist, developed CBT in the 1960s (Gallagher et al., 2013). Beck noticed that individuals often had internal dialogues filled with negative thoughts that he theorised led to their emotional vulnerabilities. He formulated the principles of cognitive

therapy, which later evolved into cognitive behavioural therapy (Beck, 1976). Self-efficacy beliefs help individuals develop adaptive coping strategies, regulate emotional responses, and reframe maladaptive thinking.

While Bandura focuses on the formation of self-efficacy, CBT focuses on how these beliefs are used to address cognitively during therapeutic interventions. (Gallagher et al., 2013). CBT thus includes gradual challenges to beliefs that a person is unable to reach a goal, and it further assist in goal setting and action plans to assist individuals to deal and cope with challenges. The end result of CBT is to assist in the management of depression, anxiety and/or stress, which could have a positive impact on self-efficacy i.e. assisting the individuals in recognising, challenging, and changing their thoughts that undermine their belief in their own abilities (Gallagher et al., 2013). As an individual succeed in overcoming challenges, the individual could experience task mastery and emotional regulation, that is, the core sources of self-efficacy**.** Bandura (1977, 1986) state that self-efficacy becomes a crucial factor in the cognitive, motivation and health aspect formation process. Such individuals with high self-efficacy would then exhibit traits and abilities that will assist in successful and consistent planning to coping with challenges including the consequence of an mTBI. CBT can then as a consequence assist during recovering from mTBI and adjust to work, and could results in enhanced self-efficacy.

2.5.2 Sociocultural Theory and Self-Efficacy

Vygotsky's sociocultural theory views learning as a socially mediated process shaped by the individual's culture and interactions, and seems to place importance on the more knowledgeable others**,** such as, for example, a teacher (Vygotsky, 1978). In contract, self-efficacy focus on task mastery through observation, social influence and reinforcement of the individual's belief in their ability to cope and achieve a given goal (Bandura, 1997). Sociocultural theory also addresses external social structures and the influence of systemic, cultural and contextual factors into analysis, such as aspects of poverty, discrimination and/or social identity.

In contrast, Bandura's self-efficacy examines the individual's internal belief system, and overlooks the above external factors. Both Vygotsky's sociocultural theory and Bandura's theory of self-efficacy focus on learning, and are in this regard concerned with the influence of environmental and social factors (Vygotsky, 1978 and Bandura, 1997).

For the purposes of this, the research focus and investigate the participants' beliefs regarding their physical, cognitive and emotional ability to cope with the challenges in adjusting to work rather than focussing on learning.

2.5.3 Humanistic Theory and Self-Efficacy

Carl Rogers' humanistic theory emphasises self-concept, as well as emotional and personal growth, and the drive is toward self-actualisation (Rogers, 1961 and Cain 2010). Focus is placed on the individual's subjective experience, personal meaning and emotional understanding (Cain 2010). The humanistic approach is rooted in the emotional and existential growth of the person. In contrast, self-efficacy focuses on cognitive and emotional belief systems through social experiences to perform and achieve an outcome or goal (Bandura, 1997 and Maddux, 2013). The aim of this research is to explore self-efficacy and work adjustment to gain insight into the participants' beliefs in their physical, cognitive and emotional ability to adjust to work following an mTBI rather than emotional and existential growth of the person. However, personal growth may form part of the study, as self-efficacy can be described as an individual's belief in his/her capabilities to execute actions or behaviours that are required to manage prospective situations to improve personal growth (Bandura 1997). Self-efficacy beliefs reflect only what people can do routinely, and suggest that a person would rarely fail however, they would not set aspirations beyond their reach nor contribute more effort to improve their ordinary performance. Self-belief does not necessarily ensure success, but it has been noted that disbelief could lead to feeling of failure (Bandura 1997; Vancouver and Kendall, 2006).

The above multidomain measures reveal the degree and pattern of an individual's sense of self-efficacy, highlighting that there is no all-purpose measure of self-efficacy applicable in every context (Bandura, 1997; Vancouver & Kendall, 2006). Attention to emotional well-being constitutes a critical component of self-efficacy development. For example, individuals experiencing depression or anxiety may find it more difficult to maintain a healthy lifestyle, which may in turn negatively affect self-efficacy beliefs (Möller et al., 2021). Bandura (1982) argued that it is not impossible to develop self-efficacy while experiencing emotional difficulties. He further proposed that improvements in overall well-being may contribute to

strengthened self-efficacy beliefs, thereby facilitating task performance and increasing the likelihood of successful goal attainment.

Bandura (1977) felt that self-efficacy is not the intensity of emotional and physical discomfort, but rather, the perceived belief as interpreted by the individual, that would ultimately have a greater impact. People who have a high sense of self-efficacy will be more likely to view their abilities as an energising factor in facilitating their performance, whereas those with a low sense of self efficacy will feel less energised and debellated. Self-efficacy reflects an individual's ability to exert control over their behaviour within the social sphere, and more specifically for purposes of this study, in the work environments. According to Bandura (1977), self-efficacy is defined as an individual's belief about his/her capacity to produce an acceptable level of performance that will influence the individual to achieve a goal or settle a challenging life.

Self-efficacy, in particular, the individual's belief system, is not a global trait, but a differentiated set of self-beliefs linked to a multidomain of functioning. Occupational self-efficacy is a specific form of self-efficacy in the work context and was first introduced by Betz and Hackett in 2006 (Hackett and Betz, 1981). Occupational self-efficacy involves the individual's beliefs in their abilities to perform their work tasks, and it seems to correlate with their beliefs about their abilities and/or competencies to execute those behaviours required to achieve a specific goal (Hackett and Betz, 2006). Bandura (1997) states that occupational self-efficacy highly correlates with the participants beliefs about their competencies to organise and execute behaviours required to produce given achievements, and for purposes of this study, to adjust to work. The researcher explored occupational self-efficacy as it refers to the individuals' belief that they are competent to fulfil work tasks (Felfe and Schyns, 2006).

According to the National Research Centre on the Gifted and Talented (2013), self-efficacy is critically important when it comes to protecting against psychological stress. Self-efficacy has been described as the key protective factor against psychological stress (Panc et al., 2012). Panc et al. (2012) noticed that self-efficacy is like a mechanism that play an important role in a person's life, but only up until a certain point. If the belief is not really clearly defined or systematically observed, by the individual then it may not have a profound and/or any impact on the individual or influence the events.

Thus, learning how to observe and manage physical discomfort and/or psychological difficulties can enhance an individual's mood when experiencing a challenging situation and such observation could lead to an improved sense of self-efficacy (Lopez-Garrido, 2023).

2.5.4 Distinguishing Self-Efficacy

Self-efficacy is similar to and sometimes confused with psychological concepts such as a sense of self confidence, resilience, and motivational levels and personal growth (Pajares, 1996; Schunk & Zimmerman, 2007; Usher & Pajares, 2008; Benight & Bandura, 2004). Although these constructs are sometimes used interchangeably in everyday language, they differ in meaning and application (Sherer et al., 1982; Schunk & Zimmerman, 2007). The focus of this study is on self-efficacy as conceptually distinct from related psychological constructs, and it is defined here as an operational construct within the work domain, namely occupational self-efficacy (Bandura, 1997; Pajares, 1996; Schunk & Zimmerman, 2007).

However, related constructs such as self-confidence, motivation, resilience, and personal growth are included because they are conceptually interconnected with self-efficacy and may emerge through the operation of Bandura's four principal sources of self-efficacy, namely mastery experiences, vicarious experiences, verbal persuasion, and physiological and emotional states (Bandura, 1997; Pajares, 1996; Schunk & Zimmerman, 2007). Within this framework, these constructs are not treated as independent variables but rather as interrelated psychological expressions that both influence and reflect individuals' self-efficacy beliefs during work adjustment following mTBI.

2.5.4.1 Self-Efficacy and Self Confidence

Self-efficacy is positively associated with an individual's level of self-confidence (Pajares, 1996; Stajkovic et al., 1998; Brands et al., 2014). However, although the constructs are related, they are conceptually distinct. Bandura (1997) describes self-confidence as the strength of an individual's belief, whereas self-efficacy refers specifically to beliefs regarding one's capability to organise and execute the actions required to achieve a particular outcome. Self-confidence therefore reflects the strength of belief, but not necessarily the specific domain or capability to which the belief relates (Brands et al., 2014; Klassen & Klassen, 2018).

In contrast, self-efficacy is task- and context-specific and relates directly to perceptions of functional capability (Bandura, 1997). Individuals who believe they can successfully perform occupational tasks are more likely to persist, adapt, and engage effectively in work-related activities. As individuals begin to reintegrate into work and experience successful task performance with appropriate support and adaptation, mastery experiences strengthen self-efficacy beliefs. Over time, these successful experiences may generalise into broader feelings of self-confidence, thereby enhancing persistence, engagement, and perceived work readiness.

In line with Bandura's (1997) social cognitive theory, this process may be understood as reciprocal and cyclical in nature. Successful work experiences strengthen self-efficacy beliefs, which subsequently enhance confidence in future performance. Increased confidence may further promote engagement and persistence, thereby increasing the likelihood of additional successful experiences (Pajares, 1996; Bandura, 1997; Cicerone et al., 2011; Stajkovic et al., 1998; Klassen & Klassen, 2018). Within the context of mTBI, this reciprocal interaction may play an important role in facilitating adaptive work adjustment following injury.

2.5.4.2 Self-Efficacy and Motivation

Self-efficacy and motivation are closely interconnected but remain conceptually distinct constructs (Pajares, 1996; Schunk & Zimmerman, 2007; Stajkovic et al., 1998). Self-efficacy beliefs provide an important cognitive foundation for motivation, well-being, and achievement, as they are rooted in the belief that individuals can exert influence over their functioning and environment (Mayer, 2010; Brands et al., 2014; Klassen & Klassen, 2018).

Mayer (2010) noted that motivation refers to an individual's desire or willingness to achieve a goal, whereas self-efficacy refers to the individual's belief in their capability to achieve that goal. Individuals with higher self-efficacy are generally more likely to demonstrate greater motivation, persistence, and effort, whereas individuals with lower self-efficacy may experience difficulty initiating or sustaining goal-directed behaviour.

Within Bandura's (1997) social cognitive theory, motivation is influenced by efficacy expectations and mastery experiences. When individuals experience success, even incrementally, self-efficacy beliefs are strengthened, which in turn increases motivation and promotes adaptive behaviours (Mayer, 2010; Brands et al., 2014). This process further

enhances the individual's willingness to continue learning, persist in challenging situations, and pursue occupational goals.

The relationship between self-efficacy and motivation is therefore dynamic and reciprocal. Higher motivation increases engagement and persistence, thereby improving the likelihood of successful task performance. Successful performance experiences subsequently reinforce self-efficacy beliefs through mastery experiences (Schunk, 2011; Brands et al., 2014). Within the context of mTBI, self-efficacy may therefore mediate the relationship between functional limitations and occupational adjustment by influencing whether individuals remain motivated to re-engage with work demands despite cognitive, physical, or emotional difficulties.

Motivation, within this framework, is not merely a driver of behaviour but also an outcome of perceived capability and successful workplace experiences. This highlights the reinforcing and interactive nature of self-efficacy and work adjustment following mTBI (Pajares, 1996; Schunk, 1991; Mayer, 2010).

In addition interventions aimed at enhancing mastery experiences, workplace support, and graded task engagement may strengthen self-efficacy and motivation during work adjustment following mTBI.

2.5.4.3 Self-Efficacy and Resilience

Resilience, in relation to self-efficacy, refers to an individual's capacity to adapt positively and recover from adversity through the belief in their ability to manage challenges and exert control over their functioning (Benight & Bandura, 2004; Reid et al., 2018; Silverberg et al., 2015). Within Bandura's (1997) social cognitive theory, resilience is not viewed solely as an outcome of coping processes but as strongly influenced by self-efficacy beliefs, which shape how individuals think, feel, and behave when confronted with difficulties.

Successful coping experiences generally strengthen self-efficacy beliefs. Individuals with higher self-efficacy are not only more likely to persist in the face of challenges but are also more likely to recover following setbacks and adapt to changing circumstances (McGrath, 2004; Reid et al., 2018). This adaptive capacity lies at the core of resilience. Losoi et al. (2015) observed that resilient individuals demonstrate more adaptive coping behaviours and recover more effectively following adversity. Individuals with moderate to high resilience also reported

fewer post-concussion symptoms such as fatigue, stress, depression, and insomnia, although resilience was not directly associated with time to return to work (Losoi et al., 2015; Zoellner & Maercker, 2006).

Within the context of mTBI, self-efficacy plays a significant role in shaping how individuals respond to functional limitations and workplace demands (Reid et al., 2018). Higher self-efficacy increases the likelihood that individuals will engage in adaptive coping strategies, maintain persistence, and interpret difficulties as manageable rather than overwhelming. These processes contribute directly to resilience by supporting recovery, adaptation, and psychological stability following injury.

In this framework, resilience may therefore be conceptualised as an adaptive outcome emerging from sustained self-efficacy beliefs reinforced through successful coping experiences within daily and occupational contexts. Individuals with stronger self-efficacy beliefs are more likely to maintain adaptive functioning despite fluctuating cognitive, emotional, and physical symptoms associated with mTBI.

Resilience is also closely associated with the regulation of emotional and physiological states, one of Bandura's four principal sources of self-efficacy. Individuals who are able to regulate stress, anxiety, fatigue, and emotional arousal are more likely to maintain positive self-efficacy beliefs and persist in goal-directed behaviour (Breland et al., 2020; Sheu et al., 2018). Effective emotional regulation therefore contributes to resilience, adaptive coping, and successful work adjustment.

Importantly, resilience does not operate independently of environmental influences. Workplace demands, social support, and occupational accommodations may significantly influence adjustment outcomes following mTBI. Although resilience may reduce symptom severity and improve psychological adjustment, successful work adjustment is more likely to occur when self-efficacy, resilience, and supportive workplace factors interact dynamically (Losoi et al., 2015; Rapport et al., 2020; Nalder et al., 2019).

Within this process, self-efficacy functions as the foundational belief system driving adaptive occupational behaviour, while resilience represents an important adaptive mechanism supporting continued adjustment following mTBI. From a rehabilitation perspective, interventions that promote adaptive coping, emotional regulation, and supportive workplace

accommodations may strengthen resilience and facilitate occupational adjustment following mTBI. McPherson et al. (2009) found that self-regulation-informed goal-setting interventions may enhance rehabilitation engagement, mood, goal attainment, and adjustment following traumatic brain injury.

2.5.4.4 Self-Efficacy and Personal Growth

is closely associated with personal growth because it influences how individuals interpret and respond to challenges during work adjustment following mTBI (McGrath, 2004; Zoellner & Maercker, 2006; Ponsford et al., 2012; Pais-Hrit et al., 2020). Richard Tedeschi and Lawrence Calhoun conceptualised post-traumatic growth as positive psychological change resulting from the struggle with highly challenging life circumstances. Zoellner and Maercker (2006) further noted that personal growth following trauma may be reflected in genuine behavioural and psychological changes. However, perceived improvements in functioning may not always correspond with sustained functional recovery, thereby emphasising the importance of distinguishing between self-efficacy beliefs and perceived competence.

Bandura (1997) conceptualised self-efficacy as a central determinant of human functioning that shapes individuals' beliefs in their capacity to exert control over life events and outcomes. Individuals with higher self-efficacy are more likely to perceive difficult experiences as opportunities for mastery rather than as threats, thereby promoting persistence, adaptive coping, learning, and psychological growth. This process aligns closely with Bandura's concept of mastery experiences, regarded as the most influential source of self-efficacy.

Within the context of mTBI, self-efficacy becomes particularly important during adjustment and recovery processes. Individuals with stronger self-efficacy beliefs are more likely to engage in adaptive coping strategies, sustain motivation, and pursue meaningful occupational goals despite ongoing functional challenges (Schwarzer & Warner, 2013; Zoellner & Maercker, 2006). Through repeated successful experiences, individuals may gradually rebuild emotional, cognitive, and occupational functioning, thereby facilitating personal growth and improved work adjustment.

Personal growth may therefore be understood as the cumulative developmental outcome of strengthened self-efficacy beliefs across Bandura's four sources of efficacy information,

namely mastery experiences, vicarious experiences, verbal persuasion, and physiological and emotional states. Mastery experiences provide direct evidence of competence, verbal persuasion reinforces efficacy beliefs through encouragement and support, vicarious experiences facilitate social learning and modelling, and emotional regulation influences how individuals interpret stress and challenge (Bandura, 1997; Breland et al., 2020; Sheu et al., 2018).

Through the integration of these processes over time, individuals may increasingly reinterpret challenges as opportunities for development rather than barriers to functioning. In this way, self-efficacy contributes not only to adaptive coping and occupational functioning, but also to ongoing psychological growth and work adjustment following mTBI

Interventions that encourage reflective coping, goal-setting, and gradual work adjustment may further support personal growth, self-efficacy, and psychological adjustment following mTBI (Levack et al., 2015; Scobbie et al., 2011; McPherson et al., 2009).

2.5.5 Building Self-Efficacy

For the purposes of this research, self-efficacy is defined as an individual's belief in their capability to overcome obstacles and accomplish specific goals, such as adjusting to work following mTBI. This study investigates how participants perceived and experienced the influence of self-efficacy on their work adjustment following mTBI.

Individuals' beliefs about their capabilities have a significant influence on behavioural outcomes and goal attainment (Bandura, 1997; Pajares, 1996; Van der Bijl & Shortridge-Baggett, 2002). Capability is not a fixed attribute; rather, performance varies depending on individuals' beliefs in their own competence and control over outcomes (Van der Bijl & Shortridge-Baggett, 2002; Richardson, 2019).

Individuals with higher self-efficacy are more likely to recover from setbacks and persist in the face of failure, whereas those with lower self-efficacy may experience greater difficulty in coping with perceived failures (Graff et al., 2020; Howe et al., 2020). Similarly, individuals with higher self-efficacy tend to approach tasks with a focus on problem-solving and mastery,

rather than preoccupation with potential failure outcomes (Bandura, 1977; Reid et al., 2018; Lopez-Garrido, 2023; Snell et al., 2023).

Given the above the following figure below illustrate the different component in building self-efficacy and the related behavioural outcome components as described by Richardson (2019).

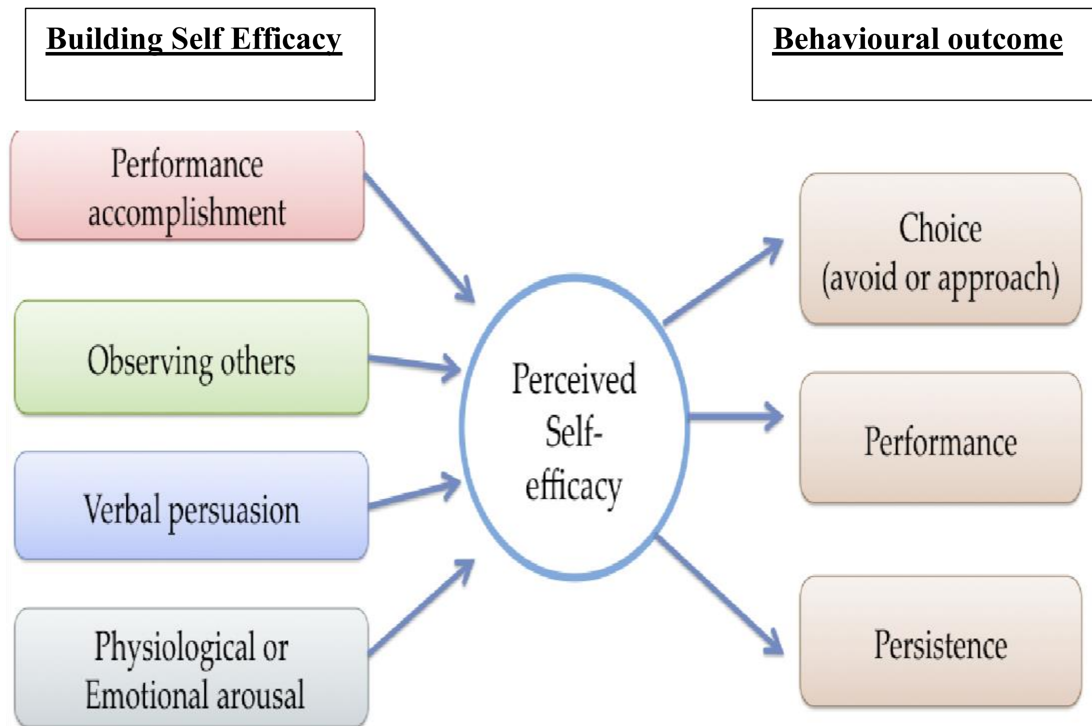

Figure 1 *Self-Efficacy Model*
Note. Adapted from Richardson (2019, p.2), Developing self-efficacy in the physics classroom through hands-on projects.

Performance accomplishment refers to individuals' beliefs about their ability to execute behaviours required to achieve desired goals. Bandura (1997) identifies mastery experiences as the most influential source of self-efficacy, as they provide direct evidence of capability. Successful experiences strengthen self-efficacy, whereas repeated early failures may undermine it. Repeated practice and engagement in task-related activities are therefore central to skill acquisition and confidence development (Ericsson et al., 1993; Bandura, 1997; Lopez-Garrido, 2023).

The best way to improve performance in a new situation or a given activity is through practice. Practicing the acquisition of a new skill to improve performance would, in most cases, lead to a positive experiences and improved performance and building of self-efficacy (Lopez-

Garrido, 2023; Snell et al., 2023). In the context of mTBI, participation in rehabilitation and structured support programmes has been shown to enhance functional recovery and confidence, thereby reinforcing self-efficacy through mastery experiences (Howe et al., 2020; Snell et al., 2023). This study therefore explores how participants experienced mastery in relation to performance and work adjustment following mTBI.

Vicarious experience refers to the development of self-efficacy through observing others perform tasks successfully. Observational learning enables individuals to strengthen beliefs in their own capabilities when they identify with competent role models (Bandura, 1997). These models may include colleagues, supervisors, or peers who demonstrate effective task performance (Redmond, 2010; Lopez-Garrido, 2023).

When benefitting from positive role models (especially those who display a healthy level of self-efficacy), a person is more likely to absorb some positive beliefs about themselves. Social role models can include work colleagues and employers (Lopez-Garrido, 2023; Redmond, 2010). In workplace contexts following mTBI, supportive colleagues and supervisors can serve as important role models, facilitating adaptation and adjustment. Recent research highlights the importance of social and workplace support in shaping recovery experiences and return-to-work outcomes (Sagstad et al., 2023; Sharma, 2022). In workplace contexts following mTBI, supportive colleagues and supervisors can facilitate adjustment by modelling adaptive coping and work strategies. Recent research highlights the importance of workplace support and observational learning in return-to-work outcomes (Sagstad et al., 2023; Sharma, 2022). This study examines how participants interpreted and utilised role modelling in their work environments.

Verbal persuasion refers to the influence of encouragement, feedback, and social communication on self-efficacy beliefs. Bandura (1982, 1997) emphasised that individuals may enhance their belief in their capabilities when they receive supportive messages reinforcing their ability to succeed. Constructive verbal feedback during task performance can strengthen individuals' belief in their capacity to complete tasks successfully (Lopez-Garrido, 2023). Conversely, discouraging communication may undermine self-efficacy (Redmond, 2010). In an mTBI contexts, supportive communication from employers, healthcare professionals, and colleagues plays a critical role in facilitating recovery and work adjustment (Graff et al., 2020; Sharma, 2022).

In the context of an mTBI, supportive communication from employers, healthcare professionals, and colleagues has been shown to play a critical role in promoting confidence and facilitating successful work adjustment (Graff et al., 2020; Sharma, 2022). Conversely, a lack of understanding or validation may negatively impact self-efficacy and hinder recovery. This study explores participants' perceptions of how verbal and social interactions influenced their self-efficacy and behavioural outcomes during work adjustment.

Physiological and emotional states significantly influence self-efficacy by shaping individuals' interpretations of stress, fatigue, and psychological well-being. Stress, anxiety, and depression may reduce perceived capability and negatively affect performance (Lopez-Garrido, 2023). However, Bandura (1982, 1997) notes that self-efficacy can still be developed despite emotional difficulties, although it is more easily maintained in the presence of positive emotional and physical states.

Individuals with strong self-efficacy tend to interpret emotional arousal as facilitative rather than debilitating, whereas those with low self-efficacy may perceive similar states as threatening (Bandura, 1977). Effective emotional regulation is therefore essential for maintaining adaptive coping and work functioning. Emotional distress is commonly reported following mTBI and may interfere with recovery and work adjustment. Recent studies show that emotional regulation is strongly associated with improved adjustment outcomes following brain injury (Rapport et al., 2020; Reid et al., 2018).The importance of self-efficacy in context of the research is to investigate the different ways in which the participants experience and perceive their overall health and wellbeing in the development and maintenance of self-efficacy, as this proves relevant to successful work adjustment following an mTBI.

Self-efficacy plays a central role in influencing behaviour, goal setting, and persistence in the face of challenges. It affects the choices individuals make, the effort they expend, and their resilience in overcoming obstacles (Bandura, 1995, 1997). Self-efficacy also shapes outcome expectations and perceived barriers within the work environment.

Miles (2022) notes the following characteristics relating to individuals with high self-efficacy and those with low self-efficacy, respectively:

High self-efficacy characteristics:

- strong sense of self-confidence
- high level of self-evaluation and self-awareness
- willingness to take risks or step outside of your comfort zone
- ability to solve difficult or challenging problems
- highly motivated to reach goals
- resilient with the ability to recover from setbacks or adversity
- a deep sense of passion (and clarity of purpose)
- good state of mental health

Low self-efficacy characteristics:

- struggle with self-confidence and motivation;
- lacks the ability to stay positive or value the self;
- avoids challenges and new responsibilities;
- avoids trying new things, setting goals, or taking risks;
- focuses on failures and negative outcomes;
- shows symptoms of burnout;
- presents with poor sleeping patterns;
- presents with poor nutrition habits;
- may present with depression, anxiety, or other mental health issues;
- experiences difficulties adapting to changes;
- demonstrates aversion to being with other i.e. social isolation or struggling to connect with others.

From a cognitive-motivational perspective, self-efficacy determines whether coping behaviours are initiated and sustained in order to achieve desired outcomes (Stajkovic & Luthans, 1998). Individuals with higher self-efficacy are more likely to persist in task-related efforts, whereas those with lower self-efficacy may disengage earlier, resulting in poorer outcomes. Self-efficacy refers to an individual's judgement of how well they can execute a course of action, and the expectations of self-efficacy determine whether the individual's coping behaviours will be initiated, and task-related effort expended, so as to attain an outcome or goals (Stajkovi and Luthans, 1998). Those individuals who perceive themselves as highly efficient, where achieving a positive outcome, will have a high degree of self-efficacy, while

those with a perceived low self-efficacy are likely to not be able to cope, and may stop task-related efforts and behaviours, resulting in a negative and/or unsuccessful outcome.

2.5.6 Self-Efficacy and Performance Outcome Expectations

Bandura (2004) emphasised the importance of performance outcome expectations in relation to self-efficacy. Outcome expectancies are defined as the perceived consequences of an individual's behaviour. More specifically, they refer to anticipated physical, self-evaluative (affective), and social or work-related outcomes resulting from behaviour. Human behaviour is therefore partly driven by future-oriented considerations, including goal setting and anticipation of future events. Individuals continuously construct outcome expectancies based on observed conditional relationships between environmental events in their context (Bandura, 2001). Outcome expectancies can thus be described as the perceived consequences of future or prospective behaviour (Marks, 2002), particularly in relation to physical, social, and occupational well-being. These outcome expectations impact and influence the individual in all spheres of their lives including their physical, personal, social and work environments as illustrated in the figure below.

Figure 2 *Self-Efficacy Judgement*
Note: Adapted from Lopez-Garrido (2023), *Self-efficacy theory in psychology: Definition and examples*. https://www.simplypsychology.org/self-efficacy.html.

These expectations significantly influence behaviour in work contexts, shaping both actions and performance outcomes. Self-efficacy judgments are important determinants of performance (Bandura & Watt, 1999; Heggestad & Kanfer, 2005). Silver et al. (1995) further highlight that self-efficacy influences performance through persistence. Individuals with high self-efficacy tend to maintain effort and focus on problem-solving when faced with difficulties, which ultimately enhances performance outcomes.

Individuals with lower self-efficacy are more likely to procrastinate, experience self-doubt, and withdraw effort when faced with challenges, resulting in reduced performance (Silver et al., 1995). Evidence suggests that self-efficacy may predict performance even after controlling for prior performance, although findings vary depending on whether past performance is adjusted statistically. Some studies indicate that when prior performance is statistically controlled, the predictive effect of self-efficacy may be reduced, suggesting that its relationship with performance is complex and context dependent. Nevertheless, other research supports a strong association between self-efficacy and improved job performance (Stajkovic & Luthans, 1998).

Phillips and Gully (1997) propose that cognitive ability is positively related to self-efficacy. Individuals with higher cognitive ability are more likely to develop richer task-related knowledge and more positive task experiences, which in turn may enhance workplace productivity and efficiency. However, irrespective of cognitive ability, individuals with higher self-efficacy are more likely to engage positively with task demands and demonstrate sustained effort in order to achieve successful performance outcomes. It is therefore suggested that perceived capability helps explain the relationship between cognitive ability and performance, as individuals' beliefs in their abilities influence how effectively cognitive resources are translated into action.

Research further indicates that self-efficacy may act as a mediating mechanism in the relationship between conscientiousness and performance. Conscientiousness, as described by Costa and McCrae (1988) and Barrick and Mount (1991), reflects traits such as diligence, dependability, and goal-directed persistence. Highly conscientious individuals are therefore more likely to engage persistently with tasks and demonstrate higher levels of effort and achievement (Chen et al., 2001). It can be further inferred that a high level of cognitive ability and conscientiousness could be positively associated with the activation of self-efficacy outcome expectations. Judge et al. (2007) further argue that self-efficacy functions as a key

psychological mechanism through which conscientiousness influences work performance. Accordingly, self-efficacy can be understood as an important mediating construct linking cognitive ability and personality traits to occupational performance and work adjustment outcomes.

Bandura (1986) identifies three types of outcome expectations: monetary outcomes expectations (e.g., monetary outcome), social outcome expectations (e.g., approval) and self-evaluative outcome expectations (e.g., self-satisfaction). These expectations could have positive and negative physical, social, and self-evaluative outcomes. Positive expectations can serve as an incentive, while negative outcomes could lead to disincentives. Individuals may anticipate a specific outcome, and this would then depend on their own self judgments as to how well they will be able to perform in a given situation or task. Bandura (1986) further explains that decision-making involves three processes: identifying available options, evaluating expected outcomes of those options, and assessing whether anticipated outcomes are positive or negative. In the context of this study, perceived self-efficacy is considered a mediating construct in understanding how outcome expectations influence work adjustment following mTBI.

2.5.7 Self-Efficacy and mTBI

Recovery from an mTBI and the process of regaining functional independence can take several months or longer, with some individuals continuing to experience persistent symptoms over extended periods. Yenene et al. (2020) note that persistent post-mTBI complaints are often associated with psychological factors, particularly individuals' subjective perceptions of injury and recovery.

From both the literature and the researcher's contextual understanding, these difficulties commonly include physical symptoms (e.g., headaches, fatigue, dizziness), cognitive impairments (e.g., reduced concentration, memory difficulties, and impaired attention), and behavioural or emotional changes (e.g., irritability, anxiety, and depressive symptoms). Prolonged recovery trajectories have consistently been associated with psychological distress, including depression and anxiety, as well as reduced quality of life and life satisfaction. Research further indicates that variability in recovery outcomes following an mTBI may be influenced by a range of factors, including psychological and personality-related characteristics

(Yenene et al., 2020). More recent literature, however, increasingly emphasises the role of individuals' subjective perceptions of injury and their cognitive appraisals of symptoms in shaping recovery trajectories. Parker et al. (2018) state that few studies have examined health-related self-efficacy in individuals with traumatic brain injury (TBI). It was noted that cognitive impairments caused by a TBI frequently undermine adaptive responses required for the management of injury-related consequences (Corrigan & Hammond, 2013; Parker et al., 2018).

Appropriate behaviours are needed to prevent and to manage TBI symptoms, which in turn could affect individuals' beliefs regarding whether they are able to achieve their goals. For example, cognitive impairments may undermine the ability to engage in behaviours consistently, and may cause problems with memory, planning, and organisational skills, impulse control, and comprehension, all of which may undermine behaviours requiring sustained activities. Cognitive impairment could then disrupt the relationship between self-efficacy and behaviours, thereby impairing an individual's accurate self-assessment and estimates of self-efficacy (Ownsworth & Clare, 2006; Rapport, Bryer, & Hanks, 2008; Parker et al., 2018). Ownsworth and Clare (2006) further argued that, within the context of an mTBI, this issue is particularly relevant, as subtle cognitive, emotional, and physical changes may not always be immediately recognised by the individual, yet still interfere with work performance and work adjustment.

Parker et al. (2018) also examined the independent and interdependent potential effects of self-efficacy and cognitive impairment severity in relation to functional independence among individuals following a TBI. The findings of the study identified self-efficacy as to be an important predictor of functional independence following a TBI, particularly amongst those individuals with relatively intact cognitive abilities or mild cognitive deficits or an mTBI (Parker et al., 2018). These perceptions are closely linked to individuals' beliefs in their ability to cope with future demands, thereby logically connecting to the concept of self-efficacy as proposed by Bandura.

2.5.8 Collective Self-Efficacy

Literature, theories and previous research have focused mainly on individual behaviour and

specifically relating to personality difference and the individual's social and work environment. We as individuals live in a society and family, and exist together (Elms et al., 2023; Karakose et al., 2024). As individuals, we do not exist autonomously and individuals struggle to exist on their own, except for some. Most of our individual goals and outcomes are incorporated into our environment, and would be integrated with other work and other people's goals. It follows that, although the individual's goals are achievable through individual efforts, the goals are interdependent of others and the environment. We thus, mostly work together to achieve a goal or outcome. There is little or no evidence that an individual can accomplish a goal alone without some input and guidance from another individual, or a collective group of individuals. Even the solo sailor is dependent on others for preparation of the solo trio, navigation, as well as his radio contact, and assistance of other individuals during his solo trip. It would be extremely difficult to accomplish a task or goal based solely on an individual's efforts, and the individual would somehow rely on the assistance of other individuals or group/s of individuals. Interestingly, social cognitive theory extends the conception of human agency to collective agency and peoples shared beliefs in their collective actions and activities to achieve desired results (Bandura, 1988). It is further postulated that a group's goal or tasks cannot be solely attributable to the shared individual knowledge and skills of each group member during task attainment, but instead, recognition should be given to the interactive and collective relationships as well as interdependent transactions, relationships, and dynamics of each member of the group. Therefore, perceived collective self-efficacy is not just the total sum of each individual member's beliefs. Rather, it is the collective of interactive and interdependent beliefs and behaviour of each member that results in collective self-efficacy.

Self-efficacy theory distinguishes between the *source* of the data (i.e. individual) and the *level* of the phenomenon being measured (i.e. personal efficacy or collective group efficacy). Perceived collective self-efficacy thus resides in the minds of members' belief in the group's capability, where the level of collective self-efficacy is concerned with whether or not the self-efficacy of an individual or the group is being judged (Bandura, 2004).

A growing body of research attests to the impact of perceived collective self-efficacy on group functioning (Gully, Incalcaterra, Joshi, & Beaubien, 2002; Bandura, 2004). A growing body of research attests to the impact of perceived collective self-efficacy on group functioning with evidence drawn from both experimental and field-based studies across organisational contexts (Bandura, 1997, 2004; Gully et al., 2002; Elms et al., 2023; Karakose et al., 2024).

Some studies have assessed the motivational and behavioural effects of perceived collective self-efficacy using experimental manipulation to instil differential levels of perceived collective efficacy. Other investigations have examined the effects of naturally developed beliefs of collective efficacy. Certain studies have analysed various social systems, including business and organisational teams. Elms et al. (2023) noted that collective self-efficacy can predict better team performance and assist in better outcomes. These findings show that the higher the perceived collective self-efficacy, the higher the groups' motivational investment in their actions and performance levels, and the stronger their ability to maintain their activities while facing their setbacks, resulting in greater performance accomplishments (Bandura, 1997, 2004; Gully et al., 2002; Elms et al., 2023; Karakose et al., 2024).

For the purposes of this study, the collective self-efficacy experiences will be presented as the outcome, and it is hoped that the findings will show that the perceived self-efficacy of all the participants collectively resulted in higher self-confidence, motivation, and behavioural goal outcomes when faced with difficulties during work adjustment following an mTBI.

2.5.9 Occupational Self-Efficacy

Bandura (1997) stated that occupational self-efficacy refers to self-efficacy in the work environment, and involves people's beliefs about their abilities to perform their work tasks. Occupational self-efficacy correlates with individuals' beliefs about their competencies to accomplish their tasks and determine the courses of behaviour required to achieve their goals. Hackett and Betz (1981) first proposed the concept of occupational self-efficacy, which refers to the belief that an individual is competent, or not competent, to fulfil work-related tasks or work activities (Felfe & Schyns, 2006; Peng et al., 2021).

Hackett and Betz (1981) state that occupational self-efficacy is a non-specific personality trait, and specifically refers to work capacity, rather than to the individual's belief in their occupational capability (Schyns, 2004; Hackett & Betz, 1981). Hackett and Betz (1981) state that occupational self-efficacy can assist in assessing work tasks and in predicting work performance. Work tasks involve various factors, and the concept of occupational self-efficacy explores these variabilities in the work setting (Reese & Miller, 2006*)*.

Occupational self-efficacy involves two aspects. Firstly, self-efficacy ought to relate to

occupational contents, or an individual's belief in accomplishing the contents needed to perform a given task. The second aspect is self-efficacy, relates to occupational processes, or an individual's belief in accomplishing relevant occupational behaviours and achieving their behavioural goals (Reese & Miller, 2006). Occupational self-efficacy thus refers to the individuals' beliefs in their capabilities to complete what they consider to be the requirements of their work and maintains that self-efficacy interacts with other variables, such as job satisfaction and motivation (Fletcher et al., 1992). Individuals with higher self-efficacy are generally more confident in accomplishing work-related tasks within an organisational setting (Joseph et al., 2014).

Occupational self-efficacy was explored to facilitate the description of the processes involved in accepting the consequences and occupational limitations experienced by individuals during work adjustment following an mTBI. Occupational self-efficacy describes a process of accepting the consequences and occupational limitations for those individuals that suffer from TBI, and is described in four stages as follows:

- At Stage One (a strong personal belief in functional abilities), clients usually develop feelings of frustration, demotivation, and anger, due to the loss of daily life function after brain injury. Therapists will provide encouragement for clients by creating a specific environment that can improve and develop a sense of acceptance. Thereafter, therapists will analyse and examine the availability of rehabilitation and resources for the clients.
- At Stage Two (use of self), clients can select the options provided by the therapist, and improve and increase their occupational participation through the intervention process.
- At Stage Three (creation of competency through occupational engagement), the clients can improve their knowledge with or without the assistance of the therapists. The knowledge includes medical precautions, use of assistive devices, and workplace adaptation. Meanwhile, clients can enlarge their social network.
- Stage Four (capable individual) aims for acceptance of conditions and the ability to motivate themselves to participate in various kinds of roles, such as returning to work. This process helps to alleviate the frustration, anger, and disappointment of clients in order to develop their self-efficacy beliefs.

Occupational self-efficacy involves the belief that someone is capable of performing their job duties. It constitutes a personal resource that is based on the idea that people can influence their own actions, feelings, motivations, and thoughts. Certain characteristics of individuals with high occupational self-efficacy are that they:

- are driven by their belief in future success;
- are tenacious and determined;
- choose more challenging tasks;
- set more ambitious goals;
- motivate themselves;
- expend more effort to reach their goals; and
- persist longer when facing difficulties.

Occupational self-efficacy is linked to a number of work-related attitudes, behaviours, and performance measures, including job satisfaction, work-related performance, training success, and career satisfaction.

2.6 WORK

Work forms a central part of our everyday lives, and we have always existed in a work-oriented social environment. Our social environments are connected to our work environments. People value their work, their work environment and work relationship, and these elements form an important and constant part our lives.

Dawis & Lofquist (1984) state that early researchers acknowledge that work has always been understood as a highly valued component in contemporary historical societies, where, even in modern societies, it continues to form a major part of our everyday existence. The researcher notes that given the historic value that has been attached to work and given that the study examines the workplace, it became necessary and desirable to address the relationship of the individual to work, as well as to examine individual's behaviours and values that will impact on the individual and their issues faced in adjusting back into the world of work. The word itself, 'work', contributes significantly to every individual, their life and wellbeing. Attempting to find a concise definition of work to fulfil the criteria for purposes of this research turned out

to be a difficult process. Literature presented descriptions and definitions of various kinds of work, but for the purposes of this research, the following is noted.

The Oxford Dictionary defined work as follows:

- Work as a noun is described as an activity involving mental or physical effort in order to achieve a purpose or result; or a task or tasks.
- As a verb, work is defined as the act of being engaged in physical or mental activity in order to achieve a result (of a machine or system) or function, particularly in a proper or effective manner.

The Cambridge Dictionary defines work as an activity, such as a job, that a person uses physical or mental effort to achieve; or the material used by someone at work or what they produce, usually for money.

The scientific definition of work is different from the everyday meaning of work. The definition of work in physics reveals its relationship to energy, where, whenever work is done, energy is transferred. Scientifically, for a work to be done, a force must be exerted, and there must displacement in the direction of that force. Work is described as the product of the component of the force in the direction of the displacement, and the magnitude of the displacement (Halliday, et al., 2014). The component of force would be the activities and in context, the mental or mostly physical effort of the individual to displacement, or to produce goals or work-related results.

Dawis and Lofquist (1984) state that early researchers describe typical definitions of work that mostly included activities that described that which the individual would have to engage in in order to earn money and make a living. Work was also described as involving activities that occupy much of a person's waking day (occupation) and activities that use the individual's abilities or skills in some social or economic enterprise (employment), as well as activities that the individual is called upon to do (vocation) or that the individual is contracted and assigned to do (the job).

In an agreement with Roe (1956), it was noted that if work is truly the major focus of an

individual's waking day and activities, as well as the individual's thoughts, then it can only be assumed that it must have a much larger meaning than those definitions actually imply (cited in Dawis & Lofquist, 1984). These definitions, then, do not encapsulate the full meaning of work to the individual. Roe (1956) states that, if work provides a focal point for the development of the individual's way of life, and if work is an important means for an individual's adjustment, then the meaning of and definition of work surpasses the mere activities that are used to define it, and work should then be described as a concept in the eyes of the individual (cited in Dawes & Lofquist, 1984).

Work, or the meaning of work, can therefore not just be described as a mere activity relating to the individual's skills in a specific environment, but rather, it ought to be described and defined in the broader context of the whole individual and society.

Work should therefore be more specifically defined in terms of the value the individual attaches to work or by the way the individual connects to work (Dawes & Lofquist, 1984). Work provides stability, satisfies needs, and provides direction for most individuals from the most advanced and qualified to those without education or means. Most individuals spend a major part of their lives working or engaging in certain work-related activities, whether sitting in a board room or being out in the field planting crops for a living. However, work as a term cannot exist without the involvement of the individual. Work would have no meaning if there were no human activity, irrespective of whether the activity is complex, sophisticated, or the lowest level of menial activity required to complete it. The essence of work is that human input is required and for work to exist, human behaviour requires shape. Humans are all different and individuals attach different values to the work (Dawis & Lofquist, 1984). To understand these individual values that individuals attach to work, the researcher was drawn to gain a deeper understanding of individual behaviour and individual difference, as well as what thoughts individuals have about work.

As described, work can only exist with the input of the individual, and a very large component of work relates to the behaviour of an individual. Therefore, an appropriate area of study for the behavioural sciences, not only as an applied field, but also as a vehicle for improving our understanding of work behaviour, would be to study human behaviour, and specifically the way in which individuals adjust to work. Work is complex and can be studied by addressing work behaviour through the study of individual behaviours and values.

An investigation into the psychology of individual differences and the recognition that all individuals are different, behave differently and value different aspects in work environments, would necessitate a focus on various psychological theories regarding human behaviour, and falls outside the scope of the current study. This would further require the conceptualisation of individuals and the work environment. It is noted that the foundation of scientific psychology is the study of individual differences and human traits that would be found within the study of personality and humanistic theories. While personality theories examine individual behaviour or difference, humanistic theories focus on the positive aspects of human behaviour, such as values and satisfaction. In context of this research and the impact of the self-efficacy as a mediator of behaviour, the researcher, in context of work adjustment following an mTBI, will explore:

- the ways in which way the participants behave differently in similar work situations;
- why the participants are likely to behave in a certain way in the work situations;
- the features that makes one participant behave differently to another participant; and
- why some participants may behave in a similar manner to some, but different to others.

Taking cognisance of the above, work behaviours can be further affected by the fact that differences between individuals are influenced by how the individuals have learnt, how they have been influenced by their environment, factors that they have been exposed to in their social environment and, more specifically, factors that they have been exposed to in their work environments. These influences and individual factors, including individual values and life satisfaction, would be positive contributions to work and would impact on work adjustment (Dawis & Lofquist, 1984; Dornonville de la Cour et al., 2019).

2.7 WORK ADJUSTMENT

Successful work adjustment can involve effectively managing job responsibilities and navigating interpersonal relationships at work. Work adjustment is defined as a process, rather than an outcome, and it occurs through the self as well as the environment (i.e. a social and work construction) (Dawes & Lofquist, 1984). The work adjustment process has significant implications for the employee’s wellbeing, as well as motivation and performance (Scott &

Kowalski, 2011). Scott and Kowalski (2011) describes the work environment as that setting in which individual behaviour takes place.

The concept of work adjustment for the purposes of this study was adopted with the specific goal of serving as an evaluation criterion for understanding how participants construct their experiences of self-efficacy, and how their beliefs in their cognitive, behavioural, and emotional capacity may provide a conceptual basis for work adjustment, rehabilitation, occupational, and counselling outcomes (Scott & Kowalski, 2011). It is hoped that such a conceptual basis will identify the different dimensions of work adjustment, such as emotional, social, and skill-related adjustments. This multidimensional approach allows for a more comprehensive understanding of how individuals navigate their experiences and develop beliefs regarding their capacity to adjust to work following an mTBI (Scott & Kowalski, 2011).

The work environment influences an individual's behaviours and includes understanding internal factors such as personality traits, motivation, and skills, as well as external factors such as job demands and peer relationships that affect the work adjustment process (Scott & Kowalski, 2011; Dornonville de la Cour et al., 2019).

In addition, work adjustment involves how individuals change their behaviours over time as they construct their experience, face new challenges, and transition through different challenges (Dornonville de la Cour et al., 2019). This would also lead to the identification of various outcomes associated with successful adjustment, such as job satisfaction, performance, retention, and overall wellbeing, or unsuccessful adjustment, including poor integration and reduced motivation and work performance (Dornonville de la Cour et al., 2019).

It would further assist in understanding the complexity of work adjustment in line with the notion of self-efficacy and the individual's belief in their capacity to cope with work adjustment, and could assist in providing more effective interventions, such as adapting workplace policies, training, mentoring, and coaching aimed at improving work adjustment following an mTBI.

Given the above, and for the purposes of this study, the following discussion regarding work adjustment is incorporated.

A workplace adjustment can be described as any change that impacts or affects the way an individual (employee) performs the job duties or as the removal of any barriers or obstacles that the individual may experience in the work environment (Dornonville de la Cour et al., 2019; Sharma, 2022; Business Disability Forum, 2023). It therefore enables individuals to do their jobs in such a way that best suits their needs. It has been suggested that an employer, following an injury, ought to not focus on thee medical diagnosis i.e. mTBI for purposes of this research, but rather focus should instead be placed on the issues being experienced by the individual (employee) and how to best resolve these difficulties (Dornonville de la Cour et al., 2019; Sharma, 2022; Business Disability Forum, 2023). It has been suggested that an injured person “the disabled person” is more informed “an expert” relating to his/her condition and would know better what assistance would be needed to adjust to work (Sharma, 2022; Business Disability Forum, 2023).

Griffin and Hesketh (2005) state that the theory of work adjustment (TWA) has a deceptive simplicity, where the basic framework can easily be explained to non-professionals. The original model comprised of nine propositions, which focused on work adjustment, values, abilities, needs, work reinforcers, requirements, and satisfaction. Although, both the individual and the work environment are important in understanding work adjustment, most studies adopted an individual difference perspective in which aspects of the person are meaningfully measured in relation to the environment (Dawes & Lofquist, 1984; Griffin & Hesketh, 2005; Dornonville de la Cour et al., 2019). It is as important to look into the characteristics of the work environment, as it is to look into the individual characteristics (Dornonville de la Cour et al., 2019). It is stated that the closer the individual’s abilities (i.e. their behavioural skills, knowledge and experience) correspond with the requirements of the work environment, the more likely it is that job performance and productively levels would increase, and the individual will be perceived as being satisfied by their employer (Dawes & Lofquist, 1984; Griffin & Hesketh, 2005; Dornonville de la Cour et al., 2019).

When an individual has suffered an mTBI, the consequences thereof could impact on the individual’s ability to cope with their job requirements. Such challenges, following an mTBI, could then affect their ability to adjust to work. It then seems imperative that, following an mTBI, the individual’s challenges ought to be considered and addressed through organisational support and invention, so as to re-establish correspondence between with the work environment to facilitate work adjustment.

In this view, it is suggested that the closer an individual’s abilities (skills, attitudes, and behaviours) correspond with the requirements of their work environment and their job demands, the more likely it is that the employee (injured) will experience and perceived their abilities as satisfactory by their employer (Dawis & Lofquist, 1984, Dawes, 1994; Sharma, 2022). During work adjustment, the following factors are normally considered:

- Work is conceptualised as an interaction between an individual and the work environment.
- The work environment requires that certain tasks be performed, and the individual brings skills to perform the tasks.
- In exchange, the individual requires compensation for their work performance and certain preferred conditions, such as a safe and comfortable place to work.
- The environment and the individual must continue to meet each other's requirements for the interaction to be maintained. The degree to which the requirements of both are met may be referred to as correspondence.
- Work adjustment involves the process of achieving and maintaining correspondence. It is indicated by the satisfaction of the individual with the work environment and by the satisfaction of the work environment with the individual. Satisfaction and dissatisfactions result in tenure, where the principal tenure can be predicted from the correspondence of an individual's work personality with the work environment.
- Work personalities and work environments can be described in terms of structure and style variables that are measured on the same dimensions. The structure and style of the work personality and the work environment ought to be described in the same terms, and assessed according to the same dimensions. This makes it possible to match work personality structure with work environment structure, so as to determine the degree of correspondence for the prediction of work adjustment, and to describe the continuous interactive process of work adjustment, thereby enhancing the prediction of work adjustment and the confidence that it will be maintained.

Reference is also made to the labour legislation in South Africa as per the Basic Conditions of Employment Act (BCEA) which requires an employer to reasonably accommodate the needs of an employee with mental or physical impairments where the impairment impacts on the

individual's ability to perform their job tasks. As per the BCEA it is noted that an employer ought to try to accommodate the individual (disabled employee) as far as possible and must amend or adopt their duties to suit the disability. The type of reasonable accommodation would further depend on the job description, including the job demands and tasks, as well as the work environment and the individual's impairment, whether physical and/or mental, following an mTBI. It would be considered unlawful to request an employee to perform tasks that he/she is not able to perform due to their impairments (Letlonkane, 2023).

This legislation was also noted as a form of statutory employment guidance, and the United Kingdom's employment case law also provides details for identifying what constitutes an adjustment that is reasonable (Sharma, 2022; Sagstad et al., 2023; Business Disability Forum, 2023). However, the focus should not only be on reasonable adjustments. Adopting only a reasonable adjustments attitude seems to move away from a legal notion, and instead focus more on appropriate psychological or clinical processes to suit the employees. It is felt that the focus should extend beyond supporting employees' needs, where workplace adjustment provides a broader and more inclusive term that incorporates both the individual who suffered a disability (including an mTBI); the employer; and the work environment (Sharma, 2022; Sagstad et al., 2023; Business Disability Forum, 2023). This allows employers to extend adjustments to anyone who needs to change the way they work in a variety of situations, not just those specifically identified as per the Basic Conditions of Employment Act (BCEA).

In the event that the individual is unable to perform their previous job following their injury as per Schedule 8 of the Labour Relations Act (LRA) and the Code of Good Practice, the employer must also determine the extent to which the employee is able to perform other work, the extent to which the employee's work circumstances might be adapted to accommodate the disability, or, where there is no such possibility, the extent to which the employee's duties might be adapted. The above means that an employer must consider and make every effort to assess the employee's abilities and adapt their work and their work environment, or the employer just find a suitable alternative position prior to initiating an incapacity enquiry. Common adjustments include different working hours or shift patterns, as well as flexibility over hours and location, giving time off for medical appointments without loss of income, assistive technology (such as speech-to-text software), adapted ergonomic equipment (such as an ergonomic chair, computer mouse or keyboard), a fixed desk, or changed working environment (Sharma, 2022; Sagstad et al., 2023).

A survey conducted by the Business Disability Forum (2023) regarding work adjustment revealed the following findings:

- 78% of injured or disabled individuals felt that they, rather than their employer, would initiate the process of work adjustments;
- 58% of employees indicated that the adjustments needed and made to their jobs were as a result of their assertiveness and confidence when they asked for that support;
- 56% of disabled employees said there are still disability related barriers in the workplace after adjustments have been made;
- Only 37% of disabled employees felt that their employer is genuine about removing all disability related barriers and making the workplace inclusive for disabled employees;
- Only 18% of disabled employees said their adjustments have removed all barriers in the workplace; and
- 10% of disabled employees said it was not easy to get the adjustments they needed.

It was noted that the speed of implementing work adjustments measures for the disabled employees has improved by 4% from the 2019 to the 2023 survey, but that one in eight disabled individuals still noted that they were waiting over a year for any adjustments they needed to be implemented (Business Disability Forum, 2023).

Literature revealed that individuals who suffered an injury, including mTBI, following return to work, have to wait long periods for adjustments that are needed to be implemented and/or for the employers to reduce or remove the barriers they experience in their jobs as a result of their impairments (Sharma, 2022; Sagstad et al., 2023). As a point of interest, it was noted that most individuals had to request adjustments measures, and nothing was offered by the employer prior to the request. These individuals also have to deal with a number of related barriers that go beyond just adjustment to their jobs, such as work roles and job tasks, as well as workplace bullying, harassment, limited career and development opportunities, inaccessibility of programmes and initiatives intended to support wellbeing, and the wider inaccessibility of buildings and systems (Dornonville de la Cour et al., 2019; Business Disability Forum, 2023).

In many cases**,** organisational procedures also place significant restrictions on the supervisor and/or manager in assisting with work adjustment due to internal organisational processes and their limited powers to make changes within the wider organisation. This leads to further barriers in the workplace, leaving both the individual and the supervisor or manager feeling frustrated. It has been suggested that employers should make every attempt to simplify the workplace adjustment process, provide as much support as possible, assist with workplace inclusion, develop a broader workplace approach to understanding the experience of having a disability, and remove disability-related barriers beyond merely focusing on workplace adjustments (Dornonville de la Cour et al., 2019; Sharma, 2022; Business Disability Forum, 2023).

Eggert (2008, p. 69) noted that "attempting to modify an individual's work environment may sometimes be a first choice, as it may only require some minimal changes and effort on the part of the organisation", but it would depend on the individual. Specifically for purposes of this research, cognisance is taken of self-efficacy, in terms of the individuals' belief in their ability to successfully change and/or modify their behaviour during work adjustment following an mTBI. Eggert (2008) felt that, given that an individual may not always have total control over their behaviour and ability to adapt to the changes, and that specifically those individuals with a low self-efficacy, this may require some psychological intervention to clearly identify sources of dissatisfaction in the workplace.

Eggert (2008) stated that work adjusting could follow two broad approaches. Firstly, the individual ought to attempt to seek better ways to meet and respond to the requirements of the environment. For example, given a presenting problem of poor communication skills following an mTBI, the employee asks to be given time off to attend courses in order to practice active listening skills to facilitate a behavioural modification and/or changes (Eggert, 2008). The second approach would be for the individual to adjust to the environment through the modification of the individual's reinforcement requirements to be more in line with environmental offerings. For example, given the problem of poor communication skills, the employer may decide to focus less on the communication problem, and more on providing positive reinforcement in attempting to modify and change the behaviour (Eggert, 2008).

Self-efficacy as a mediator of the individual's cognitive, psychological and behaviour capacity in work adjustment could provide further rich information or additional sources of information

regarding the collective experiences relating to the participants' thoughts, relationships, and behaviours regarding work adjustment following an mTBI. The BPS model will be discussed in the following chapter. The models provide a framework for the interactions between biological, psychological and social factors, and offer a broad and integrated approach to the understanding of human behaviour (Lewis, 2008).

Bandura's self-efficacy theory and specifically collective and occupational self-efficacy as well as the TWA will be incorporated so as to further provide theoretical support in context of the BPS theoretical model. Self-efficacy is a crucial concept in psychology and refers to an individual's belief in their ability to succeed in specific situations or accomplish a task. For purposes of this study Bandura's self-efficacy theory will be use as a guideline to investigate the impact of self-efficacy on how people approach challenges, set goals, and persevere in the face of difficulties. The purpose of this study will be to investigate how the participants constructed their experiences of self-efficacy, and how their beliefs influenced their capacity to accomplish a goal, that is, to adjust to work following return to work after suffering an mTBI.

This study investigates the individuals' collective experiences of self-efficacy and their belief regarding their physical, cognitive, and emotional capacity to a overcoming a goal such as work adjustment following an mTBI. Self-efficacy was explored relating to mastery experiences, vicarious experiences, social persuasion, and emotional states (Bandura, 1997). It was hoped that those participants that experienced high self-efficacy may:

- embrace their challenges and new opportunities offered;
- be more resilient and adaptable to their challenges to adjust to work;
- take ownership of their work activities and task, their goals or key performance areas to adjust to work;
- develop a mindset of learning from failures and experiences during work adjustment; and
- experience self-confidence and motivation to adjust to work for psychological safety and career stability.

Interestingly, in the context of work adjustments, it is noted that individuals with low self-efficacy may experience:

- difficulties in learnings new tasks;
- struggling to adapt to their roles and responsibilities;
- trouble coping with the workload;
- lower job satisfaction and engagement;
- an increase likelihood of early career stagnation; and
- low self-efficacy, accentuating negative perception of the injury which, in turn, leads to poor emotional outcomes post-mTBI.

2.8 CONCLUSION

This chapter considered the various parts and functions of the brain. Brain injuries and the classification and impairment ratings have been discussed with specific emphasis on mTBI, as well as the outcome and possible consequences of an mTBI on individual behaviour within the work environment.

Furthermore, individuals present with a set of cognitive, psychological and behavioural processes and each individual brings to work with them their own set of beliefs (i.e. self-efficacy), including personality, values, and expectations that would impact on work adjustment following an mTBI.

An understanding of the nature of the characteristics of individuals as well as the characteristics of the work environment were presented so as to provide the context for understanding self-efficacy and work adjustment following an mTBI.

The theory of work adjustment focused on individual work behaviour and the work environment, specifically relating to the continuous interaction in the process of work adjustment (Dawes & Lofquist, 1984).

In light of the above, for purposes of this research, individuals' experiences relating to their perceived beliefs in their abilities (i.e. physical, cognitive and, behaviour and emotional capacity) to adjust to work was investigated.

CHAPTER 3: RESEARCH PHILOSOPHY, PARADIGMS AND THEORETICAL FRAMEWORK

3.1 INTRODUCTION

According to Aliyu et al. (2015) many PhD students and researchers do not describe or present a clear understanding of the research philosophy of their studies. They further noted that this is due to the greater support for quantitative research and bias against qualitative research designs. For the purposes of this study the researcher adopted a qualitative research method such as phenomengraphy and involved discussions about the meaning of concepts and concept analysis (Goertz and Mahoney, 2012). There has been an increased use of qualitative research designs and as a result, it has become increasingly important for the researcher to have a better understanding of operational research concepts or philosophy and the research paradigms informing their work (Aliyu et al., 2015). The researcher chose a phenomenographic approach as the most appropriate data analysis method with the aim to investigate the participants' subjective realities and variation in their collective experiences following an mTBI.

This study was also fundamentally shaped by researcher's beliefs about the nature of reality and knowledge, as well as the researcher's values and ethics as embedded in research process. The latter is particularly relevant in this qualitative research studying as it involves participants who have suffered an mTBI. The process discussed below will reflect the researcher's commitment to ethical representation and the way in which the researcher ensured that the process and findings did not impact on the dignity of participants that suffered an mTBI, but instead, contribute to more supportive workplace practice.

In light of the above, an overview of the research philosophy and paradigms, including the researcher's philosophical assumption and paradigms specifically relating to this study, follow in the paragraphs below.

3.2 RESEARCH PHILOSOPHY

Al-Saadi (2014) and Dudovskly (2022) state that a research philosophy forms the basic components of any research design, and is associated with beliefs and assumptions about the nature of reality (ontology); the nature of knowledge (epistemology), roles and values of the

researcher (axiology) and how that knowledge can be acquired and interpreted (methodology). Ormston et al. (2014) also note that the research philosophy focuses on the researcher's values, beliefs, and views and reflects the researcher's assumptions about the nature of truth, knowledge, and paradigms. A research philosophy guided the researcher during this research study, and created an awareness of the researcher's own values and beliefs that shapes how knowledge is both understood and pursued. Guba and Lincoln (1994) note that philosophical assumptions are characterised by the way in which researchers respond to basic paradigmatic questions within the research domain namely, ontological, epistemological and methodology and axiology.

Research philosophical assumptions refer to our belief systems, and are essential elements in shaping how knowledge is both understood and pursued relating to a research paradigm and encompasses the following components as note below (Guba & Lincoln, 1994; Wagner et al., 2012; Kivunja & Kuyini, 2017):

- Ontology refers to the nature of reality and concerns the form and nature of reality, and the participants unique experiences will be investigated. For purposes of this study, the impact of an mTBI is not seen as an objective fact, but as an experience, and will investigate the different ways or variations in the participants' experiences will be investigate.
- Epistemology refers to the basic belief and about the nature of knowledge such as how we know what we know. This study is positioned within an interpretivist epistemology, and the researcher recognises that knowledge is constructed through the participants' experiences and interpretations. Rather than seeking an objective "truth" about mTBI, the research focuses on how individuals perceive and make sense of their condition and the effects thereof on self-efficacy and work adjustment.
- Axiology, or questions related to value, concerns what we believe to be true or and the role of assigning value in truth. It is guided by ethical considerations, empathy, and respect for participants' dignity and subjectivity. This value stance also underpins the commitment to amplifying participants' voices and promoting understanding that may contribute to more supportive workplace environments.
- Methodology (or research approach) guides the research design, data collection, and analysis processes in a research study.

Given the above, the researcher provides an understanding of the concepts for purposes and relevance to this study below.

3.2.1 Ontology

Ormston et al. (2014) define ontology as "concerned with the nature and what there is to know about the world, and key logical questions concern whether or not there is a social reality that exists independently of human conceptions, interpretations, and closely related to this, whether there is a shared social reality or only multiple contexts specific ones" (p. 4). Kivunja and Kuyini (2017) further describe ontology as "a branch of philosophy concerned with the assumptions we make in order to believe that something makes sense or is real, or the very nature or essence of the social phenomenon we are investigating" (p. 27). Crotty (1998) describes ontology as a study of being and being concerned with what is or the nature of existence or reality. Patton (2002) notes that researchers have assumptions about reality, how it exists, and what is known about it, and it is the ontological question that leads a researcher to inquire what kind of reality exists, stating that "A singular, verifiable reality and truth or socially constructed multiple realities" (p. 51). Goertz and Mahoney (2012) point to the fact that most concepts are intended to represent a phenomenon in the empirical world as they actually exist. Thus, when we ask about the meaning of a concept, we are actually asking about the nature of reality itself. Dudovskly (2022) describes ontology as the study of being and deals with the nature of reality and reflects the individual's interpretation about what constitutes a fact and in simple terms is associated with what may be considered reality.

Qualitative researchers adopt a semantic approach and attempt to implicitly define the attributes of a concept. Quantitative researchers assume an unmeasured or latent variable, and will then attempt to identify good indicators with which it may have a causal relationship. The researcher adopted phenomenography for purposes of this study, where, according to Cutler et al. (2017), qualitative research such as phenomenography is ontological, and emphasis is placed on the way individuals construct their own reality and to align this with their unique experiences and understanding of the world. Ontology played a role in shaping researchers' view and defining the nature of the experiences of the participants who suffered an mTBI.

The researcher's ontological position would incorporate what the researcher believes as the

participants' real experiences following an mTBI. Given the use of phenomenography, the researcher's ontology would be non-dualistic or experiential, as reality would then be constituted through the participants' subjective experiences, and interpretations of their experiences. Focus is placed on the different ways and/or the variations of the participants' experiences, particularly in terms of how they perceive their own self-efficacy and ability to adjust to work following their mTBI. Furthermore, the researched hoped that these collective experiences would provide rich and meaningful data that would assist and shape their beliefs in their capacity to adjust to work. Within context of their workplace as an ontological structure, the study aims to impact of the employers' support and validation and how work interventions can further form part of the participants' experiences, thereby contributing to increase self-efficacy and work adjustment.

Ontology is thus embedded in the assumptions that the participants experiences of reality is different following an mTBI. Ontology will guide the researcher on how the participants understand and make meaning of their injury, through the sense of self-efficacy and their ability to adjust to work following an mTBI. Rather than seeking a single objective truth, the researcher's ontological stance would embrace the variability and richness of the participants' experiences as real and worthy of exploration.

3.2.2 Epistemology

The way in which a researcher goes about collecting and interpreting data is strongly influenced by how knowledge and truth are interpreted. From this point of view, the researcher adapted an epistemological standpoint. In simple terms, epistemology refers to the theory of knowledge, and is concerned with how knowledge is gathered and from which sources it is obtained (Darlaston-Jones, 2007). Darlaston-Jones (2007) further note that the researcher's view of the world and the knowledge gained is likely to influence how the data collected would be interpreted within an interpretivist framework, which asserts that the participants' knowledge is constructed through interpretation. As noted earlier, this research study adopted phenomenography and a second-order perspective, i.e. the focus is on how the participants' collectively experienced and understood the phenomena, rather than a locus on the theoretical constructs and/or what objectively constitutes an mTBI.

This study makes the epistemological argument that reality is constructed by and between those

experiencing it. Through the use of semi-structured interviews, the researcher would be able to allow the participants to reflect on their personal experiences. Epistemology is described as the study of knowing, as this relates to how the researcher makes sense of the nature and/or kind of the participants knowledge and experiences (Darlaston-Jones; 2007; Babbie, 2013; Al-Saadi, 2014; Dudovskiy, 2022). Ormston et al. (2014, p. 6) describe that epistemology is, firstly, “concerned with knowledge, and with the ways we learn about the world and reality, as well as what forms the basis of our knowledge”. The epistemological question will then guide the researcher to think about “the possibility and desirability of objectivity, subjectivity, causality, validity, generalisability” (Patton, 2002, p. 134). Marton and Booth (1997) state that the world (as experienced) is not constructed by a study’s participants, nor is it imposed upon them, but it is constituted by their knowledge and the internal relation of their experiences.

This study is further grounded on a qualitative interpretive epistemology, which holds that the participants’ experiences constitutes a valid source of knowledge. This source of knowledge is contextualised in terms of the meaning that the participants’ attached to the impact of the mTBI on their self-efficacy and their beliefs regarding their physical, cognitive, and emotional capacity to adjust to work. For this reason, the knowledge is co-constructed through the interactions between the researcher and the participants, rather than discovered as an objective truth.

Emphasis was also be placed on the second order perceptive, that is, the researcher will seek to explore how the participants’ experiences of a given , rather than studying the phenomena directly. The aim of this study is to explore the variation in the ways the participants understand, perceive, interpret and assign meaning to their experiences. The aim of the study is to try and make sense of the impact on self-efficacy and work adjustment following a mTBI. The study does not aim to investigate the medical impact and/or measurable consequences of a mTBI. Consequently, the researcher aimed to construct not just a set of different meanings but also a logically inclusive structure of the different meanings as obtained from the data. The categories of description constituted by the researcher will represent the different ways of experiencing the impact of self-efficacy on work adjustments following an mTBI.

It is hoped that this epistemological orientation would enable the researcher to gain a deeper understanding of how the impact of an mTBI impact on self-efficacy including the participants’ functional capacity to adjust work Furthermore, the above knowledge will support the

development of practical insights, through the validation practices, into how to align the participants' collective experiences during work adjustment following an mTBI.

3.2.3 Axiology

Axiology refers to the role of values and ethics in research. The choice of methodology further also reflected the researcher's commitment to the ethical engagement in validation the participants' narratives and perspective and ensuring that their experiences are authentically presented. Dudovskiy (2022) refers to axiology as the level of engagement and assessment of the researcher's own value and attempts to clarify how the researcher explains and predicts the world or seeks to understand the world. Axiology may be described as the focal points of what the researcher values and tends to guide to the aim of the research. This study takes the axiological position that values are inevitably embedded in the research process. Based on researcher's personal values, individuals judge their own and others' behaviour through either accepting or condemning and would either like and dislike or speak good or bad about such behaviour (Hart, 1971).

Dudovskiy (2022) noted that axiology is important because the researcher's values will affect how the research is conducted, and what the researcher values in the research findings. Ormston et al. (2014) further states that, if the phenomena that are being researched are seen as independent of and not affected by the researcher's behaviour, the researcher would remain objective, and the research would be value free. While a researcher would remain objective, most researched (participants) would be affected by the research process, knowing that they are being studied, and may find it difficult to remain objective. This is particularly relevant in this study, involving individuals who have experienced an mTBI, where empathy and sensitivity would be essential on the part of the researcher. Ormston et al. (2014) state that, in the context of transparency, reflexivity is considered important when adopting a qualitative research methodology. Reflexivity is described "as the researchers' continuous examination of their own values, beliefs and judgements to assess if these may influence the outcome of the research" (Ormston et al., 2014, p.8). Kivunja and Kuyini (2017) argue that the implementation of ethical considerations ought to focus on four principles which the researcher needed to uphold when dealing with participants and data. These principles have the acronym PAPA and refer to privacy, accuracy, property, and accessibility, and are briefly described below.

3.2.3.1 Privacy

Under this principle, the information that participants will be required to reveal about themselves, their associations, or their organisations, needs to be considered. Privacy considers the conditions and safeguards under which data will be gathered and analysed. It considers further what issues, for example, can participants keep to themselves, and not be forced to reveal to the researcher or anyone else.

The study maintains strict confidentiality regarding participants' identities and data. Autonomy was maintained and each participant was assigned to a letter of the alphabet insuring the protection of their privacy. Interview recordings and transcripts were securely stored on encrypted, password-protected systems. Prior to conducting the interview, the participants were again informed of their right to withdraw from the study at any time, without penalty. Given the nature of the study, and specifically given the cognitive and emotional vulnerabilities of post-mTBI participants, these discussions have been conducted with utmost care, respect, and empathy.

3.2.3.2 Accuracy

This principle considers who is responsible for the authenticity and accuracy of information used and obtained during a given research study. Similarly, it considers how the researcher cross-checks information with participants so as to ensure that their data has been accurately recorded. During this study, accuracy was maintained at all times, and the researchers continuously checked to ensure that the interview data being collected was fully representative of the participants experiences. The transcripts were transcribed verbatim immediately following the interviews to ensure continuality. In addition, the researcher was, at all times, committed to preserve the participants' intended meaning relating to the phenomena experienced and not to impose theoretical assumptions. The researcher allowed the participants to express their experiences, which allowed the researcher to gain meaning as it emerged from the interview data. The researcher was, at all times, acutely aware during the process to maintain data correctness.

3.2.2.3 Property

Under this principle, ownership of the research data needs to be considered. The data collected during the research study was considered to be co-owned by the researcher and the participants. Participants were made aware that their narratives contributed to collective experiences, and were informed how their narratives would be used during the study. During the course of the study, the researcher also avoided exploitation of any of the participants' personal data and ensured the responsible use for the data within an academic and professional context. In addition, at the time of agreement to participant in this study, each individual participant was informed of the data ownership.

Further aspects for consideration included the ownership of the data for implementation and/or discussions with organisations for consideration in the work environment to assist those employees who suffered an mTBI in work adjustment, as well as for publication purposes, were discussed and agreed.

3.2.2.4 Accessibility

This principle considers who will have access to the research data, as well as how the data will be kept safe and secure. It further considers the conditions under which and with what safeguards researchers and participants will have access to the data and how access to the data will be gained. Following obtaining consent to participate the research study, the researcher ensured that all participants had a clear understanding and informed access relating to the purpose, objectives and aim of the study, as well as its implications. Participants were offered the opportunity to receive a summary of findings, promoting transparency and inclusion in the research process.

In addition, at the time of agreement to participant in this study, each individual participant was offered the opportunity to receive a summary of findings, promoting transparency and inclusion in the research process.

The researcher's axiological position at the time of this study ensured that ethical considerations were firmly embedded in every stage of the study from the initially design, the ethics application during the interviews with the participants, as well as the during the data

analysis and while writing up of the study. The researcher at all times showed a deep respect for the participants, and specifically given the sensitive nature of the participants' experiences, relating self-efficacy and work adjustment following their mTBI.

3.3 RESEARCH PARADIGMS

Building on the researcher's philosophical way of thinking, the research paradigm represents the theoretical framework that would guides the choice of methodology and research design (Kivunja & Kuyini, 2017). Thomas Kuhn (1996 as cited in Grix 2010, p. 20) refers to a "paradigm as the institutionalisation of intellectual activities which operationalises the philosophical positions into an appropriate research approach". Paradigms are important because they guide the researcher's beliefs and values, as well as the research process, and choice of research methodology. The term paradigm refers to the acceptance of a particular approach, which would include the theory, application, and instrument, as well as the rules and law that would lead to the provision of a model (Grix 2010). Kivunja and Kuyini (2017) assert the centrality of a review of literature by leaders in their fields to provide the researcher with a deeper understanding of the meaning of research paradigms, in order to deal with the specific way of developing knowledge relating to their proposed studies. The philosophical foundation of this study is embedded in its ontological, epistemological, axiological, and methodological positions, in support of investigating the collective experiences of the participants' self-efficacy and work adjustment following an mTBI.

Literature revealed that opposing views of the world and knowledge appeared and led to interpretive framework (Al-Saadi, 2014). According to these views, there are ways of knowing about the world other than through direct observation, as well as individual perceptions and interpretations. Dudovskiy (2022) describes interpretivism as involving the researcher's interpreting elements of the study and integrating the human interest into a study. Nickerson (2023) asserts that interpretivism pursues an understanding of the beliefs, motivations, and reasoning of individuals in a specific situation, as essential to decoding the meaning of the participants' narratives about the phenomenon. Knowledge of the participants' world is based on their understanding from their reflection on events rather than only on their experiences (Ormston et al., 2014). In general, an interpretivist approach can be described based on the individuals beliefs and values (Dudovskiy, 2022).

Nickerson (2023) states that, under an interpretive paradigm, understanding the world is gained from the subjective experiences of the individuals. Interpretivism from an ontological perspective perceives reality intersubjectively, that is, based on meanings and understandings of social and experiential levels (Nickerson, 2023). This study adopted a non-dualistic stance, recognising that reality is neither objective nor fixed, but would focus on the collective experiences as described subjectively the participants**.** Interpretivism focuses on meaning, and meaning exists through the lens of the participants. The impact of mTBI was therefore investigated as a reality for the participants, and these real experiences were shaped by their self-efficacy, and ability to adjust to work following their mTBI. This supports the aim of obtaining rich information regarding the different ways the participants experience and interpreted their capacity to adjust to work adjustment, rather than seeking a single, objective truth (Al-Saadi, 2014; Ormston et al., 2014; Dudovskiy, 2022; Nickerson, 2023).

Interpretivism from an epistemological perspective accepts that the participants' experiences cannot be separated from their knowledge, and therefore, that there is a clear link between the researcher and research subjects. (Al-Saadi, 2014; Ormston et al., 2014; Dudovskiy, 2022; Nickerson, 2023). Within an interpretivist framework, knowledge is constructed through human experiences. In view of the latter, it is aligned with phenomenography, and a second-order perspective. The focus here is on how the mTBI it understood to have impacted on the participants' experiences and sense of self efficacy and ability to adjust work, and not on what objectively constitutes an mTBI. The above approach allows the researcher to identification categories of description, and to obtained different collective ways of experiencing the phenomena**,** particularly in relation to self-efficacy and work adjustment. (Al-Saadi, 2014; Ormston et al., 2014; Dudovskiy, 2022; Nickerson, 2023).

As part of an interpretivist data collection, a variety of techniques can be used, including interviews (and in many forms) such as face-to-face, over the telephone or focus group interviews. The researcher also made use of additional sources including medical history and previous neurological assessment data to gain deeper understanding and knowledge so as to reflect further on the participants' collective experiences. The researcher felt that adopting an interpretivist paradigm assisted in gaining a better understanding of the participants' world and the importance of further acknowledging their subjective experiences and meaning through the lens of their experiences.

A disadvantage of interpretivism, is subjectivity and bias on the part of the researcher. The primary data was generated by the researcher as reflected by the participants experiences and the data could be affected by the researcher's beliefs and values and thus the data cannot be generalised. Dudovskiy (2022) states that the reliability and representativeness of data may then become questionable. Dudovskiy (2022) states that validity during interpretivism is able to be achieved because the data obtained from the participants would be trustworthy, when reflecting honest experiences. At the time of this study, the researcher, at all times, made every effort to remain unbiased and objective during the data collection and data analysis (Dudovskiy, 2022; Sandberg 1997; Nickerson, 2023).

Interpretivism as a research paradigm is based on the assumption that social reality is not singular or objective, but is, instead, shaped by participant's beliefs and experiences and studied in their social context (ontology), through the participants subjective interpretations of their collective beliefs and experiences (epistemology). This will be achieved by using applicable data collection methods, including interviews and observation, as well as relevant and applicable historic document analyses, as well as the general self-efficacy questionnaire score. The researcher will also use biographical data, together with certain historical data and GSE score, with a numeric measure, where some statistical analysis of the data will be presented in a quantitative format. The data will be analysed and interpreted through the application of an interpretivism paradigm.

Sandberg (1997) further states that the use of interpretivism in a synonymous way as a qualitative research approach as a research design and referred to this as an interpretivist qualitative research design (Dudovskiy, 2022; Sandberg, 1997; Nickerson, 2023). Interpretivism is often associated with three schools of thought, including phenomenography (Dudovskiy, 2022; Nickerson, 2023), as adopted in this study.

3.4 METHODOLOGY

The overall plan and flow of a research study are referred to as its methodology. Grix (2010, p. 26) stated that "methodology is concerned with the logic of social enquiry, in particular with the investigation of the potentialities and/or limitations of particular procedures". It therefore extends beyond the selection of methods alone and includes the philosophical assumptions, research design, and analytical processes that shape the study.

A clearly articulated methodology is essential because it explains how the study will address the research questions, how data will be collected and analysed, and how the findings may contribute to existing knowledge. Crotty (1998) described methodology as the strategy, plan of action, or design that informs the choice and use of research methods. Similarly, Kivunja and Kuyini (2017) note that methodology logically refers to the data-gathering process, the participants, instruments that will be used during the research, and the data analysis methods. Methodology therefore focuses on how the researcher comes to know about the world, or gain knowledge about a part of the world and serves as the bridge between philosophical assumptions and research procedures. As previously noted, the primary objective of this study is to explore self-efficacy and work adjustment following an mTBI. During the study, the researcher attempted to gain insight into the participants' perceived beliefs in their physical, cognitive and emotional capacity to adapt to work following a mTBI.

When considering methodology, it is important for a researcher to provide an outline of the proposed research process, including how data will be collected and how the participants' responses will be analysed to address the research questions as well as how the study will contribute to knowledge. Rehman and Alharthi (2016, p. 52) describe methodology as "an articulated theoretically informed approach to the production of data" and the critical analysis of data production techniques. It also refers to the "strategy, plan of action, process or design that informs one's choice of research methods" (Crotty, 1998, p. 3). Grix (2010) further states that methodology is sometimes mistakenly considered synonymous with research approaches such as epistemology or paradigms. Research approaches and paradigms, however, are broader philosophical positions concerned with the origin, nature, and limitations of human knowledge.

Methodology is important because it guides the researcher in making decisions regarding the type of data required and the most appropriate methods of data collection for a specific study. The methodological question therefore asks how the world ought to be studied. Methodology is "concerned with the discussion of how a particular piece of research should be undertaken" (Grix, 2010, p. 32). Given the above, the choice of methodology for this study is discussed below together with the relevant paradigmatic assumptions. The specific methodology was selected as it is well suited to addressing the research question of how individuals perceive, understand, and experience self-efficacy in relation to work adjustment following mTBI.

During the initial phases of developing this research proposal, he researcher reflectively examined various research methods that could be applicable to the study before selecting the final research approach. Jobin and Turale (2019, p. 315) state that “the theoretical perspectives that each of us bring to a research study shapes the way in which the researcher designs the study and interprets the findings, even if we have explicitly identified our assumptions about the phenomena or about the research processes, or have attempted to be ‘objective’ about what we are trying to achieve”.

For the purposes of this study, a qualitative research approach has been adopted in favour of a quantitative research approach. The researcher will attempt to gain a comprehensive understanding of the participants’ collective experiences, including their perceived physical, cognitive, and emotional capacity as well as their ability to seek workplace support during work adjustment following an mTBI. This approach was adopted as it was seen as most appropriate to explore how individuals perceive, understand, and experience self-efficacy within the context of work adjustment rather than to measure predetermined variables or test causal relationships. In light of the above, the study is primarily grounded in the principles of phenomenography, which seeks to explore the qualitatively different ways in which individuals experience and understand a phenomenon. In this case, the focus is on how individuals perceive their self-efficacy in relation to work adjustment following an mTBI.

Phenomenography is a qualitative, interpretivist research approach that systematically explores variation in how individuals experience a phenomenon. Through the analysis of interview data, researchers construct categories of description that are logically related and organised into an outcome space, representing structural variation in experience rather than numerical measurement (Marton & Booth, 1997; Marton & Pong, 2005; Åkerlind, 2012). Contemporary applications in health and education research continue to support its use as a rigorous qualitative methodology that emphasises relational meaning-making and structural variation rather than statistical generalisation (Åkerlind, 2024; Sims; 2024). Phenomenography was therefore considered particularly suitable for this study because it aligns closely with the research objective of exploring self-efficacy and work adjustment and the research question concerning how individuals perceive, understand, and experience self-efficacy following mTBI.

Although this study is inherently qualitative and concerned with self-efficacy and the participants' collective experiences during work adjustment following mTBI, a limited quantitative element was included to enhance methodological rigour, transparency, and contextual understanding. The inclusion of the quantitative data does not alter the qualitative orientation of the study but rather, it serves a supportive and descriptive function (Feldon & Tofel-Grehl, 2012). Feldon and Tofel-Grehl (2022) argue that qualitative methodologies may be strengthened through the careful integration of complementary quantitative indicators where these remain subordinate to the primary interpretive design (Feldon & Tofel-Grehl, 2012; Creswell & Plano Clark, 2018).

The inclusion of descriptive statistics does not constitute a mixed methods design, as the epistemological and methodological foundation of this research remains firmly embedded in a phenomenography research study. Phenomenography is concerned with describing the qualitatively different ways in which individuals experience and conceptualise a phenomenon, rather than measuring variables or testing hypotheses (Marton & Booth, 1997; Marton & Pong, 2005; Åkerlind, 2012). This orientation is consistent with the objective of exploring self-efficacy and work adjustment and understanding the variation in how participants perceive, understand, and experience these phenomena.

In this study, the primary analytic focus remains the outcome space derived from participants' interview data, which captures variation in experience rather than numerical comparison or inference. During this study, descriptive quantitative techniques were included following the phenomenographic analysis to enhance the qualitative analysis. Specifically, frequency counts, percentages, and standard deviations were used in relation to participants' historical data and responses on the GSE. These statistics were descriptive only and did not imply statistical generalisation regarding the analysis of participants' experiences obtained during the interview phase.

In addition, a structured self-efficacy measure informed by Bandura's theoretical framework was utilised as a supplementary data source. The purpose of this instrument was not to quantify self-efficacy as an objective construct, but rather to provide contextual insight that supported the interpretation of participants' narrated experiences. The integration of this measure allowed for a more nuanced understanding of participants' self-efficacy scores and their alignment with the qualitatively derived categories and outcomes identified during analysis. The emphasis in

this phenomenographic study therefore remained on capturing the variation in participants' experiences rather than measuring relationships between variables or producing generalisable findings. This was consistent with the study's aim of exploring how participants perceived and experienced their own self-efficacy during the process of work adjustment following mTBI.

The integration of the limited mentioned quantitative data is therefore best be described as a qualitative design with descriptive quantitative support relating to participants' historical data and performance on the GSE. This approach strengthened the study by enhancing clarity, supporting interpretation, and providing a transparent account of how categories of description were represented within the participant group, while remaining fully aligned with phenomenographic principles.

The quantitative component in this study provided rich supplementary and descriptive data in supporting the phenomenographic analysis. This is consistent with phenomenographic principles, in which numerical summaries may be used to provide contextual depth, while the primary analytical focus remains on the qualitatively different ways in which participants experience and construct the phenomenon under investigation (Field, 2018; Tabachnick & Fidell, 2019).

Goertz and Mahoney (2012) note that qualitative researchers should adopt a semantic approach that leads to logical analysis of the data in an attempt to identify the intrinsic attributes of a concept. The purpose of qualitative research is to explore, describe, understand, and explain phenomena. It concerns the "what", "how", and "why" and relies on human behaviour and experiences (Admad et al., 2019). Qualitative research has also been described as particularly useful when the researcher seeks to understand human behaviour (Lichtman, 2014).

This qualitative research approach provides an in-depth understanding of participants' experiences, circumstances, and perspectives. It allows the researcher to explore individual behaviours through methods such as semi-structure interviews, which were used in this study. Ahmad et al. (2019) describe qualitative research as a naturalistic inquiry that seeks an in-depth understanding of social phenomena within participants' own worlds. Through modern technology, researchers may also use platforms such as Zoom Video Communications for online interviews as alternative data-collection methods (Dudovskiy, 2022).

These qualitative approaches include grounded theory, discourse analysis, ethnography, phenomenology, phenomenography, narrative inquiry, and case study research. The present study adopted a qualitative paradigm underpinned by phenomenography to explore the different ways individuals experience and understand the impact of self-efficacy on work adjustment following a mTBI. More specifically, the study sought to address the research question of how individuals perceive, understand, and experience self-efficacy in relation to work adjustment following mTBI, thereby fulfilling the study objective of exploring the relationship between self-efficacy and work adjustment after injury**.** This approach is further discussed and explored in the section below.

3.5 PHENOMENOGRAPHY

Phenomenography was first developed by Ference Marton and his colleagues in Sweden at the University of Gothenborg in the mid-1970s (Cutler et al. 2017). Marton (1986) states that the approach originally emerges as an empirical design to answer questions about thinking and learning as relevant to an individual's experiences, rather than rather than a philosophical or theoretical one.

Phenomenography can be understood as an interpretivist qualitative research approach that focuses on the different ways in which people experience and interpret a phenomenon as the object of the research. The participants' interpretations, experiences and awareness of the phenomena in their world are explored through their own oral and written descriptions of their experiences.

Dudovskiy (2022) described phenomenology as a philosophical tradition that attempts to collectively try and understand the world through the participants' experiences of the phenomena. Phenomenology focuses on experiences, events and occurrences with little regard for the external and physical reality, where focus is placed on the meaning of the phenomena and the ideas that are generated from the rich amount of data collect by means of induction and human interests (Dudovskiy 2022). Phenomenology considers the description of the essence of the experience of the phenomenon, and describes phenomenography as focusing on the variation in experiences of a given phenomenon (Dudovskiy 2022).

A phenomenographic analysis is interpretive and descriptive, and seen as a valuable approach

in psychology for exploring individual experiences of the phenomena. In a phenomenographic study, the aim is to identify the qualitative different ways or variations in which people experience a phenomenon.

The researcher was interested in how the participants construct their experiences of self-efficacy, i.e. their belief in their capacity to adjust to work. Self-efficacy is regarded as the phenomena of interest. Self-efficacy refers to the main theoretical construct, and although not directly observable, can be inferred from the interview data, observation or measured data, such as the general self-efficacy scale as an independent variable (i.e. it has been described as an important factor that can influence behaviour to achieve a goal or outcome), such as work adjustment following an mTBI. Work adjustment refers to the actual behavioural experience i.e. the outcome and the dependent variable or the outcome of the experience influenced by self-efficacy.

By exploring self-efficacy as the primary phenomena, the research will attempt to gain insight into how the participants' construct their experiences of self-efficacy and how their beliefs in their cognitive, emotional and behaviour capacity influence their adjustment to work following an mTBI. In this context, the word experience can be seen or used to mean different things, and the focus will be placed on experiences relating to self-efficacy and the participants' belief in their capacity and their understanding of work adjustment and how the participants construct their experiences regarding their belief in their capacity to adjust to work in the sense of what they believe adjusting to work meant to them. The researcher will attempt, to explore self-efficacy in terms of the meaning and the understanding of their experience by seeking examples of how the participants went about adjusting to work. It is suggested that, based on the strength of the participants' self-efficacy, typically they will go about differently adjusting to work, that is, they would focus on different aspects and exhibit different behaviour that would impact on their work adjustment experiences. Work adjustment as the dependent variable then refers to the outcome of behaviour or different experiences in the work environment, workspace, their tasks and/or routines to accommodate their abilities to cope with work adjustment following an mTBI. Work adjustment is seen as a tangible and observable outcome or experience that can be verified by the participants and others, including the researcher.

Phenomenography is not a core research interest of the Psychology Department at the University of South Africa (UNISA) where the researcher is registered for the study. In

addition, not many studies could be found that had adopted phenomenography, in the field of psychology in South Africa. Åkerlind (2005) has stated that limited published literate relating to phenomenography is available, and has resulted in critique of the research approach based on misunderstandings of the nature of approach. Aggravated by a lack of published literature, phenomenographic contributions to the research literature are often assessed by journal reviewers without a clear sense of awareness of the unique methodological requirements of the approach (Åkerlind, 2005). Jobin and Turale (2019) note that phenomenography is also not frequently used in much of the Asia-Pacific region, aside from in Australia. Phenomenography is often used in Scandinavian countries and in the United Kingdom (Arvidsson et al., 2001).

While preparing for this study, the researcher was interested in the participants' collective experiences regarding their beliefs in their capacity to adjust to work within an organisational setting) following an mTBI, rather than in examining the theory or logic underpinning the phenomena. More recent literature on phenomenography has identified learning theory as one of the underlining theorical foundations of the approach. Phenomenography was originally developed in the field of education, but has subsequently been applied in many other areas of research that utilise qualitative social science methods. Wilson et al. (2018) noted that phenomenographic analyses have been applied in the field of nursing and health research (Barnard, McCosker and Gerber 1999; McCosker et al. 2003; Sjöstrom and Dahlgren 2002); domestic violence research (McCosker et al., 2003); organisational change (Dunkin 2000); information research (Yates, Partridge and Bruce 2012); and sustainable design (Mann, Dall'Alba and Radcliffe 2007), as well as various business studies (Lamb, Sandberg and Liesch, 2011). Sandberg (2000) used phenomenography in an organisational setting, and it is noted that this study was the first time the approach was observed within organisational settings, where, ever since, phenomenography studies in organisational settings have increased in use (Da Rocha-Pinto et al., 2019). Various organisational studies were noted in Lamb, Sandberg and Liesch (2011), who researched internationalisation process; Da Rocha-Pinto et al. (2019), who investigated valuation of knowledge, as well as Koskela and Schuyler (2016), who examine d sustainable leadership in organisations. Da Rocha-Pinto et al. (2019) and Åkerlind (2004) noted that the use of phenomenography, when grounded in a solid theoretical foundation, has increased its contribution and use in organisational settings. Marton & Booth (1997) describe phenomenography as not being a method in itself, although there are methodical elements associated with the analysis, nor is it a theory of experiences, although there are theoretical elements to be derived from it.

Phenomenography is based on interpretations, and allows the researcher to understand the experiences from a set of perceptions of individuals with regarding their experiences of a given phenomenon (Da Rocha-Pinto et al., 2019). Marton & Booth (1997) described it as a way or an approach to the identification and formulation of research questions that is aimed at questioning the relevance of and attempting to understand the phenomenon by focusing on the way in which it is experienced.

Phenomenography does not question the nature of a phenomenon (as in phenomenology), but focus is placed on the experiences of the phenomenon in an attempt to understand how the participants experience the phenomena differently. This type of argument provides the foundation for the researcher, in order to make sense of the participants' belief in their capacity to handle their situations and world in achieving a given goal, such as adjusting to work following an mTBI. When it comes to phenomenography, the researcher will attempt to understand the different ways in which the participants experience or handle the situations and their world differently, or in relation to which they are acting (Marton & Booth, 1997).

The idea of a phenomenographic study is to focus on a way of experiencing something, or the variations in the ways of experiencing a given phenomenon, as well as the "an anatomy of awareness" of it (Marton & Booth, 1997, p. 111). This implies an interest in the variation and change in capabilities of experiencing the world or rather in capabilities for experiencing a particular phenomenon in the world in certain ways (Marton & Booth, 1997).

3.5.1 Theoretical Underpin of Phenomenography

The starting point in phenomenographic research is from a rational point of view, based on the relationships between the individuals and the aspects of reality (Marton, 1986). Marton & Booth (1997, p. 13) note that" phenomenography further adopts non-dualistic ontology through the experiences of the participants". The aim is not to study the phenomenon itself but, the researcher will instead investigate the different ways in which participants experience it. From this perspective it is also possible to align the approach epistemologically, but it is notable that phenomenography starts from a non-dualistic ontology, based on an understanding of the human-world relationships (Da Rocha-Pinto et al., 2019).

Ornek (2008) also states that phenomenography initially takes on an ontological perspective, meaning that participants are not separate and independent of one another. Marton and Booth (1997) note further that the assumption of the structural relationships is based on epistemological assumptions, but also adopts a non-dualistic ontology, noting that there is a real world ‘out there’ as well as a subjective world ‘in here’, and this refers to the “nature of existence consisting of one interconnected whole, rather than many separate things put together”. Consequently, the researcher aimed to construct not just a set of different meanings, but a logically inclusive structure of and relating to the different meanings as presented by the participants. Marton and Booth (1997) further state that the research questions asked assist the researcher in gaining knowledge about the participants’ world and the participants’ way of experiencing something. The central object of phenomenography is the variations in the experiences of the same phenomenon, and therefore, the interpretation of the phenomenon is abandoned to construct a scheme which is represented by a set of extant interpretations (Marton, 1981).

The above can be described as the participants’ experiencing something that is interlinked with a structure, as a way of discerning it from and relating it to a specific context. Han & Ellis (2019, p. 2) noted that, from an ontological perspective phenomenography believes that “an individual cannot experience without something being experienced”. It is then suggested that the researcher does not treat the phenomena separately from the people who are experiencing it, which then further supports a phenomenographic ontology (Han & Ellis, 2019). This means that the participants’ experiences regarding their beliefs in adjusting to work do not constitute an inherent trait, but may vary in the context of their belief in their capacity, and would also depend on other factors, such as their jobs, organisational culture, as well as the participants’ views of the organisational context and work environment.

Richardson (2019) noted that social research as an interpretative process focuses on the meaningfulness of individuals experiences in their environment, and more specifically, on the participants’ ways of constructing experiences of how they believe their capacity influenced their ability to adjust to work. From this perceptive, Richardson (2019) states that any researcher adopting a phenomenographic design ought to follow an appropriate epistemological paradigm. This shapes our beliefs about what constitutes knowledge, and how it is used to understand our world.

Han and Ellis (2019, p. 2) note that, from an epistemological position, this reflects the participants' view of the nature of the knowledge and is grounded in the "intentionality of the participants' behaviour". This behaviour is characterised by purposefulness and consciousness and involves different foci of awareness of a phenomenon. Han and Ellis (2019) note that this intentionality can lead to variations in participants' experiences. Taking this into account, it is notable that some participants may experience different parts of the phenomenon while others, even if they experience the same part of the phenomenon, these parts may not exist in the foreground of their awareness. In other words, people may share the same experiences, but may "emerge from them with a different meaning" (Han & Ellis, 2019, p. 2).

In phenomenographic analysis, another important factor is its unique second-order perspective (Han & Ellis, 2019). The aforementioned set of perceptions is known as a second order perspective, which emphasises collective meaning and variations (Marton, 1981). From a first order perspective, the researcher observes and analyses the researcher observes and analyses the phenomenon and interprets the data by placing the participant as the object of research. During phenomenography, the unique second order perspective of the participants' experiences are analysed. The researcher would therefore attempt to experience the world through the eyes of the participants (Marton, 1986; Åkerlind, 2005; Da Rocha-Pinto, 2019). These experiences are perceived and conceptualised differently within the world of each participant. The outcome of the participants' experiences provides a map or flow diagram of their collective consciousness and explains the structure of the phenomenon, based on the perceptions of individuals who experience it in different ways (Da Rocha-Pinto, 2019).

Marton and Booth (1997, p. 82) stated that it is also important to "distinguish between a situation and a phenomenon". A situation is described as always being experienced within a context, such as a time and a place, whereas a phenomenon is experienced as abstracted from or transcending such an anchoring. Given the above, a phenomenon cannot be experienced in the absence of a situation, and the two concepts are thus intertwined. In addition, a situation can only be experienced in terms of that which transcends the individual's ability to make sense of the here and now through past experiences, and to use these experiences to reflect on similarities, differences and variations as experienced in the present. Marton and Booth (1997, p. 83) refer to this "wholeness of what is being experienced simultaneously as the situation", and they refer to the entities that transcend to the situation, linking it with other situations that give it meaning as a phenomenon.

Phenomenography can be described as a qualitative research approach that seeks to explain variations in how individuals experience, understand, and conceptualise phenomena, thereby providing insight into their cognitions, feelings, and behaviours (Åkerlind, 2005; Da Rocha-Pinto, 2019; Stenfors-Hayes et al., 2013). Ornek (2008) notes that there are various ways in which people describe and understand a given phenomenon, because they experience it in different ways. In this study, the researcher seeks rich information from which to gain insight into the way in which participants construct their experiences of self-efficacy and their beliefs regarding their physical, cognitive, and emotional capacity to adjust to work following an mTBI. Sandberg (2017) found that the meaning of work was determined through workers' experiences of work, rather than through a set of attributes that constituted work competence. More specifically, these findings demonstrated that the particular experiences of work defined certain attributes as essential, and that these attributes could then be organised into a distinctive structure of competence at work. Phenomenography, as an interpretative approach, is of considerable methodological value and, for this reason, has been adopted for the purposes of this study (Åkerlind, 2005; Sandberg, 2017).

Phenomenography advocates an understanding of the variations in the way the same phenomenon may be perceived by various individuals. This suggests that individuals will experience a specific phenomenon differently within a similar setting, and in a variety of ways. These variations are not viewed as purely individual attributes; rather, they represent a limited number of qualitatively different ways in which a phenomenon is experienced and understood across a group of participants (Da Rocha-Pinto, 2019). This allows the researcher to identify variations in awareness or conception regarding the participants' experiences and allows a focus on the reflections arising from participants' experiences (Åkerlind, 2005). Stenfors-Hayes et al. (2013) note that the world, as experienced by the participants, is not constructed by them, nor is it imposed upon them, but it forms part of and is seen as an internal relationship between the participants and their world. Da Rocha-Pinto et al. (2019, p. 386) state that, when a researcher examines individual perceptions of a phenomenon and group these perceptions, the researcher tends to observe a restricted number of different ways of experiencing it. This limited set of experiences constitutes the "conceptions" of the phenomenon, which can be mapped, structured, and analysed.

Phenomenography, then, allows the researcher to map the internal relationship between participants and their experiences as well the ways they conceptualise their experiences in order

to provide a collective structured hierarchy regarding the complexity or extent of the relationships that interrelate the conceptions arising from the researcher's analysis (Marton, 1986; Åkerlind, 2005; Da Rocha-Pinto, 2019; Sandberg, 2017; Daniel, 2021). Delimiting and defining each conception that is identified during the analysis of the data involves describing the elements of these conceptions, and how these elements vary across them (Da Rocha-Pinto et al., 2019). These elements are called explanatory dimensions (Åkerlind, 2005, Da Rocha-Pinto et al., 2019; Daniel, 2021). The findings manifest in a theoretical scheme, described as the "outcome space", where the relationship between the conceptions and the explanatory dimensions of the phenomenon form a coherent structure that shapes the "outcome space" (Da Rocha-Pinto, 2019, p 386).

Following an exploration and in-depth review of the research philosophies and assumptions, research paradigms, as well as schools of thought, the researcher felt confident that phenomenography would be most suitable methodological approach for this study. Accordingly, phenomenography was chosen as the most appropriate qualitative methodology for addressing the research question concerning how individuals perceive, understand, and experience self-efficacy in relation to work adjustment following an mTBI.

3.5.2 Summary

In summary, qualitative research methods, such as phenomenography, can have ontological and epistemological implications, and they assume that the phenomena being studied have a certain nature or existence that exists independent of the individual's perspective. In other words, phenomenography acknowledges that there is a reality beyond the individual's interpretation but focuses on how that reality is experienced and understood.

Ontological and epistemological assumptions formed the basis of this study, informing how the researcher attempted to understand the participants' world through an interpretive paradigm. Within this above context, this research considered the ontological and epistemological assumptions relevant to this study. The researcher adhered to an ontological belief system about the nature of reality namely w*hat* exists*,* what is real, and how things operate in the real world. This ontological belief system guided the researcher towards epistemological assumptions about how the participants came to know their reality based on their experiences, knowledge and validation. The researcher's own ontological position was

that the participants' reality was subjective and constructed through their experiences**.** Guba and Lincoln (1994, p. 168) state that epistemologically, a social constructed reality guides the researcher to reject the belief that individuals ought to be researched as objects; instead, the researcher seeks to understand the phenomenon within the individual's context, through their accounts and interpretations of their experiences. Following the above, ontological and epistemological assumptions formed the basis of this study, as well as how the researcher sought to understand the participants' world through an interpretive paradigm. The researcher adopted an interpretivist epistemology to explore participant experiences and meaning through interviews.

Based on the above, the researcher thereafter built on the relevant axiology to engage with the researcher's own values. Axiology, which concerns the role of values and ethics in research, was central to this study. A qualitative research methodology was used to analyse the participants' narratives and build on the rich contextual data they provided. The researcher conducted the study with a deep respect for the participants' subjective experiences and their interpretation of their sense of self-efficacy and ability to adjust to work following an mTBI. These assumptions guided the researcher during the research study, and provided a framework for the development of the research methodology. The researcher's choice of methodology also reflects a commitment to ethical engagement, valuing the participants' narratives, and to ensure that their experiences were recorded and represented authentically.

Given the above philosophical paradigms, the researcher adopted a BPS model as a guiding theoretical framework**.** Furthermore, the researcher included Bandura's theory of self-efficacy to support an understanding of participants' beliefs in their capacity to generate, apply, and utilise knowledge and skills that contribute to successful work adjustment following an mTBI.

3.6 THE BIOPSYCHOSOCIAL THEORETICAL MODEL

George Engel described BPS theoretical model as an interaction between biological, psychological, and social factors that serve to determine the cause, manifestation, and outcome of the individual's well-being (Lewis, 2008; Dogar, 2007; Espay et al., 2018; Irtelli and Durbano, 2020). The advantage of the BPS theorical model is that it offers a broad and integrated approach to the understanding of human behaviour (Engel, 1977). This theoretical

approach to healthcare provides insight into the three factors, i.e. biological, psychological, and social factors, and how these overlap, interact, and impact on the individual's well-being and risk for illness. Understanding these factors could provide more effective ways of dealing with individual's overall well-being. It also recognises the importance of the individual's self-efficacy and their relationships with others within their life context.

Dogar (2007) further points to the fact that humanistic qualities are highly valued and complement the BPS theoretical approach. This involves the application of various scientific methods to diverse biological, psychological, and social phenomena as they relate to the individual's health and well-being. Firstly, as proposed by Engel, the theory helps researcher and practitioners to better understand the whole person. Consideration is not only given to physiological and medical aspects, but also to psychological and sociological well-being (Engel, 1977).

The BPS theoretical framework also suggests that no single factor is sufficient, and that it is the interplay between the individual's genetic makeup (biology), mental health and behaviour (psychology), and cultural and work context (social) that determines the course of an individual's health-related outcomes. The BPS theoretical model emphasises the importance of understanding human health, and of systematically considering the three domains of biological, psychological, and social influence. This study is set within a biological, psychological and work context, and the research addresses these issues within the literature and field of psychology.

Within the present study, mTBI represents the biological domain, self-efficacy represents the psychological domain, and work adjustment reflects the social and occupational domain. The BPS theoretical model therefore provides a useful framework for understanding how these domains interact to influence participants' experiences of recovery and adjustment following injury. Irtelli and Durbano (2020) state that the biological component may also be influenced by factors related to the individual's health, including, for example, genetic makeup and a history of physical trauma such as an mTBI. The participants' genetic makeup or physical trauma may increase their risk or exacerbate their biological predisposition, making them more vulnerable to develop psychological difficulties or maladaptive behavioural responses (Irtelli and Durbano, 2020; Levy-Storm et al., 2018).

Given the above, it was considered given that the participants have a history of trauma including an mTBI may, for example, be more be susceptible to display increased emotional and psychological vulnerability and may affect or impact their thought and their experiences during data collection. The researcher also used the above component to seek psychological foundation for symptoms such as depression, anxiousness, irritability, social withdrawal, interpersonal difficulties, etc.

The BPS theoretical framework also considers the environment and the influence of social factors on the individual. For the purposes of this study, particular emphasis was placed on the participants' work environment. Work-related factors included socioeconomic status, organisational culture, workplace relationships, and job demands (Dogar, 2007). These factors were considered in relation to their potential impact on participants' overall well-being. Within this framework, attention was given to how the interaction between biological, psychological, and social components influenced both mental and physical health outcomes. The three domains—mind, body, and environment—cannot be viewed in isolation, as they are dynamically interrelated (Levy-Storm et al., 2018), as illustrated in figure 3

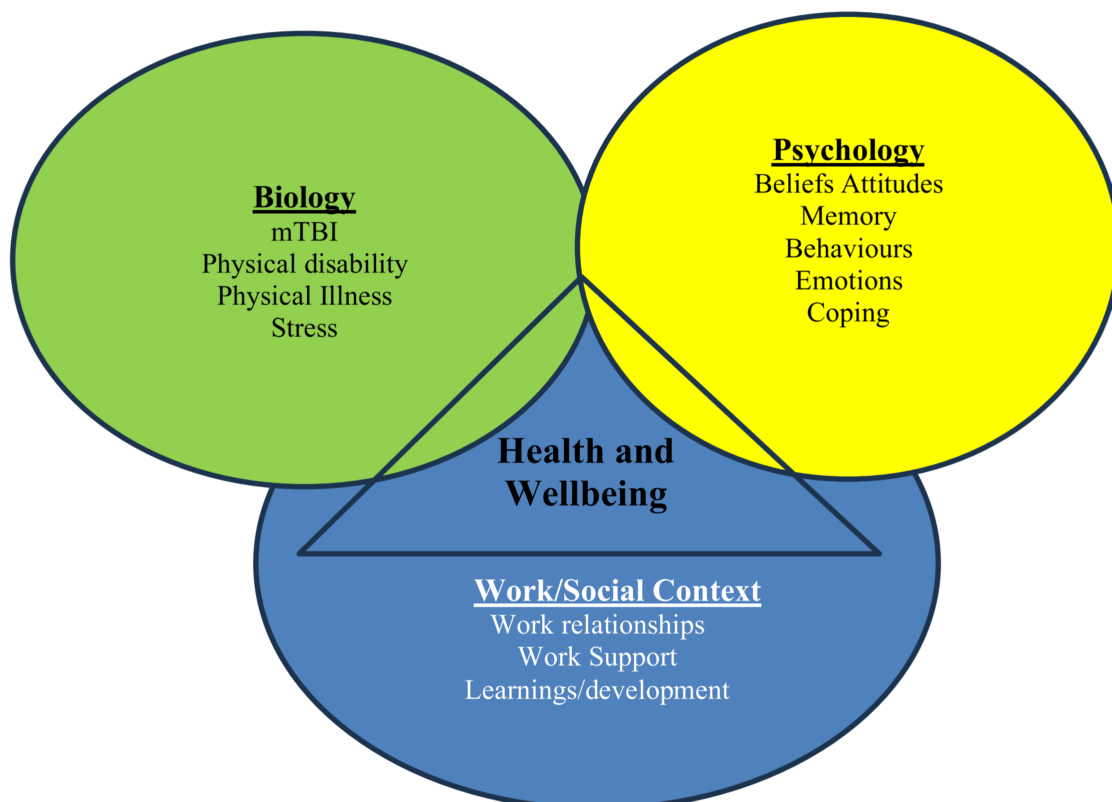

Figure 3 *The biopsychosocial theoretical framework adapted for this study*
Note*. Adapted from Levy-Storm et al. (2018),* Journal of Aging and Physical Activity.

In applying the theoretical framework, the researcher undertook the following steps:

- recognised that the interrelationships between domains are central to understanding outcomes;
- utilised self-efficacy as an interpretive lens for understanding adaptation and coping;
- explored participants' histories in relation to their beliefs and experiences of mTBI and work adjustment; and
- examined the biological, psychological, and work domains to understand participants' overall well-being and capacity for work adjustment.

3.6.1 Application of the Biopsychosocial Theory Model

The current research focuses on the impact of an mTBI on an individual's self-efficacy in work adjustment. The BPS model will be applied in guiding the researcher through the study in the following way:

- Biological components included the physical trauma, and the researcher focused on the characteristics and understanding of injury (in this case, an mTBI). Within this model, the biological component also refers to previous medical history and as noted as an exclusion criterion for selection of the participation in the study. The brain and its functions, and specifically any sequelae relating to an mTBI, had been explored in great detail as part of the literature review sections, and will be further incorporated during the analysis and discussion following the collection of data.
- Psychological components including cognitive symptoms (e.g., mental processes, perception, learning capacity, etc) as well as psychological symptoms (e.g., self-efficacy, beliefs, expectations, depression, anxiousness, irritability, social withdrawal, interpersonal difficulties, coping etc.). The researcher explored the extent to which the individual self-efficacy i.e. their beliefs, mediated the cognitive and psychological processes following the mTBI. Self-efficacy had been explored in great detail as part of the literature review sections, and the researcher will further explore the psychological theories that underpin self-efficacy as a mediator of cognitive and psychological processes.
- Work components include socioeconomic status, where the focus of the study was on the work environment, including work relationships and organisational support. The

researcher explored work as a concept and workplace adjustment. The work adjustment has been described and addressed as part of the literature review and the researcher will further explore the theory of work adjustment.

The BPS theoretical model allows for the integration of biological, psychological, and work processes into a framework to address the predisposing, precipitating and perpetuating factors, including the injury, cognition, emotions and environmental influences (Espay et al., 2018). Furthermore, exploring the various components mentioned in the BPS theoretical model the factors, as mentioned the researcher, would be able to infer post injury difficulties and symptom presentation from the interview data obtained that affected the participants' sense of self-efficacy and belief in their capacity to adjust to work following their mTBI. Irtelli and Durbano (2020) state that an individual's life is evaluated by considering an individual's beliefs regarding their physical, psychological, and emotional health, as well as perceptions regarding the degree of independence, social relations, and interaction needed with the social and/or work context.

Objectively, the biological components can be described as those characteristics of and/or the participants experiences of the injury and/or the clinical and physical state of the individual (following an mTBI). The impact of the injury would be determined based on the different areas of functionality (psychological area, social area, and/or work area). Consideration was given to the way in which the individual experienced their functioning, how they adapted within their embedded environmental context, i.e. their work adjustment, and the focus of their subjective interpretations (Irtelli and Durbano, 2020). With reference to the biological context, reference is made to the mTBI, and can objectively be described based on the participants' medical historical data provided at the time of the study as related to their injury. In this context, the mTBI was diagnosed by paramedics on arrival at the scene of the accident and confirmed/modified on arrival at hospital by a medical professional; and thereafter confirmed/modified following an assessment by a neuropsychologist.

The researcher at no stage questioned the above diagnoses, even in light of the difficulties in diagnoses of an mTBI, and only used the historical classification provided in the medical records as assessed by the mentioned medical practitioners relating to the category of mTBI. Bolton and Gillett (2019) note that more recent research has observed that within the biological domain, that is, in terms of injuries, risk factors always require consideration. This risk factor,

firstly, refers to the individual's genetic make-up, as it has and will always be there i.e. from an early developmental stage of the individual's life, where all individuals have different views and different coping mechanisms. The risk factors, secondly, refer to the risk that results from combinations of the individual's genetic make-up, including their psychological status as well as social/work factors. Bolton and Gillett (2019) state that an epidemiological paradigm suggested that this risk, whether, physical or psychological, can be traced back to even the early developmental stage of life, such as early childhood. The risk also includes social factors, such as lifestyle, bias, values, social exclusion, culture, poverty and family factors such as neglect and abuse.

It is then important to understand the impact of the sequelae of the mTBI on the individual's psychological functioning, referred to as the psychological component. The participants' psychological and social status, including psychological aspects relating to work adjustment, were explored during this phase. The participants' construction of their experiences relating to their beliefs regarding their confidence in their own abilities, as well as the researcher's subjective interpretations of these experiences of workplace adjustment, are presented. Starting from this perspective, an assessment of this multidimensional concept was explored in the literature, incorporating their medical background, self-efficacy, and their beliefs in their cognitive, behavioural, and emotional capacity to adjust to work relating to work aspects i.e. social/work context (Espay et al., 2018). A further discussion on the application of the BPS model, specifically related to the field of psychology, revealed that this theoretical model allows for an intersection within the nature versus nurture debate, leading to the integration of various psychological theories as part of the theoretical framework (Yenene et al., 2020).

The BPS theoretical model also provides psychologists and researchers, in the field of psychology, with a theoretical framework by means of which to investigate the interconnectedness between biological or hereditary (medical factors), the individual (psychological factors), and the social context, including the work environment (work related factors). In this context, a number of alternative approaches to the study of individuals, in the application of the BPS theoretical model, have been incorporated in the model in order to make provision for the inclusion of related theories, such as social, development, and/or learning and cognitive theories (Yenene et al., 2020).

For purposes of the current study, the application of the BPS theoretical model proves

efficacious, given the investigation into perceived self-efficacy (psychological factor) to gain insight into the individuals' experiences during work adjustment (social factor) following an mTBI (medical factors) relating to the consequences of the injury. This includes factors such as, for example, coping (psychological) with pain symptoms and fatigue (medical factors) in adjusting to work (social context). From this perspective, the researcher explored some literature relating to the brain, as well as traumatic brain injuries in general, and focused specifically on an mTBI. It is further noted that both social psychology and psychology tend to concur within the biological context when explaining individual behaviour. The model provides a framework that serves to reduce the complex social conditions that would inform the psychological phenomenon (Yenene et al., 2020).

The researcher felt that the BPS theoretical model would provide a holistic framework in terms of highlighting that a physical injury, such as an mTBI, has further consequences in terms of the individual's psychological interpretation of their capabilities, and their experiences within a supportive (or unsupportive) work environment. In light of the above, and for the purposes of this study of self-efficacy beliefs within the broader systemic context of their injury (i.e. an mTBI), the participants' general health and well-being and their capacity to adjust to work were considered.

3.7 Self Efficacy Theory

For purposes of this research, the participants' sense of self-efficacy in relation to work adjustment following an mTBI is examined. The application of the BPS theoretical model was used as the guiding theory together with Bandura's self-efficacy theory in order to investigate the participants belief in their capacity to adjust to work.

Bandura's social learning theory (1977) laid the foundational groundwork for understanding how individuals learn and develop within a social context. It further provides an important conceptual foundation for understanding how individuals adjust to work following an mTBI. The theory emphasises that learning occurs through observation, imitation, and the interpretation of modelled behaviours within a given social environment. For individuals with mTBI, observing how others navigate challenges, adapt to work demands, and demonstrate resilience can serve as a powerful source of learning and motivation.

Bandura's theory considers the unique way in which individuals acquire and maintain behaviour, while also considering the social and/or work environment in which they perform their behaviour. The theory also considers a person's past experiences, which factors into whether behavioural action will occur. LaMorte (2022) notes that these past experiences influence reinforcements and expectations that shape whether a person will engage in specific behaviour, and the reasons why that person engages in that behaviour), and is normally the goal in the field of psychology.

Bandura (1977) argues that behavioural change occurs when individuals recognise the need to apply information within specific situations, leading to the adaptation and modification of behaviour over time. His theory emphasises that behaviour is acquired and maintained through a dynamic interaction between individuals and their social and work environments, as well as through the influence of past experiences. These experiences shape expectations and, in turn, influence whether individuals are likely to engage in specific behaviours. From this perspective, behavioural action is closely linked to cognitive processes and internal beliefs, which are central to the concept of self-efficacy.

For the purposes of this study, Bandura's social cognitive theory (SCT) is used as a guiding theoretical framework to understand how individuals develop learning, adaptive strategies, and self-efficacy beliefs in relation to work adjustment following mTBI. SCT highlights the role of observational learning, including vicarious reinforcement and social modelling, through which individuals internalise adaptive coping strategies. This is particularly relevant in workplace contexts, where colleagues and supervisors may model effective communication, problem-solving, and resilience, thereby supporting individuals' recovery and reintegration into work.
According to LaMorte (2022), SCT explains how individuals regulate their behaviour through self-control processes in order to achieve and maintain goal-directed, action-oriented behaviour over time. Within the context of this study, SCT provides a useful framework for understanding how cognitive, behavioural, and social mechanisms interact to shape self-efficacy and work adjustment following mTBI. The five constructs developed include the construct of self-efficacy, which was added so as to evolve into the SCLT such as noted below:

- Reciprocal determination refers to the notion that there should be continuous interaction between behaviours, cognition, and the environment, rather than the individual having to rely only on their own mental abilities to behave or to change behaviour. It further explains

how personal factors, behaviour, and environmental influences interact continuously to shape learning and the ability to adjust to work (Bandura, 1977). LaMorte (2022) describes this as the dynamic and reciprocal interaction of the person (individual with a set of learned experiences), the environment (external social context), and behaviour (responses to stimuli to achieve goals).

- Behavioural capability refers to the individual ability to perform a behaviour through the presentation of their own actual knowledge and skills. In order to successfully perform a given behaviour, an individual must know what to do and how to do it. Learning takes place as a consequence of behaviour, which in turn will also impact on the individual's social and work environment.
- Observational learning refers to the way in which an individual observes a behaviour conducted by another, and then reproduces similar behavioural actions. This refers to imitation and modelling. Should the observed behaviour be seen as positive, the individual may also successfully demonstrate such positive behaviour, while the opposite could in turn also be true.
- Reinforcements refer to the internal or external responses to an individual's behaviour that affects the likelihood of continuing or discontinuing the behaviour. Reinforcements can be self-initiated or initiated in the environment and can either be positive or negative. This is the construct of SCLT that most closely ties to the reciprocal relationship between behaviour and environment (LaMorte, 2022).
- Expectations refers to the anticipated consequences of a person's behaviour. People anticipate the consequences of their actions before engaging in the behaviour, and these anticipated consequences can influence successful completion of the behaviour. Expectations derive largely from previous experience. While expectancies also derive from previous experience, they focus on the value that is placed on the outcome and are subjective to the individual.
- Self-efficacy refers to the level of a person's confidence in his or her ability to successfully perform a given behaviour, and is unique to SCLT, including the model of occupational self-efficacy. Self-efficacy is influenced by the individual's specific traits, their abilities and/or capabilities as well as environmental factors (barriers and facilitators). Self-efficacy and outcome expectancies are important in shaping an individual's work outcomes (i.e. their particular pattern of likes, dislikes, and indifferences in relation to their relevant work tasks) (Griffin & Hesketh, 2005). When individuals view themselves as competent (high

self-efficacy) to undertake job tasks, they anticipate that they will produce good results (valued outcome expectations). At the same time, individuals are likely to develop disinterest or even aversion to their work when they doubt their efficacy (low self-efficacy) and expect to receive undesirable outcomes (Griffin & Hesketh, 2005).

This theory shifted emphasis away from a purely behaviourist understanding of learning, to a more cognitive-behavioural perspective, introducing the idea that cognitive processes such as attention, retention, and motivation are crucial for learning, and thus, for change. Social learning theory later evolved to incorporate more explicit cognitive mechanisms, culminating in the development of self-efficacy theory, which more deeply explores the role of personal belief systems in regulating behaviour and motivation. Bandura (1977) states that changes in behaviour will only occur when the individual feels a need to use the information in a specific situation, and will then adapt their behaviour, which will then be recognised and result in a change of behavioural processes. This change process depends on the individual's internal mental state and/or beliefs, which form an essential part of this process; and in context, may referred to as self-efficacy.

Bandura's self-efficacy theory is underpinned by the idea that belief in one's own capabilities profoundly shapes behaviour, motivation, and psychological well-being. This belief is influenced by the individuals' experiences as well as observations of others and their emotional states, and it functions within a framework of reciprocal interaction between the individual, their behavioural actions, and their work environment.

For the purposes of this study, it was deemed important to gain a thorough understanding of Bandura's self-efficacy theory, as it can be used to interpret experiences following an mTBI. An individual's sense of self-efficacy could provide the foundation for their behavioural actions, and include their health and well-being, as well as goal achievement i.e. work adjustment. Bandura's self-efficacy theory was adopted in order to explore the participants sense of self efficacy and work adjustment following an mTBI. Self-efficacy refers to the belief in one's capability to organise and execute actions necessary to manage prospective situations (Bandura**,** 1977, 1997) . This belief strongly influences how individuals think, feel, and act—particularly in the face of challenge or disruption, such as that caused by an mTBI.

Self-efficacy theory focusses on and applies to motivation, performance, coping, and resilience

all behavioural process important for to overcome a challenge. Bandura (1977, 1997) notes that such beliefs can produce diverse effects through four major processes, as indicated below:

- Mastery experiences or also referred to as performance accomplishments.
- Vicarious experiences or also referred to as observing others.
- Verbal or social persuasion; and
- Emotional and physiological states or arousal.

The figure below shows the major processes of self-efficacy and as discussed below relating to the application of Badura's self-efficacy theory (Bandura (1977, 1997).

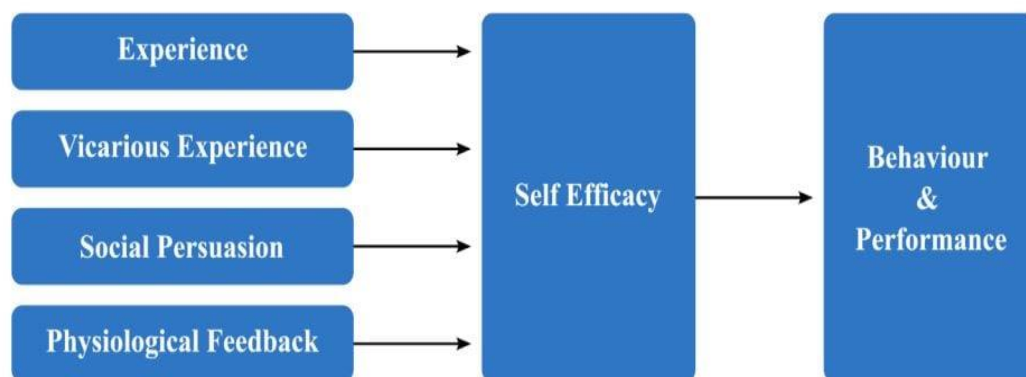

Figure 4 *Major Processes of Self-Efficacy*
Note. Adapted from Lopez-Garrido, G. (2023). Self-efficacy theory in psychology: Definition and examples. *Simply Psychology.*

3.7.1 Application of the Bandura's Self-Efficacy Theory

According to Bandura (1997, 2004), the four principal sources of self-efficacy contribute to the development of individuals' efficacy beliefs and, in turn, influence behavioural outcomes. In this study, these processes are used to examine how self-efficacy shapes cognitive and emotional outcomes, including persistence, performance, and adjustment to work following mTBI. The theory further highlights the importance of individuals' beliefs in their capabilities, resilience, and psychological growth, while also informing organisational interventions aimed at enhancing recovery and work reintegration.

3.7.1.1 Mastery Experiences

Task mastery refers to the individual's belief in their ability to successfully perform behaviours required to achieve desired goals. It is primarily developed through direct performance experiences, where repeated practice and successful task completion strengthen perceived competence. Prior performance, particularly successful experiences, is considered the most influential source of self-efficacy (Richardson, 2019; Ericsson et al., 1993). When individuals have previously succeeded in similar tasks, they are more likely to believe they will succeed again in future comparable situations. This reflects the principle that "success breeds success," a key assumption in self-efficacy development. Within workplace contexts, employees bring prior experiences, skills, and knowledge that shape their confidence in performing job-related tasks (Locke & Latham, 2007). Positive experiences enhance self-efficacy, whereas repeated failure may reduce confidence and lead to task avoidance. The most influential source of strengthening self-efficacy is gained through mastery experiences or past performance accomplishments (Richardson, 2019; Bandura, 1997). Richardson (2019) notes that successful experiences strengthen the individual's perceived self-efficacy in a given area, and the individual would then approach such tasks with greater confidence in the future. Failures or poor performance in a task can undermine the individual's perceived self-efficacy and lead to an individual trying to avoid such a task in future (Richardson, 2019; Bandura, 1997).

For the purposes of this study, mastery experiences refer to participants' perceived ability to cope with and overcome work-related challenges following mTBI, shaped by their evolving self-efficacy beliefs.

3.7.1.2 Vicarious Experience

Vicarious experience refers to learning through the observation of others, particularly role models. Bandura (1977) posits that observing individuals similar to oneself succeed through effort enhances beliefs in one's own capabilities. Conversely, observing failure may weaken self-efficacy. Role models in workplace contexts may include supervisors, colleagues, mentors, or coaches. Lopez-Garrido (2023) notes that observing competent role models increases the likelihood of adopting positive beliefs about one's own abilities. Vicarious learning therefore plays an important role in shaping behavioural expectations and self-efficacy beliefs.

From a social cognitive perspective, individuals learn not only through direct experience but also by observing others, which supports skill acquisition and adaptive behaviour (Nabavi & Bijandi, 2012). Bandura states that life would be incredibly difficult and even dangerous if we had to learn everything we know from personal experience (Bandura, 1982). Observing others plays a vital role in acquiring new knowledge and skills. By understanding how social learning theory works, we can gain a greater appreciation for the powerful role that observation plays in shaping the things we know and the things we do (Usher & Pajares, 2008; Schunk & Pajares, 2009; Lopez-Garrido, 2023). For example, it can be used to help researchers understand how behaviour can be transmitted through observation. For the purposes of this study, the researcher adopted Bandura's self-efficacy theory to investigate the ways in which positive role models can be used to encourage desirable behaviour, and to facilitate work adjustment following an mTBI.

In this study, vicarious experience is considered in relation to how participants interpreted workplace role models and how these observations influenced their confidence and adjustment following an mTBI.

3.7.1.3 Verbal or Social Persuasion

Verbal or social persuasion refers to the influence of encouragement, feedback, and interpersonal communication on self-efficacy beliefs. According to Bandura (1997, 1982), positive verbal reinforcement can strengthen individuals' belief in their capabilities and increase effort and persistence in task completion. The literature suggests that encouragement and verbal support from others lead to an increase in the individual's effort and persistence in accomplishing a task. It is suggested that people who have been persuaded that they lack the capabilities to accomplish a certain task will often avoid it. It is more difficult to increase self-efficacy beliefs by verbal persuasion alone than it is to undermine them by the same means (Maddux, 2002; Schunk & Pajares, 2009; Stajkovic & Luthans, 2003). Constructive feedback and encouragement from others can enhance self-efficacy, whereas discouraging messages may reduce perceived competence. Verbal persuasion is particularly effective when delivered early and consistently, as it contributes to the development of confidence in one's abilities and is likely to enhance the development of self-efficacy (Lopez-Garrido, 2023; Schunk & Pajares, 2009; Stajkovi & Luthans, 2003).

In the context of this study, verbal persuasion refers to feedback and encouragement received from employers, colleagues, and healthcare professionals that supported participants in their work adjustment following mTBI.

3.7.1.4 Emotional and Physiological Arousal

Emotional and physiological arousal represents the fourth source of self-efficacy and refers to how individuals interpret their emotional and physical states when evaluating their capabilities. Emotional and psychological well-being can have a major impact on how individuals feel about themselves and how they perceive their abilities to act in a specific situation (Shue et al., 2018; Breland et al., 2020; Lopez-Garrido, 2023). How individuals see, feel, or interpret our emotional or psychological states and/or reflect on their ability or capacity to achieve or accomplish that task or goal will necessarily affect the outcome of that given task or goal. Psychological well-being significantly influences perceived self-efficacy and behavioural performance (Shue et al., 2018; Breland et al., 2020).

Stress, anxiety, fatigue, and physical discomfort may negatively affect self-efficacy, while positive emotional states may enhance confidence and performance. Although individuals may still maintain self-efficacy under conditions of distress, it is generally easier to do so when emotional and physical well-being is stable (Shue et al., 2018; Breland et al., 2020). Lopez-Garrido (2023) emphasises that emotional interpretation plays a key role in shaping perceived capability. Although some people, may still be able to maintain healthy levels of self-efficacy despite these challenges, it is much easier to maintain a more positive sense of self-efficacy when they are physically, cognitively, and emotionally well.

In this study, emotional and physiological arousal refers to participants' interpretation of their emotional and physical symptoms following mTBI and their impact on confidence and work adjustment.

In summary, self-efficacy plays a central role in shaping work-related outcomes, influencing individuals' preferences, motivation, and persistence in relation to job tasks (Griffin & Hesketh, 2005). When individuals view themselves as competent (high self-efficacy) to perform a task, they anticipate that they will produce good results (valued outcome expectations). At the same time, individuals are likely to develop disinterest or even aversion

to their work when they doubt their efficacy (low self-efficacy) and expect to receive undesirable outcomes (Griffin & Hesketh, 2005). Bandura's theory further emphasises the reciprocal interaction between behaviour, personal factors, and environmental influences (Cherry, 2010; Silverberg & Iverson, 2011). Behaviour is therefore both influenced by, and influences, the individual and their environment. Bandura's self-efficacy theory considers many levels of the social model in addressing behavioural change among individuals, and has been widely used in health promotion, given the emphasis on the individual and the environment, the latter of which has become a major point of focus in recent years for health promotion activities (Cherry, 2010; Ownsworth & Clare, 2006; Silverberg & Iverson, 2011).

In this study, Bandura's self-efficacy theory is applied in conjunction with the BPS model to provide an integrated framework for understanding how biological, psychological, and social factors interact to influence cognitive, emotional, and behavioural adjustment following an mTBI. This combined framework allows for a comprehensive interpretation of work adjustment processes and the role of self-efficacy in recovery and reintegration.

3.8 CONCLUSION

This chapter addressed and conceptualised the research philosophies, paradigms, and theoretical frameworks. An overview of the most prominent research paradigms was provided along with a discussion of the paradigms, including their philosophical assumptions. The researcher articulated the ontological, epistemological, axiological, and methodological position, so as to ensure a coherent philosophical foundation for the study. Each of these positions support the aim of the study in understanding the participants' belief in their abilities to adjust to work following an mTBI. This coherence provides a solid foundation in support of the credibility and the integrity of the study and provides a solid grounding for interpreting findings in a meaningful, theory-informed manner.

The use of a BPS theoretical model and its applicability as the theoretical framework for this study was discussed. The BPS theoretical model is seen as an integrated model for understanding health, illness, or trauma, as well as psychological and social issues, including work. For the purposes of this study, the BPS theoretical model was adopted, and consideration was given to the relevant determinants of the trauma suffered (i.e. a mild head injury) and the effect thereof on the individual's self-efficacy and work adjustment.

The model thus provides for the integration of psychological factors, such as self-efficacy. Given the impact of self-efficacy on work adjustment, the researcher also included Bandura's self-efficacy theory. The theoretical framework supports the exploration of how participants perceive, understand, and experience self-efficacy in relation to work adjustment following an mTBI, while recognising that these beliefs are shaped through their lived experiences within biological, psychological, and work contexts.

CHAPTER 4: RESEARCH DESIGN

4.1 INTRODUCTION

The flow of any research study is referred to as its methodology. Moreno (1947) as cited by Kivunja and Kuyini, 2017) noted that the methodology logically refers to the data gathering process, participants, and the instruments that are used during the research, as well as the process of data analysis. The methodology constitutes the way in which the researcher comes to know about the world, or gain knowledge about a part of it. The aim of the study is to examine how self-efficacy influences physical, cognitive, and emotional functioning as well as to investigate environmental factors and workplace support during work adjustment following an mTBI. For the purposes of this study, a qualitative research approach has been adopted in favour of a quantitative research approach. These two approaches are discussed and compared in detail in the paragraphs below.

4.2 QUALITATIVE RESEARCH DESIGNS

For the purposes of this study, the researcher adopted qualitative research approach and a phenomenographic design. Ornek (2008) states that phenomenography has revolutionised the way in which researchers think about the research process and its outcomes. Ornek (2008) notes that phenomenography is related to a field of knowledge, which is described by the participants' experiences. Stenfors-Hayes et al. (2013) describe phenomenography as a lens through which to view the research questions and as a means of providing direction for empirically conducting research by collecting data about the participants' different ways of experiencing a phenomenon, rather than remaining abstract.

Undertaking qualitative research and adopting a phenomenographic design assisted the researcher in exploring the different ways in which participants perceived, understood, and experienced self-efficacy in relation to work adjustment following an mTBI. Ther researcher attempted to identify and interpret the variation in participants' experiences, recognising that these experiences may be interconnected yet understood in different ways (Jobin & Turale, 2019).

This phenomenographic approach would therefore provide an understanding of the collective meaning of participants' experiences, rather than focusing solely on individual experiences of the phenomenon. The aim of phenomenography is to discover the qualitatively different ways in which people experience, conceptualise, perceive, realise, and understand a phenomenon, and to describe the variation in these experiences through collectively derived categories of description.

Given the research aim and objectives, phenomenography as an interpretivism qualitative research approach would allow the researcher to explore and understand participants experiences of self-efficacy in relation to work adjustment following an mTBI. The focus is on understanding the meaning and interpretation within a specific context, namely, the work environment context. Through this approach, the researcher would be able to identify and describe the different ways in which participants perceived, understood, and experienced the phenomenon. These experiences relate to participants' beliefs regarding their cognitive and behavioural processes, as well as their psychological and emotional capacity, during work adjustment following an mTBI.

4.3 SAMPLING AND RESEARCH SETTING

For the purposes of this study, non-probability purposive sampling was adopted. Ritchie and Lewis (2003) state that researchers use non-probability sampling methods when the aim of the study is to conduct qualitative research. Such an approach constitutes a less stringent method and depends on the expertise of the researcher (Ritchie & Lewis, 2003). Non-probability sampling is most useful in studies where the researcher is examining a specific phenomenon, seeking to determine whether a particular trait or characteristic exists within a population, or where there is a need to explore a particular phenomenon. In addition, this approach allows for the use of a smaller sample size than would typically be required in quantitative research. During non-probability sampling, population members do not have an equal chance of being selected to participate in the study.

Probability sampling, on the other hand, involves each member of the population having a known chance of being selected (Ritchie & Lewis, 2003). The reason for choosing a purposive sampling method was that the researcher was only interested in individuals who met the specific criteria for inclusion in the study, as discussed later in this chapter. Ritchie and Lewis

(2003) identify several types of non-probability sampling methods, and there are briefly described below.

4.3.1 Convenience Sampling

This sampling technique is applicable where samples are selected from the population because they are readily available and accessible to the researcher. Researchers choose these samples simply because they are easy to recruit. During this sampling process, the researcher is not necessarily able to select a sample that is representative of the entire population.

4.3.2 Quota Sampling

This sampling technique is appropriate when a researcher wants to study a specific target group and phenomena. For example, if studying career motivation of females working in a specific organisational setting, all females in the organisation will be defined as the population. The researcher only needed a small sample, i.e. in a particular stratum within the population, where quota sampling would assist the researcher in dividing the population into strata or groups.

4.3.3 Consecutive Sampling

This sampling technique is applicable when the researcher selects an individual or a group for study over a period of time, analyses the results, and then moves on, as needed, to another individual or group. The consecutive sampling technique gives the researcher an opportunity to work with multiple groups or cases and refine the research by collecting ongoing data. An example of consecutive sampling would be when a researcher studies a student or a group of students belonging to a particular school, college, or university over a period of time.

4.3.4 Purposive Sampling

Purposive sampling occurs when participants are selected or chosen by the researcher for a specific research aim, objective, or purpose (Ritchie & Lewis, 2003). The researcher selects participants using informed judgment and expertise ensure their relevance to the study. Purposive sampling (also known as judgmental or subjective sampling) is a sampling technique by means of which the researcher relies on personal judgment when selecting participants from

the population to participate in the study. During purposive sampling, the researcher selects participants based on expertise, knowledge, and credibility. The researcher chooses only those people who are deemed suitable to participate in the research study. A purposive sampling method would be most effective when a limited numbers of individuals can provide rich and relevant data owing to the nature of research design, as well as the research aims and objectives (Ritchie & Lewis, 2003).

Purposive sampling was considered particularly appropriate for this phenomenographic study because it enabled the selection of participants who had experienced the phenomenon under investigation and could provide rich descriptions of their perceptions, understandings, and experiences of self-efficacy in relation to work adjustment following an mTBI. The specific inclusion and exclusion criteria include the following:

4.3.4.1 Inclusion Criteria

1. Those individuals who were diagnosed at the scene of the MVA by paramedics or by a relevant medical staff; or at a clinic and/or hospital or post-assessment on admission diagnosed by a relevant medical staff or a neurosurgeon, as having a GCS score of between 13 and 15 and based on the medical records and neuropsychologist's assessment, to have suffered an mTBI with no other physical injuries.
2. Individuals were selected that suffered an mTBI following a minimum period of two years post-injury so as to allow for recovery to have taken place.
3. Potential participants must have been employed in a stable and skilled job prior to the injury.
4. Individuals must have returned to their premorbid skilled job.
5. Male or female individuals between the working ages of 25 years (to demonstrate work experience) and to the age of 60 years (to ensure that they still have five years to work prior to retirement) at the time of the mTBI.
6. Male or female individuals who understand and can respond to verbal questions in English.

4.3.4.2 Exclusion criteria

1. If diagnosed with a moderate traumatic brain injury (GCS of 9 -13) or a severe traumatic

brain injury (GCS of 8 - 3).

2. Individuals who previously may have suffered or had premorbid or current health issues.
3. Individuals who may have had previous premorbid or current psychiatric difficulties as diagnosed by the Diagnostic and Statistical Manual of Mental Disorders (DSM-V).
4. Individuals who suffered a previous concussion and/or mild head injury or any form of loss of consciousness.
5. Individuals who have suffered a physical injury in the same accident or a previous physical injury (to exclude mobility difficulties as a reason for poor work adjustment).
6. Male or female individuals younger than the working ages of 25 years and or older than 60 years at the time of the mTBI.
7. Male or female individuals who were neither fluent nor able to understand and respond to verbal questions in English.

Mack et al. (2005) note that the number of participants in a phenomenographic study ought to range between 10 to 30 people. In addition, the sample ought to ensure sufficient variation, but it is also noted that too much data will make it impossible to manage the data, due to the thoroughness in the method of analysis used during the application of phenomenography (Stenfors-Hayes et al., 2013).

Depending on the data collected during the research, the sample size may change as determined by saturation. Saturation is often proposed as an essential methodological element within qualitative research (Hennik & Kaiser, 2021). Glaser and Strauss (2017) defined saturation as the criterion that informs when to stop sampling individuals' responses and/or data pertinent to a category that had reached theoretical saturation. In this context, no additional data would be gathered to further develop the properties of the category, and a similar stance would be repeatedly adopted as the researcher becomes empirically confident that a category has reach saturation. If needed, the research may look for participants to provide diverse data, simply to make certain that saturation is based on the widest possible data range for that category. Mack et al. (2005) describes this as a point where no new data can yield any additional information to answer the research question. However, saturation can, then, be described, or occurs, when the constructs are fully represented by the data (Mack et al., 2005; Saunders et al., 2018)

The policies and research rules of the University of South Africa (UNISA) adherence to the Protection of Personal Information Act No. 4 of 2021 (POPIA) were strictly followed during the samplings process. The purpose of the Act is to give effect to the constitutional right to privacy, "by safeguarding personal information when processed by a responsible person" (POPIA, Government Gazette, p. 16).

For the purposes of this study, participants were purposively selected from a database maintained by a neuropsychological practice in KwaZulu-Natal. The individuals had previously sustained an mTBI and had previously been assessed at the neuropsychological practice for purposes of their RAF claim. On receipt of ethical clearance from the UNISA Ethics Committee (see Appendix A), the researcher contacted the neuropsychologist, and the sampling process was initiated at the practice.

Potential participants were selected from the database based on the inclusion and exclusion criteria (as outlined earlier in this chapter), without any input from the researcher. During this stage, the researcher provided a research information sheet explaining the purpose of study, as well as the researcher's contact details, and invited potential participants to contact the researcher via email and/or telephonically. Emails were sent to the potential participants by the neuropsychologist's practice, whereafter the researcher waited for interested respondents to make contact in order regarding possible participation in the study.

As previously noted, on receipt of ethical clearance from the UNISA Ethics Committee (see Appendix A) the sampling process was initiated. The researcher was informed that a total of 50 emails were sent out to potential participants who met the inclusion criteria. Over the first week, only six potential participants contacted the researcher. The researcher requested that a follow-up email be sent, thanking those who made contact and informing recipients that additional participants were needed for the research to proceed. Another five participants subsequently contacted the researcher. The researcher requested a further search of the database to identify additional individuals who met inclusion criteria. The researcher was informed that an additional 10 emails were sent to further potential participants. Following this, another six potential participants contacted the researcher. A total of 17 potential participants were therefore available to be interviewed.

In adhering to POPIA, once these individuals had contacted the researcher and agreed to participate, they were included as the sample for purposes of the study. Based on the ethical principles as set out by UNISA's research rules and regulations, the researcher had no previous interaction with the potential participants and as a result, there was no conflict of interest or power imbalance between the researcher and the participants. Furthermore, participation in this research would have no impact and/or effect on the diagnoses and outcome of the assessment and evaluation conducted by the neuropsychologist.

In further adhering to POPIA, during telephone and email correspondence, the purpose and nature of the research were again explained in detail to the potential participants. The ethical principles and procedures, as described in the paragraphs below, were also explained including privacy, confidentiality and the storage of their data. Participation in this study was voluntary, and the participants were informed that they could withdraw at any time, without consequence. The letter, "Request to Participate in the Study" (see Appendix B) was then forwarded, via email, to the prospective participants, together with a request, if needed, for a follow-up email, and/or telephone call, zoom call, or in-person consultation in order to address any further questions and/or to facilitate discussions regarding the research, if required.

After perusal of the request letter and any further discussion regarding concerns, the researcher was satisfied that the prospective participants had been adequately informed about the nature, purpose, procedure and ethical requirement of the study. The letter, "Consent to Participate in the Study" (see Appendix C) was forwarded to the prospective participants, with a follow-up email or telephone call to address any further questions and/or to provide any further clarification required. Once the completed and signed, the "Consent to Participate in the Study" letter was received by the researcher, and a suitable date was arranged for the interview to take place in person at a location most convenient place for the participant. Where possible, the interviewer requested to conduct the interviews at the researcher's office, and, where required, transport was arranged for the participants.

The researcher's practice has used on a daily basis for psychological assessments and psychological interventions. The assessment room provides a calm, comfortable, and safe space and the environment and atmosphere are conducive to its use for purposes of the study.

The researcher strictly adheres to the provisions of the Protection of Personal Information Act, No. 4 of 2013 (POPIA), and all procedures relating to the collection, storage, processing, and dissemination of personal information are conducted in accordance with the requirements of the Act. In addition, the researcher strictly adhered to the code of conduct relating to the rights of the individuals including, unsolicited electronic communication, and regulation of the flow of information, as well as personal information and processing of information as noted in the Act (POPIA, Government Gazette).

Furthermore, all personal information was safeguarded and stored on a password protected computer. When not in use, the computer was stored in a secure locked space at the practice. If participants indicated that they were unable to travel, the researcher arranged a suitable alternative interview space for the convenience of the participants. Consenting participants were informed that they would also have the opportunity to receive feedback on completion of the research, if they were interested in the outcome of the research, via follow-up face-to-face consultation and/or a telephone or Zoom consultation.

Furthermore, all personal information was safeguarded and stored on a computer that is password protected when not in use, the computer is stored in a safe lockup space at the practice. If participants noted that they were unable to travel, the researcher arranged a suitable similar interview space at the convenience of the participants. Consenting participants were informed that they would also have the opportunity to receive feedback on completion of the research, if they were interested in the outcome of the research, via follow-up face-to-face consultation and/or a telephonic or Zoom consultation.

4.4 DATA COLLECTION

For the purposes of this study, three key data collection methods were used, including a semi-structured interview, the General Self-Efficacy Scale (GSE) and historical neuropsychological assessment data i.e., the scores from participants cognitive assessments (the Standard Progressive Matric (SPM), their depression and anxiety score, based on the Beck Depression Inventory (BDI) and the Beck Anxiety Inventory (BIA). This data was obtained by the researcher from the neuropsychologist’s practice following the participants’ informed consent. The semi-structured interview questionnaire can be found in Appendix D, and the General Self-Efficacy Scale (GSE) is appended as Appendix E.

4.4.1 Semi Structured Interview

The primary method of phenomenographic data collection was through the use of interviews and which are the most commonly used for studying beliefs and conceptions. Furthermore, written text such as answers on questionnaires or responses to assessment tests can also be used. The aim of phenomenographic data collection is to capture the range of possible ways in which the phenomenon is understood or experienced amongst participants.

Literature suggests that a semi-structured interview ought to be used in phenomenographic data collection (Stenfors-Hayes et al., 2013). This further implies that the questions used will be open-ended to allow the participants the freedom to discuss, explain, and elaborate on the dimensions or aspects of the phenomenon in question. In addition, this approach creates opportunities to explore unexpected responses and provides the researcher with the opportunity to gain a deeper understanding of participants' interpretations and experiences (Doody & Bailey, 2016). The assumption is that the researcher cannot know how a question has been perceived until the respondent has answered it; accordingly, this method allows for follow-up questions or reformulated questions to be asked (Stenfors-Hayes et al., 2013).

Stenfors-Hayes et al. (2013) state that probing questions ought to be considered using questions such as "Can you explain further?" and "Can you give an example?" Stenfors-Hayes et al. (2013) note that three explicit strategies for probing ought to be considered, viz. repetition, requests for clarification, or elaboration and confirmation. The researcher also made it clear to the respondents that they should feel free to answer the questions in any way, and that there were no right or wrong answers. The semi-structured questions were asked in such a way as to investigate the variations and different ways of experiencing self-efficacy during work adjustment following an mTBI.

Discussions or probing questions continued until both the respondent and the researcher agree that they have reached a state of mutual understanding, and that the discussion had been fully explored. Stenfors-Hayes et al. (2013) note that a phenomenographic interview often moves from action to experience and from concrete to abstract. Stenfors-Hayes et al. (2013) noted that, for example, typical types of interview questions can be used, and that for obvious reasons, these questions were explored and adapted for purposes of this research.

1. Can you describe which symptoms that you believe had the most impact on your ability to adjust to work following an mTBI?
2. How do you think your self-efficacy impacted on your ability to adjust to work following an mTBI?
3. Can you describe situations where you felt confident in your abilities to adjust to work?
4. Can you describe situations where you believe there were factors that hindered your work adjustment?
5. Can you share your experiences where you believe the mTBI impacted on your capacity for work adjustment?

Ashworth and Lucas (2000) note that in order to enhance the process of bracketing that the following practical steps during their research interviews ought to be considered:

1. Prepare questions in advance and be guided by these questions but attempt to make minimal use of questions.
2. Attempt to make use of open-ended questions.
3. Listen empathetically to hear meanings, interpretations, and understandings.
4. Consciously silence your concerns, preoccupations, and judgements.
5. Use prompts to pursue/clarify the participant's own string of reflections and allow the participant to elaborate, offer incidents, clarifications and perhaps "to discuss events at length" (Ashworth & Lucas, 2000, p. 302–303).

The researcher asked the open-ended semi-structured and probing questions (when necessary) and recorded all participants' responses about their beliefs in their capacity and experiences during work adjustment following an mTBI.

4.4.1.1 Administration

As noted above, open-ended, semi structured interview questions were used as part of this research study to gain a better understanding of and to collect rich and in-depth information about the participants' experiences regarding their capacity, including their beliefs, feelings, knowledge, and attitudes toward work adjustment following an mTBI. Potter and Hepburn (2008) state that there may be some contingent problems or difficulties relating to the use of

semi-structured questions. These problems normally relate to a poor interview setup, different values and feelings of the researcher and participants, the type of interaction and/or failure of adequate interaction between the researcher and the participants, as well as the specificity of the observations made by the researcher. At the time of this study, the researcher was well aware of the potential contingent problems, and prior to conducting the interviews, the researcher had set up a comfortable interview room that was conducive to adequate interaction and positive outcomes. The researcher, prior to the interviews, had also made all the necessary arrangements to eliminate and prevent any difficulties.

Clements (2021) notes that there are advantages relating to interviews that allow researchers to obtain original and unique data. The researcher at all times attempted to ask clear and appropriate questions, in such a way that the participants could clearly understand them and be enabled to provide rich and in-depth information about a given social phenomenon.

During the interview process, the researcher ought to constantly assess the quality of the responses, and be aware of and detect non-responsive and/or biased responses. Clements (2021) further states that the researcher must, at all times, monitor participants' responses, and should take note of when data saturation is reached and manage the number of participants interviewed. Further, observations such as non-verbal clues or body language should be noted as part of data collection and can provide further valuable insight relating the participants' responses and interpretation of the data.

4.4.1.2 Reliability and Validity

he reliability and validity of interviews have been extensively debated within qualitative research, particularly regarding their applicability and interpretation in non-positivist paradigms. In qualitative inquiry, interviews are typically designed to align closely with the study's aim and objectives, rather than to achieve standardised measurement in the quantitative sense. McDaniel et al. (1994) note that despite widespread use, concerns regarding the consistency and credibility of interview data remain, particularly in relation to interviewer skill in eliciting rich, complete, and meaningful accounts, as well as accurately interpreting and synthesising participant responses.

Reliability in qualitative research is generally understood as consistency in the research process and dependability in the interpretation of participants' accounts, rather than replicability in a strictly statistical sense (Brink, 1993). This requires that interview procedures are applied consistently across participants, including the use of comparable questioning strategies. Validity, by contrast, refers to the extent to which findings authentically represent participants' experiences and meanings. Brink (1993) distinguishes between internal validity, understood as the credibility of representations of lived reality, and external validity, which refers to the extent to which findings may be transferable across contexts and groups. However, Brink (1994) also notes that traditional concepts of reliability and validity are limited when applied to qualitative research and are more appropriately reframed through criteria such as credibility, dependability, confirmability, and transferability.

In this study, methodological rigour was enhanced through the use of a structured semi-structured interview guide, supplemented by purposive probing where clarification or elaboration was required. This approach ensured that data collection remained aligned with the study's aim while still allowing flexibility to capture variation in participants' experiences. The interview questions were specifically designed to elicit rich descriptions of participants' perceived physical, cognitive, behavioural, and emotional capacity to adjust to work following mTBI.

Throughout the interview process, attention was given to establishing rapport and maintaining consistency in application of the interview protocol to reduce potential interviewer bias. Following data collection, responses were systematically reviewed and organised using a phenomenographic analytical approach to identify variation in participants' conceptions and experiences.

Han and Ellis (2019) note that phenomenographic inquiry often benefits from the complementary use of semi-structured interviews and questionnaires, as this combination can enhance both depth and breadth of data. While interviews generate rich, contextualised accounts of lived experience, questionnaires may support broader identification of variation across participants. In this study, however, interviews remained the primary data source, with supplementary instruments used only to support interpretation rather than to generate independent findings.

Given the above, the researcher also administered the general self-efficacy scale to provide further details relating to the participants' self-efficacy in support of the data obtained from the interviews.

4.4.2 The General Self-Efficacy Scale

Self-efficacy is defined as individuals' beliefs about their capabilities to produce behaviour (Bandura, 1995). Individuals bring into the work situation certain characteristics that are related to self-efficacy. Believing that one can overcome obstacles and accomplish tasks, or self-efficacy, is both a cause and a consequence of factors related to an individual's ability to adapt to their social and work environments (Heggestad & Kanfer, 2005). The General Self-Efficacy Scale (GSE) developed by Schwarzer and Jerusalem (1995) was used to assess the participants' perceived beliefs in their ability to deal with challenges (Luszczynska et al., 2005).

The inclusion of the GSE was considered appropriate, as self-efficacy is closely associated with an individual's perceived ability to cope with challenges, adapt to changing circumstances, and manage difficulties within the work contexts. Following an mTBI, individuals may experience physical, cognitive, and emotional difficulties that may influence their self confidence in their ability to function effectively and re-engage in work-related activities (Bandura, 1997).

The GSE provide a structured and reliable measure through which participants' perceived beliefs in their ability to manage difficulties and respond to stressful situations could be explored. In the context of this study, the use of the GSE supported the broader aim of understanding how self-efficacy beliefs may influence adjustment to work following an mTBI, particularly within the interaction of biological, psychological, and social factors (Chen et al., 2001).

Although there are different measures of self-efficacy, literature suggest that the GSE is both reliable and valid, demonstrating construct validity (Chen et al., 2001). The GSE provides a broad and stable sense of personal competence in dealing efficiently with a variety of stressful situations (Schwarzer & Jerusalem, 1995; Chen et al., 2001). The scale was designed to measure self-efficacy defined as the belief that one's actions are responsible for successful

outcomes. The German version of this scale was originally developed by Matthias Jerusalem and Ralf Schwarzer in 1981, first as a 20-item version, and later as a reduced 10-item version (Schwarzer & Jerusalem, 1995).

This 10-item version has been used in the present study and comprises statements assessing how individuals rate their own self-efficacy in different situations (Schwarzer & Jerusalem, 1995). This scale evaluates the strength of an individual's belief in their ability to respond to novel or difficult situation and to manage associated obstacles or setbacks (see Appendix E).

The GSE score for each question ranges from 1 to 4, where a score of 1 indicates "not at all true"; 2 indicates "hardly true"; three indicates "moderately true"; and 4 indicates "exactly true" (Schwarzer & Jerusalem, 1995). The scores for each of the 10 items are then added together to provide a total score out of 40. The higher the score, the greater the individual's sense of self efficacy (Schwarzer & Jerusalem, 1995).

Schwarzer and Jerusalem (1995) presented accumulated data from a large sample of 1,660 adults with a mean score of 29.28 (standard deviation (SD) of 4.6). No significant difference were found across age or gender in the sample. Importantly, the standard deviation does not indicate an error in classification but reflects the natural variability in GSE scores across populations (Luszczynska et al., 2005; Tabachnick & Fidell, 2019). Confirmatory factor analyses supported the unidimensional structure of the scale across all sub-samples (Chen et al., 2001; Luszczynska et al., 2005). Furthermore, the SD does not invalidate the categorisation itself but rather, provide context for how dispersed and spread the scores are. Unless classifications are explicitly related to population norms (which the GSE does not strictly prescribe), using the sample's statistical properties to guide interpretation of the GSE scored would then remain methodologically acceptable (Chen et al., 2001; Field, 2018; Tabachnick & Fidell, 2019).

4.4.2.1 Administration

The GSE is a self-administered questionnaire, taking approximately 5 to 10 minutes to complete. There is no time limit, and respondents can take as long as they want, but they are requested to work quickly, and give their first impressions as answers. The GSE can be administered individually or in groups, but for purposes of this research, the questionnaire was

administered on an individual basis (Chen et al., 2001).

After completion of the questionnaire, the researcher then added up the individual scores to obtain a total score that reflected the individual's sense of self efficacy. As noted, a higher score out of 40, will present a stronger sense of self-efficacy and a lower score out of 40 would indicate an individual presenting with a lower sense of self efficacy.

4.4.2.2 Interpretation

According to Bandura (1997) the stronger the sense of self-efficacy, the bolder the behaviour of the individual is likely to be. An individual who is strong in self-efficacy is more likely than someone with a weak perception of self-efficacy to:

1. be motivated to do things competently;
2. be spurred on to great efforts in the face of adversity;
3. withstand failures by viewing tasks as challenges; and
4. deploy attention and effort to the demands of the situation.

The GSE, as developed by Schwarzer and Jerusalem, is not inherently designed with universally fixed cut-off points for "low," "moderate," or "high" self-efficacy. Instead, score interpretation is typically norm-referenced or sample-dependent, and many studies apply categorical groupings for interpretive or descriptive purposes (Schwarzer & Jerusalem, 1995). The overall score thus reflects the general level of self-efficacy. A very high score indicates a high sense of self-efficacy and a resilient individual; whereas a low score represents a low degree of self-efficacy and an individual who may suffer from self-doubt and negative thoughts about their ability to achieve a particular goal. The researcher adopted the following levels of self-efficacy for purposes of this study:

1. Low Self-Efficacy (below 20):
    - Self-Doubt: lacking confidence in own abilities, often believing they cannot succeed in specific tasks or challenges.
    - Avoidance: may avoid tasks or situations where they fear failure or inadequacy.
    - Negative Self-Talk: Frequent negative thoughts about their competence (e.g. "I can't do this", "I always fail").

2. Average or moderate Self-Efficacy (score of 20-24):
    - Situational Confidence: may feel confident in some situations, but not in others. May believe they can succeed with specific tasks, but feel unsure about more challenging ones.
    - Performance Variability or Inconsistent Performance: may experience some success in certain areas or tasks, but lack success in more demanding areas.
    - Willingness to Try: may attempt challenging tasks but with hesitation and fear of failure.

3. Above average Self-Efficacy (a score of between 25 to 34):
    - Strong Belief in Abilities: may have a solid belief in their skills and capabilities across various situations.
    - Persistent Performance: likely to persist in facing challenges and will view setbacks as opportunities for learning rather than as failures.
    - Goal setting: set challenging goals for themselves and take proactive steps to achieve them.
    - Ability to Self-regulate: High self-efficacy demonstrated by effective management of their emotions, behaviour, and thoughts so as to stay motivated and focused.

4. High Self-Efficacy (a score 35 and above):
    - Resilience: not only believing they can succeed, but also demonstrating a remarkable ability to bounce back from failure and challenges.
    - Influence on Others: often inspiring confidence in others, with the ability to take on leadership roles, thereby helping peers succeed.
    - Innovative Thinking: creative problem-solvers who are likely to try new approaches without fear of failure.

For purposes of this study the research drew on this normative information to contextualise the distribution of scores within the research sample. The use of categorisation was therefore not intended to impose fixed or universal cut-off points, but used in support of interpretive discussion by interpreting participants' self-efficacy levels relative to established central tendency and dispersion (Luszczynska et al., 2005). The score descriptions was then used as descriptive data for inclusion as a category during data analysis (Luszczynska et al., 2005).

4.4.2.3 Reliability

Schwarzer and Jerusalem (1995) and Luszczynska et al. (2005) report the Cronbach's alpha ranges to vary between 0.75 and 0.94 across a number of different languages. Sherer and Maddux obtained a Cronbach's alpha of between 0.71 and 0.86, which compare favourable to an alpha value of 0,7 recommended by Nunnally (1978, as cited in Sherer et al., 1982) for use of the measure in basic research.

4.4.2.4 Validity

Previous studies and literature reviews have noted that the GSE demonstrates high construct validity (Leganger et al. 2000, Schwarzer & Jerusalem, 1995; Sherer et al., 1982). The scale was found to be configural equivalent across 28 nations, and forms only one global dimension (Leganger et al., 2000). Relations between the GSE and other social cognitive variables (intention, implementation of intentions, outcome expectations, and self-regulation) are high and confirm the validity of the scale (Luszczynska et al., 2005; Leganger et al., 2000, Schwarzer & Jerusalem, 1995). This scale showed good construct validity, with six personality measures, and good criterion validity with measures of vocational career success (Sherer et al., 1982).

4.5.2.5 Justification for Inclusion of Self-efficacy

Self-efficacy has been noted as an important indicator of an individual's psychological well-being and which formed an integral part of this study. Individuals often do not behave at their optimum, even though they know what to do, how to do it, and even if they have access to the available means to perform well. The rationale of GSE is that it measures an individual's expectations of how that person is likely to perform in a given situation (Luszczynska et al., 2005). During this study, the researcher attempted to elicit the participants' belief in their experiences to adjust to work following an mTBI. The inclusion of the GSE was based on the premises that it will provide further rich information about the participants' belief in their capacity and experience during work adjustment following an mTBI. A participant who coped well and successfully adjusted to work following an mTBI should be expected to score high on the questionnaire and vice versa. The GSE has demonstrated strong reliability and cross-

cultural validity across diverse populations, supporting a robust measure of generalised perceived self-efficacy (Schwarzer & Jerusalem, 1995; Luszczynska et al., 2005).

Furthermore, the GSE does not have official cut-offs, and the categories are always somewhat constructed. At the time of this study, the GSE was used as a measure of self-efficacy rather than a diagnostic or categorical instrument, and provides guidelines within the prescribed fixed thresholds for "low," "average to moderate, "above average" and "high" self-efficacy. As such, score interpretation is typically context-dependent and was used as descriptive rather than based on specifically previous obtained normative data (Schwarzer & Jerusalem, 1995; Luszczynska et al., 2005).

Based on the above, the inclusion of the GSE provided the researcher with supportive and reliable descriptive data relating to the participants' self-efficacy and the impact on work adjustment following an mTBI (Rimm and Jerusalem, 1999; Luszczynska et al., 2005). Given the reliability and validity as noted above, the inclusion of the GSE made it valuable for purposes of this study.

4.4.3 Historic Data

The historical data refers to previously gathered confirmation of the participants' injuries, as recorded and confirmed in their medical records together with the clarification of an mTBI by the medical personnel. Cognisance was taken of the whole person impairment rating (WPI) as required by the RAF in South Africa to assess the seriousness of the injury. The WPI is based on the battery of assessment results obtained by the neuropsychologist from where the participants were selected. The researcher, for purposes of this study, refers to the WPI score together with the score obtained regarding the participants' cognitive functioning, as well as their behavioural and/or emotional status through the inclusion of their scores on the Standard Progressive Matrices (SPM), the Beck Depression Inventory, and the Beck Anxiety Inventory.

4.4.3.1 Justification for Inclusion of Historical Data

The historical data was noted as containing important indicators relating to the individual's characteristic of an mTBI, while the WPI is used extensively by the RAF in South Africa. The historical data also provided an extension to the data collected during the interviews regarding

the individual's cognitive functioning, based on their SPM score, as well as their behaviour and emotional well-being, based on the previous assessment data on the Beck Depression Inventory and Beck Anxiety Inventory. The historic data further provided a comparative analysis in relation to the data obtained during the semi structured interviews and as presented in the transcripts.

4.4.4 Summary of Data Collection

The interviews and administration of the self-efficacy questionnaire were conducted at the researcher's practice in a calm and safe space and conducive environment for purposes of the study. Semi-structured and open-ended questions were used during the interviews. Rich data was collected regarding the participants' experiences relating to their belief in their physical, cognitive, behavioural, and emotional capacity during work adjustment following an mTBI. In addition, the self-efficacy scale questionnaire was administered, and reference is made their historical data as discussed above, in support of more rigour and supportive data. The data collected from the interviews was thereafter analysed as described in the paragraphs below.

4.5 ANALYSIS OF PHENOMENOGRAPHY DATA

Data analysis in phenomenography commonly begins with the transcription of the verbatim interview transcripts information (Åkerlind, 2012; Jobin & Turale, 2019). For purposes of the research, the participants' construction of their experiences relating to their beliefs in their capacity to adjust to work adjustment following an mTBI was investigated and a transition from their initial understanding of the phenomenon to learning about the collective understanding and experience of others following the final conclusion of the research (Stenfors-Hayes et al., 2013). As previously discussed, Wilson et al. (2018, p. 29) note that "phenomenographic analyses have been applied in the field including organisational settings". For purposes of this study, the researcher extended the application of phenomenography to the organisation and work environment in an attempt to gain an understanding and to obtain rich information regarding the participants' experiences of self-efficacy and work adjustment following an mTBI.

4.5.1 Process of Analysing the Phenomenography Data

Åkerlind (2012) noted that the object of study of phenomenography is in the variation in awareness or ways of experiencing a particular phenomenon. Da Rocha-Pinto et al. (2019) stated that individuals will experience a specific phenomenon differently within a similar setting and in a variety of ways. These perceived variations are not individual, and people share a limited set of perceptions (Åkerlind, 2012; Sandberg, 2017; Da Rocha-Pinto et al., 2019). Stenfors-Hayes et al. (2013) noted that the world, as experienced by the participants, is not constructed by the participants, nor is it imposed upon them, but it forms part of and is seen as an internal relationship between the participants. Da Rocha-Pinto et al. (2019) state that when a researcher looks at every participant's perception about the phenomenon, and by grouping the perceptions, the researcher would observe a restricted number of different ways of experiencing it. This limited set so called experiences constitute the "conceptions of the phenomena that can be mapped, structured, and analysed" (Da Rocha-Pinto et al., 2019, p. 386). Åkerlind (2012, p. 116) describes these "conceptions as themes of awareness", which refer to the different ways in which the participants experience and understand the phenomena. Åkerlind (2012) described that the themes of awareness as assisting a researcher in understanding how the participants construct meaning and make sense of their experiences. Åkerlind (2012) noted that these can typically include various themes of awareness as noted below:

1. Conscious and unconscious awareness. Conscious awareness would refer to knowledge while unconscious awareness would imply unintentional awareness that would influence behaviour.
2. Intuitive or reflective awareness. Intuitive or instinctive refers to awareness without rational reasoning while reflective awareness refers to the consideration of one's thoughts and experiences.
3. Discursive and experiential awareness. Discursive awareness is the understanding of language used while experiential awareness refers to actual or direct experiences of the world.
4. Prepositional and perspective awareness. Prepositional awareness refers to the actual knowledge about the facts, concepts and relationships while perspective awareness is an understanding of the facts, concepts and relationships from a particular point of view or perceptive.

Phenomenography allows a researcher to map the internal relationship between the participants

and the way of conceptualising their experiences in order to provide a collective structured hierarchy regarding the complexity or extensions that interrelates the conceptions arising from the researcher's analysis (Marton, 1986; Da Rocha-Pinto et al., 2019; Åkerlind, 2012; Sandberg, 2017). Delimiting and defining each conception that had been identified during the analysis of the data involves describing "the structural elements of the conceptions and how these elements vary in each" (Da Rocha-Pinto et al., 2019, p. 386). These elements are referred to as explanatory dimensions or descriptive categories (Åkerlind, 2005, 2012; Da Rocha-Pinto et al., 2019).

Based on the above, the researcher used these variations in experiences to develop a set of explanatory dimensions or descriptive categories by means of which to illustrate the different ways of experiencing and/or possible similarities that are conceived or experienced regarding the phenomenon, and described as "a research orientation" (Svensson 1997, p. 159). This process also involved investigating a set of conceptions by focusing on how the researcher acquire the knowledge and understand of the participants' way of experiencing their world (Da Rocha-Pinto et al., 2019).

Marton (1986) and Marton & Booth (1997) originally described the participants' way of experiencing from two perspectives, namely, a structural perspective and a referential (meaning) perspective. Marton & Booth (1997) states that in order to experience something it has to be discerned from its context and its parts, as well as how the part related to each other and the way the parts related to the whole. The set of conceptions described the two components of the conscious awareness in terms of the referential and structural aspects (Svensson 1997; Åkerlind, 2005, 2012; Da Rocha-Pinto et al., 2019; Han & Ellis, 2019) Han & Ellis (2019) note that the referential aspect refers to the meaning of the experience, and the structural aspects relate to the structure of the experiences, but they are intertwined and occurred simultaneously, and discussed in the paragraphs below.

4.5.1.1 The Structural Perspective

Marton (1986) and Han & Ellis (2019) described the structural perspective and divided it into two views, i.e. an external and internal horizon.

1. The external horizon is described when the phenomena is separated from any other

phenomena, or from other possible elements in the participants' world and in their social and/or work environment. The external horizon is described as "discernment of the whole from the context" (Han & Ellis, 2019, p. 3). The above allows for the differentiation of the participants' experiences from the context and the background.

2. The internal horizon looks at the elements or parts of the phenomena as well as the relationship of the parts with each other and as a whole entity. Intertwined with the structural aspects are the referential aspects i.e. the meaning (Marton & Booth, 1997; Han & Ellis, 2019). Marton & Booth (1997, p. 87) state that "in seeing the part of the whole and the relations between the parts we can discern a degree of meaning". The internal horizon thus examines the elements or parts of the phenomena, as well as the relationship of the parts with each other and as a whole entity.

Given the above, in the structural perspective, it would be necessary for the researcher to understand the participants' underlying experiences in their beliefs in trying to understand the structures of the experiences and in understanding their world and relating to the research problem, that is, how self-efficacy impacted on the participants' experiences during work adjustment following an mTBI. The focus would be on identifying themes and how these themes relate to each other in order to form a web or hierarchy of meaning through examining how each participant navigates and make sense of their experiences regarding the impact of self-efficacy on their capacity during work adjustment. This would also involve revealing possible underlying assumptions (i.e. an assumption such as "my boss does not care about my problems") or implicit meanings (i.e. suggested assumptions, but not directly expressed) and/or taken for granted some understandings that shape the participants' experiences. Within the above perceptive, it was important for the researcher to uncover the deeper structures that might have governed the participants' experiences, and how their beliefs could influence their capacity during work adjustments following an mTBI. The researcher attempted to gain insight and rich data in understanding these structural assumptions, if and when applicable, in terms of the participants' beliefs in their capacity during work adjustment following an mTBI.

4.5.1.2 Referential (or Meaning) Perspective

The referential (or meaning) perspective focuses on how the participants relate to and make sense of their experiences through references or meaning of their world. This perspective examines how the participants use language or other references to create meaning and

understanding of their experiences. The researcher must be aware of how metaphors, analogies, and figurative language is used by the participants to create meaning and reveal how these references shape the participants' beliefs and perceptions relating to underlying cognitive, emotional, and behavioural symptoms. The referential perspective potentially highlight that the participants' experiences are not isolated, but connected to the broader web and/or a hierarchy of meaning that shape their reference to their beliefs regarding their world (i.e. work adjustment). The researcher, on this basis, was able to gain insight into how the participants create meaning, how language and symbols shape their understanding, and how their ways of experiences are connected to the world around them.

Self-efficacy refers to the individual's belief in their capacity to achieve a particular goal, or to produce a specific performance attainment (Bandura 1997). The aim of the study was to investigate the impact of self-efficacy and work adjustment following a mTBI. Understanding these variations is important, as it allows for a comprehensive understanding of the participants' collective experiences, including their perceived physical, cognitive, and emotional capacity as well as their ability to seek workplace support during adjust to work following an mTBI and the researcher:

1. Explores self-efficacy and examines how individuals perceive their ability to perform tasks and influence outcomes (i.e. work adjustment), by identifying and assessing levels of self-efficacy, as well as the factors that contributed to these work adjustment experiences following an mTBI.
2. Given the above outcome, the researcher also examines the self-belief or resilience during work adjustment, including the individual's beliefs and perceptions of success and/or the challenges or failure experience in adjusting to work following an mTBI.

Through the collection of the data the researcher sought out deeper and collective understanding of the varied experiences of self-efficacy and work adjustment as articulated by the participants. This can provide rich insight into how these concepts are both understood and enacted in different contexts. The researcher will also be able to gain insights into the relationship between self-efficacy and work adjustment, as well as the ways in which they influence one another. This approach will allow for a more comprehensive understanding of self-efficacy and the participants' belief in how they navigate their experiences in work adjustment.

It is important for the researcher to ensure that the collective experiences from the group of participants who suffered an mTBI, is efficiently and effectively investigated and explored in a meaningful way so as to gain rich and detailed information regarding their beliefs in their capacity to adjust to work following an mTBI (Jobin and Turale, 2019).

4.5.2 Steps in Data Analysis

The steps in the data analysis are described below, and the findings would then manifest in a theoretical scheme, whereby the relationship between the theme of awareness or conceptions and the explanatory dimensions or categories of descriptors forms a correlation and shape the "outcome space" (Åkerlind, 2005; Foster, 2019; Da Rocha-Pinto et al., 2019). Marton & Booth (1997) described this as a method for mapping the qualitative different ways in which people experience, conceptualise, perceive, and understand a phenomenon in the world around them.

Marton (1981, as cited in Åkerlind, 2005, p. 322) notes that traditionally, the object of phenomenographic research had been to describe the variation in human meaning, understanding, and conception, and more recently, phenomenography is seen as being more about the awareness or ways of experiencing a particular phenomenon. Åkerlind (2005) noted that another principle of analysis is to focus on the collective meaning rather and describing individual response. Han & Ellis (2019) note that researchers ought to avoid merely presenting the participants responses, without identifying variations and relations among the responses.

Han & Ellis (2019, p. 5) state that "there is no singular agreed upon analysis procedure in how to analyse phenomenographic data". Foster (2019) stated that there are different steps or methods in phenomenographic data analysis. The original process is described by Morton and Booth (1997) as "the reduction of all the transcripts to utterances or quotes each with a distinct meaning and thereafter brought together into categories on the basis of their similarities" (cited in Foster, 2019, p. 7). Although the "meaning" ascribed to a quote or utterance comes from the transcript, the transcript is not seen or used as a data unit. Morton and Booth (1997) and Foster, (2019) noted a three-step analysis of, firstly, identifying the data that relates to the phenomena; secondly, sorting the identified data into "pools of meaning" and thereafter, contrasting the "pools of meaning" from which categories are generate descriptions. Marton conducts a reality check by coding portion of the data via an independent researcher to calculate inter coded reliability (as cited in Han & Ellis, 2019, p. 5). In contrast, Åkerlind (2005) and Foster (2019),

note that each transcript ought to be analysed as a key data unit so as to retain its significance throughout the analysis. The emphasis is placed on a set to maintain the focus of the collective experiences and would lead to the eventual outcome space (Åkerlind, 2005; Foster, 2019; Han & Ellis, 2019). Furtherment, Saljo (1997) added one additional step where, firstly, it is suggested that the researcher ought to become familiarised with the data, and then follow the same steps as suggested by Morton (cited in Han & Ellis, 2019, p. 5). Given the different approaches in data analysis and with refence to the available literature, the researcher noted the following steps and procedure followed, based on a combination of the approaches (Marton, 1986; Morton & Booth, 1997; Åkerlind, 2005, 2015; Stenfors-Hayes et al., 2013; Da Rocha-Pinto et al., 2019; Jobin and Turale, 2019; Foster, 2019; Han & Ellis, 2019).

4.5.2.1 Step One – Familiarisation

Familiarisation refers to the reading of the interview responses i.e. the transcripts.

1. The researcher must become familiar with the responses or data by means of thoroughly reading through each of the transcripts and attempting to gain a full understanding of the data and information in each of the transcripts. This allow for the researcher to obtain a good impression of how the interviews proceeded in the initial phase. During this step all the data will be given the same consideration. It is important that the focus is maintained at all times, and the re-reading of the transcripts could provide new perspective, or further reading could also clarify possible issues the researcher may have had during the first reading of the transcripts.
2. Each reading of the transcripts could further identify additional and/or new experiences that may have not been identified during the initial reading. Each re-reading of the transcripts can also confirm the initial experience(s) identified and support that the experiences are comprehensive and that other or further experiences were not missed or that these experiences had been misinterpreted.
3. Emphasis during this step is on the understanding of the responses in all the individual transcripts for the incorporation of all experiences that would lead to a collective understanding of all the participants' experiences and will lead to the initiation of the next step.

4.5.2.2 Step Two - Condensation or Categorising

This step involves considering participants' statements based on similarities and/or differences identified in Step One. This step will thus involve identifying meaningful categories from all the transcripts and identifying the most significant elements in the responses as a key unit. It is noted that there is no limit to the number of categories, and the literature reveals that researchers differ somewhat in terms of the size and number of categories (Marton, 1986; Åkerlind, 2005' Stenfors-Hayes et al., 2013; Da Rocha-Pinto et al., 2019; Han & Ellis, 2019).

4.5.2.3 Step Three – Comparison

This step involves comparing the categories and identifying similarities and differences in the transcripts by means of filtering. Thereafter the researcher will extract only the most relevant categories and eliminate possible irrelevant categories that may have been identified in Step Two (Marton, 1986; Åkerlind, 2005; Stenfors-Hayes et al., 2013; Da Rocha-Pinto et al., 2019; Han & Ellis, 2019).

4.5.2.4 Step Four – Grouping

This step involves the allocation of the responses that were expressed in similar ways, denoting the understanding of the experiences of the phenomenon to the same category. This step will further assist in the elimination of any possible irrelevant responses that were previous identified (Marton, 1986; Åkerlind, 2005; Stenfors-Hayes et al., 2013; Da Rocha-Pinto et al., 2019; Han & Ellis, 2019).

4.5.2.5 Step Five - Articulation

This step involves the capturing of the core meaning of the categories, by identifying the significant differences between them. (Marton, 1986; Åkerlind, 2005; Stenfors-Hayes et al., 2013; Da Rocha-Pinto et al., 2019; Han & Ellis, 2019).

4.5.2.6 Step Six – Naming or Labelling the Categories

This step involves the labelling of the core meaning of the categories based on the nature of the components in each group. Steps three to five may be repeated to make sure that the

similarities within and difference between the categories are detected and formulated in a distinct way (Marton, 1986; Åkerlind, 2005; Stenfors-Hayes et al., 2013; Da Rocha-Pinto et al., 2019; Han & Ellis, 2019).

4.5.2.7 Step Seven – Contrasting and Finding the Outcome Space

This step will involve the arranging and contrasting procedures, whereby the categories are described in terms of their individual meaning (i.e. conceptions) and the nature of occurrences of the whole experience of the phenomena by all the participants (Marton, 1986; Åkerlind, 2005, 2012; Stenfors-Hayes et al., 2013; Da Rocha-Pinto et al., 2019; Han & Ellis, 2019).

4.5.3 Summary of the Data Analysis Process

During the data analysis process as set out above, it is imperative that the data is consciously viewed as a set, and not as separate sets as per the individual responses and individual transcripts (Morton,1981; Åkerlind, 2005; Stenfors-Hayes et al., 2013). Morton (1986) notes that during the analysis of the transcripts, it is important to take extracts directly from the interview transcripts, although these individual utterances or quotes must be considered together. Thus, during this study, the transcripts were analysed as a key unit of data, and each unit was noted to retain its significance throughout the analysis (Åkerlind, 2005; Foster, 2019). This approach stands in contrast to that of Morton (1987), where the focus is on the quotes and/or utterances and the where the transcript is no longer a data unit in itself. It then follows that each individual transcript was therefore interpreted within two contexts, namely the context of the individual script, and the context of all the transcripts (Åkerlind, 2005; Foster, 2019).

The responses or data recorded during the interviews were comparatively analysed as closely as possible to the actual conversations that unfolded during the interviews. Stenford-Hayes et al. (2013) state that, in an attempt to maintain such accuracy of the data, a degree of content expertise may be required and/or is necessary on the side of the researcher regarding the phenomenon being researched and/or studied.

During the data analysis process, the researcher must thus be aware of their own preconceived

ideas, as well as any preconceived ideas of the individual participant regarding their own experiences, as these could contaminate the data and the identifying of emerging categories (Åkerlind, 2005; Foster, 2019). It also coincides with the idea that the theoretical understanding would emerge from the mentioned iterative process and the application of the same rules together with constant comparison and analysis of the domain in question of the transcribed excerpts. Marton (1994) noted a phenomenological concept of "bracketing" and refers to this as the preconceptions of the individual relating to their individual or subjective own experiences, as well as the researcher's preconceived ideas and notions of the domain in question and/or the phenomena (cited in Richardson, 2019).

Richardson (2019) states that the researcher ought to adopt an objectivistic orientation stance and should be encouraged to identify and address potential preconceptions by seeking out counter examples and to validate the emerging categories. Richardson (2019) also suggests that it seems to be helpful to start the analysis with a smaller set of data and identifying categories. These can then later be reconsidered when a set of categories have been identified from a second set of data. Further discussions with other content experts would also assist and stimulate further revision of the emerging categories, if needed (Strauss & Corbin, 1994; Richardson 2019). Stenford-Hayes et al. (2013) also stated that it may also be more difficult for the researcher, with the mentioned expertise to see beyond their own expert views when analysing transcripts. Stenford-Hayes et al. (2013) state that, if the researcher is well versed in qualitative research and the phenomena, it is suggested that, ideally, following the analysis, and if felt needed, consultations with another content expert(s) may be considered so that the findings can be discussed for purposes of clarification. Given the above, during this study, the researcher frequently had discussion with content experts such as neuropsychologists, neurologists and neurosurgeons. Such discussions regarding the outcome of the participants data, when felt needed, was discussed with these content experts while autonomy was maintained at all times.

As per Step Two, it is suggested that the researcher become familiar with the responses by thoroughly reading, re-reading, and understanding of data. It is suggested that each transcript, as a whole, should be read many times, as each read may lead to new perspective. Each new perspective should again be explored with reference to the entire set of data and a key unit. This means that the researcher may have a new idea in each reading. This should also be an iterative process and imperative for the researcher to adopt an iterative process through the

repeated application of the same grammatical rules to the context of all the transcripts, allowing for a comparative flow of responses between all the transcripts. The researcher adopted the above process, and each transcript was repeatedly read and reviewed until such time that the researcher had exhausted all possible perspectives and was confident that the data was understood in context of all the transcripts.

Bowden and Walsh (1994) and Åkerlind (2005) specifically note that, although various researchers have focused on different aspects of the transcripts, when reading the transcripts and reviewing categories, the following should be contemplated:

1. Focus on the referential (meaning) or structural components of the categories of description.
2. Focus on the 'how' or 'what' aspects of the phenomenon.
3. Focus on similarities and differences within and between categories and transcripts associated with particular categories.
4. Focus on borderline transcripts and those transcripts in which there are aspects that do not fit the proposed categories of description.
5. Look for the implications for all of the categories of description of a change in any one category (Åkerlind, 2005, p. 328).

Following the above steps, the researcher started identifying emerging themes in the data and allowed for a process to start arranging the data into categories. This arrangement of the data involved identification of the most significant categories or units emerging from the participants' responses and data. Thereafter, the researcher started writing up a detailed narrative or summaries of the findings to support the labelled or named categories. As earlier noted, researchers differ somewhat in terms of the number of responses relating to units or categories (Bowden & Walsh, 1994; Åkerlind, 2005). It was noted that the categories ought to emerge from comparisons conducted within the data, and there should not be a focus on the number of the categories (Marton & Saljo, 1976; Stenford-Hayes et al., 2013).

The identifying categories and description of the categories ought to coincide with the idea of discovering the data and themes and the researcher should at all times be open to an interpretive paradigm as discussed in the paragraphs above (Åkerlind, 2012; Daniel, 2021). The description of the categories should then be constructed and defined or described in relation to the data and not discovered within the data, and should be based on the participants' self-efficacy

experiences, that is, their beliefs in their capacity and adjusting to work following an mTBI.

Following the descriptions of the categories, the researcher would then be able to arrange them based on the nature of occurrence of the data and present these categories as a hierarchy in a table or a conceptual model or in a chart format. This would represent the outcome space and would provide a holistic picture and account of the relations between the different ways, including similarities or variations of the experiences of the participants towards the given phenomena (Åkerlind, 2012; Jobin and Turale, 2019; Daniel, 2021). Åkerlind (2012) further states that during the analysis of the data, the researcher ought to ensure that the outcome is actually analytically representative. The outcome space should represent an analytical (or interpretive) investigation of the qualitatively different meanings of the experiences. It is important to distinguish between empirically interpreted categories and hypothetical experience:

1. The empirically interpreted categories will focus on the specific, concrete experiences and observations based on the descriptions provided by the participants. These categories are grounded in the data and represent the actual experiences and meaning expressed by the participants.
2. The hypothetical experiences (imagined or suggested but not necessarily real or true) will be experiences not directly observed but inferred from the empirical data, and are hypothetical experiences considering the underlying, abstract concepts that the empirical categories represent. Indicators of hypothetical experiences would be data that suggest hypothetical experiences, such as “if I could” or “I should have”, and can be descriptions of an imaginary desirable situation.

The hierarchy or conceptual model ought to represent the outcome space and provide a holistic picture, but it is important that cognisance is also given to the inclusion of the structural relationships linking variations in experiences. These structural relationships represent the structure of the outcome space, in terms of providing an elucidation of the relations between different ways of experiencing a given phenomenon (Åkerlind, 2005). The core as the assumption that different categories of description or ways of experiencing a given phenomenon are logically related to one another, and typically by way of hierarchically inclusive relationships (Marton & Booth, 1997; Åkerlind, 2005).

Following the above, it is possible to gain a deeper understanding of the variation of the participants' experiences relating to their beliefs in their capacity to adjust to work as a whole entity. In context of the above the data will be analysed as one set, rather than as separate sets by transcript. Each transcript is therefore interpreted in the context of each participant's script, and in the context of all the transcripts.
The arranging of the categories in the outcome space can also be done at different times or stages of the data analysis (Åkerlind, 2012; Han & Ellis, 2019). It is imperative that this process is not done too soon, as it may cause certain aspects of meaning to be missed out, but there is also a risk in leaving any consideration of how the categories relate to one another too late because they ought to be a co-construct.

Ideally, the outcomes space should then represent the full range of possible ways of experiencing the phenomenon for the identified population (Åkerlind, 2012; Jobin and Turale, 2019 and Daniel, 2021) The identified population was those individuals who have suffered an mTBI and represented by the sample group collectively, at the time of the research study. It is also important not to let the assumptions about the arranging of the categories affect the researcher in such a way that certain aspects of a phenomenon are avoided or disregarded for not fitting neatly into the hierarchy of categories (Åkerlind, 2012). All data must therefore be considered, and no data can be ignored, even if the data in a category is a limited category, as the outcome space would then not reflect the collective whole life world experiences of all the responses of all the participants (Åkerlind, 2012; Jobin and Turale, 2019 and Daniel, 2021). The categories of description, as identify and labelled by the researcher, represent the different ways of experiencing the phenomenon, and seen as representing a structured set or a hierarchy, as well as the outcome space of the phenomenographic method and final outcome of the study (Åkerlind, 2012).

The outcome space represents one of the least understood aspects of phenomenography. The assumption of structural relationships between different ways of experiencing constitutes one of the epistemological assumptions underlying the approach i.e., the researchers would try to get as close as possible to the participants being studied and analyse their subjective evidence (data) through the researcher's subjective experiences of the interactions with the participants. The phenomenographic principle ought, then, to represent that the ways of experiencing demonstrate a relationship between the experiencer and the phenomenon being experienced, anticipating that different ways of experiencing are logically related through the common

phenomenon being experienced (Åkerlind, 2005).

The analysis for purposes of this research followed the steps as described above, however, in reality, there was a constant interaction between each of the steps, where the actual data analysis process is further described and discussed in Chapter Five.

4.6 RELIABILITY AND VALIDITY OF PHENOMENOGRAPHY

Qualitative researchers are still expected to address the reliability and validity of their research (Åkerlind, 2005). It is noted that phenomenography, in the context of the ontological and epistemological assumptions, has much in common with these assumptions, and it draws on these practices, as well as its own set of practices, to address both reliability and validity (Åkerlind, 2005).

4.6.1 Reliability

From a qualitative research perspective, reliability refers to the use of appropriate methodology to ensure the quality and consistency of the data interpretations. Traditionally two methods to check for reliability were noted as part of a phenomenography study, namely intercoder and dialogic reliability checks (Jobin & Turale, 2019).

- *Intercoder reliability check*: the researcher uses another person (for example another expert in the field of study) to independently code all or a sample of interview transcripts and then compare categorisations.
- *Dialogic reliability check*: discussions take place between the researcher and another expert, and they mutually critique the data, and agreement is reached between regarding the categories (Jobin & Turale, 2019).

Åkerlind (2012) states that phenomenography is being adopted by a large number of doctoral students, where it is suggested that high quality phenomenographic research can be accomplished as an independent researcher working alone. Sandberg (1997) states that a common alternative to the mentioned reliability checks is for the researcher to make their interpretive steps clear to the readers, in order to provide fully detailed descriptions of each step followed during the research, as well as presenting examples of experiences clearly that

would illustrate the categories.

Sandberg (1997) argues that the danger of employing coder reliability checks is that it directs attention away from the more fundamental checks of research reliability. These checks involve documenting the way in which researchers have adopted a critical attitude towards their own interpretations, that is, how they have analysed their own presuppositions, as well as the checks and balances that they have employed to help counteract the impact of their particular perspectives on the research outcomes.

It is noted that, for the purposes of this research, and as discussed in the paragraphs above, the researcher has set out the steps that will follow in detail, as well as detailed descriptions of each step that the research will follow during the study. In addition, the research will present clear examples of experiences as and when the categories from the data have been identified. Furthermore, the research will also adopt *a* dialogic reliability check, where discussions had taken place between the researcher and the researcher's supervisor regarding the data and labelling of the categories.

4.6.2 Validity

Validity refers to the extent to which a study is seen as investigating what it aimed to investigate, or the degree to which the research findings actually reflect the phenomenon being studied (Åkerlind, 2012). A phenomenographic researcher asks not how well their research outcomes correspond to the phenomenon as it exists in 'reality', but how well it corresponds to the human experience of the phenomenon (Åkerlind, 2005). Interpretive analysis of data may not always be objective, and, in specifically relating to phenomenography, the interpretation of the data is based on the experience of the researcher and the focus of research quality shifts to ensuring that the research aims are appropriately reflected in the research methods used (Sandberg, 1997; Åkerlind, 2005). As with reliability described above, two methods to check for validity were noted as part of a phenomenography study, namely:

- Communicative validity check, where emphasis is placed on the researcher's expertise, knowledge, and ability to argue and defend the specific categories identified and the interpretation of the data (Sandberg, 1997). Defending the above will include ensuring that the methodology used is correctly applied and that all interpretations are regarded as

relevant and acceptable within the scope of the research. Further validity could be obtained following communication of the results through publication reviews and presentation of the results or through presentations thereof at seminars or conferences in order to receive peer review and to discuss the outcome spaces by means of which the researcher might be able to assess and/or confirm validity. Furthermore, the researcher could also seek feedback from the participants in order to obtain validity following completion of the study, as well as from other similar members of the population or from the extended audience, such as other psychologists and human resource staff within the workplace. This may be done for purposes of future application in related research and application (Åkerlind, 2012). The aim is thus to provide a discussion based on the collective interpretations of all the participants' holistic experiences and understanding of the phenomena, and not to focus on individual understanding in the validation of the results.

- Pragmatic validity check refers to the extent to which the research outcome is seen as useful and meaningful and when the researcher independently validates the results by comparing and checking how well the results will be advantageous to the intended group (Jobin & Turale, 2019).

The aim of the research is to provide knowledge that will be useful to an intended group (those who suffered an mTBI) in work adjustment. The research outcome can become insightful and provide more effective ways, remedial intentions, actions and goals to the individual participants for the purposes of more effective work adjustment.

4.7 ENSURING RIGOUR AND TRUSTWORTHINESS

According to Scribante et al. (2019) a conceptual research framework provides the basis for reasoning and why the research topic matters, why it is relevant and why the research process is both appropriate and rigorous. In support of this rigour, the conceptual framework should:

- guide the research questions as an extension of the problem statement;
- map and delineate the research design in terms of the research goals, research questions and context;
- support the data collected and analysis of the research questions; and
- assist in reaching conclusions based on reliable evidence from the data and the

analytical process in supporting and addressing of the research aim, questions and objective.

In addition, while quantitative research can be used as a criterion of evaluation the reliability, validity, replicability and generalisability of the data , it is not always as easy to assess an interpretive qualitative research design. The quality of research, in adopting an interpretivism paradigm, would be judged on the basis of its trustworthiness or rigour.

Thomas and Magilvy (2011) describe rigour as a way to establish trust or confidence in the research findings, and provides consistency in the methods used by the researcher. Trust and confidentiality as well as strong ethical values are critical components when working with clients. When using qualitative research methods, as adopted and used by the researcher in this study, the above components would automatically form part of this research.

Guba and Lincoln (1994) note that qualitative research demonstrates trustworthiness when the experiences of participants are accurately represented. Stenfors-Hayes et al. (2013) state that a qualitative research approach requires harmony and alignment between the research question and paradigms, such as ontological, epistemological, and axiology assumptions, as well as the nature of the phenomenon being studied and the way in which the data is collected and analysed.

Thomas and Magilvy (2011) describe the unique components of qualitative research in relation to rigour and trustworthiness in terms of four criteria, namely: credibility (rather than internal validity); transferability (in preference to external validity or generalisability); dependability (rather than reliability) and confirmability (in preference to objectivity) (Shenton, 2004). As part of this study, the researcher will, at all times, be guided by and subscribe to the concept of rigour as well as the following criteria, as discussed below, during the research process.

4.7.1 Credibility

Credibility refers to the researcher's ability to look for similarities within and across all participants' experiences and to interpret and present the data in such a way that it allows others to recognise the experiences contained within the study. When considering credibility in a qualitative study, it can be seen as equivalent of internal validity in quantitative research, where

there is a degree of confidence that the relationship being tested is not influenced by other factors or variables.

Ornek (2008) states that the main issue of credibility in a phenomenographic study concerns the relationship between the data obtained from the semi-structured questions asked during the interviews, and the categories identified by the researcher for describing the ways in which the participants' experienced the phenomenon. In context of the above, it is then imperative that the researcher identifies the best way to describe similarities and differences in the data that would be supported by the data from transcriptions. Extracts from the interview data could be used to support the categories, where it is then important that the participants' responses are recorded verbatim i.e. in exactly the same words as used at the time of the interview (Ornek, 2008). Ornek, (2008) states that the validity of phenomenographic research is based on three factors:

1. The first is the logic of the system of categories emerging from the analysis, where the categories must be logically separate and exclusive.
2. The correspondence between the results and what is known from previous literature and research.
3. The probability of the categories that are being considered as a true reflection of the data obtained during the interview stage.

Reliability during phenomenographic research can be achieved by using other researchers in the field and/or experts in relation to the topic of the research to analyse the same data independently, and thereafter, to compare the two sets of findings for the purposes of consistency (Ornek, 2008).

In this study, phenomenography will be used, and the researcher will assess how well the categories (the outcome space) correspond to the ways in which people understand the phenomenon. In other words, credibility will refer to the degree to which the findings reflect the meanings and experiences of the participants. Examples of strategies to establish credibility include reflexivity, as well as the time spent with the participants. So as to ensure credibility, the researcher will seek to understand self-efficacy in terms of how the participants constructed their experiences in their beliefs relating to their cognitive, emotional and behavioural capacity in work adjustment following an mTBI.

Stenfors-Hayes et al. (2013) suggest that the researcher will find it easier and possibly more helpful to start the analysis of the data with a smaller section of the transcript. When the researcher feels that meaningfulness has been reached with the small sets of data, the data can be reconsidered in light of the full data set during these stages of the analysis. To further improve creditability during this research, analysis of the data in smaller subsets will be done before proceeding to larger data groups.

It is also suggested that continuous revisions and reflection as well as further data comparisons will be conducted so as to ensure similarities across experiences, together with supportive literature on the constructs and topics for clarity and understanding of the experiences. During the research process the researcher will seek to constantly reflect on the participants' responses during data collection, data analysis and the interpreting of the data together with ensured similarities across supportive literature including relying on the adopted well-established interpretive qualitative research methods, as presented in the study.

4.7.2 Transferability

Transferability relates to external validity in quantitative research, which refers to the extent to which the results of a study can be generalised to and across other settings, situations, people, and contexts. Shenton (2004) suggests that in order to ensure transferability, certain critical issues ought to be considered, such as the number of participants who were involved in the study; the data collection methods, the number and length of the data collection sessions, and the period that the researcher took to collect the data.

In interpretive qualitative research and specifically phenomenography, transferability refers to the ability to transfer the research findings to other categories (Marton, 1981). The categories in the study do not necessarily represent a certain respondent and the description of the category will represent the "the pool of meaning" or similarities rather than an individual respondent's specific experience. Marton (1981) describes the categories as "frozen forms of thoughts". If respondents develop and change their conceptions of a given phenomenon, the categories will remain unchanged, although the researcher may then identify a further category in support of the continuous reflection and revision of the data.

In this research, a smaller sample of 17 individuals were purposefully sampled, and transferability would be ensured through the collection, reflection, and revision of each participant's unique experience, and categorised by providing a description of the collection of their unique conceptions in context of the research. These categories of data will result in rich and valuable information regarding the collective experiences of the participants beliefs in their capacity in adjusting to work, and could help individuals in future work adjustment following an mTBI.

4.7.3 Dependability

Dependability or consistency refers to reliability in quantitative terms. Shenton (2004) indicates that dependability can be enhanced by reporting the processes within the study in more detail so as to enable a future researcher to repeat the work, even though they might not arrive at the same results. For the purpose of this research, in order to be reliable and consistent, the researcher conducts the interviews so as to that the data collection was done following the process, as described below by Thomas & Magilvy (2011):

1. Describing the purpose and the research methods.
2. Describing the population and participants selection.
3. Describing the data collection method. For purposes of this research reference is made to the description of the historic data, interview data, and general self-efficacy questionaries as data collection methods.
4. Describing the data analysis method, reference is made to phenomenographic analysis, in terms of steps and procedure, as well as the interpretation and presentation of the findings.

The research will then at all times maintain and ensure credibility as well as peer participation.

4.7.4 Confirmability

Confirmability or neutrality occurs when credibility, transferability, and dependability have been established (Thomas and Magilvy, 2011). The researcher ought to be reflective and maintain a sense of awareness and openness to the findings. The researcher also needs to be self-critical, and consider any preconceptions that may come to bear upon the research findings.

Stenfors-Hayes et al. (2013) describe that in order to avoid the findings representing a recreation of the researcher's preconceived ideas, the researcher must find counterexamples in the data, and be continuously aware of these, making every attempt not to influence the data. Established credibility is then critical to ensure confirmability.

Thomas and Magilvy (2011) stated that a researcher can achieve confirmability by, for example, taking notes regarding personal feelings, personal bias and insights immediately following the interview with the participant. During this study the researcher will remain, at all times self-critical, and will make every attempt to avoid any of the researcher's preconceived ideas regarding the findings by thoroughly following the phenomenographic analysis, and by documenting, checking, reflecting and re-examining data throughout the research process, confirming the categories as per the data analysis section, final results, and discussion section.

4.8 ETHICAL CONSIDERATIONS

When research involves any form of human participation, it becomes essential that the participants are protected at all costs during the research process. It is therefore imperative for the researcher to abide by the applicable ethical principles and guidelines. Various normative guidelines in research ethics are available, such as the World Medical Associations' Declaration of Helsinki, the Belmont Report and in South Africa, specific focus and reference is made to the South African Health Profession Council (HPCSA) and the Ethics in Health Research as well as the University of South Africa (UNISA) Policy on Research Ethics.

For purposes of this research, the following guidelines are presented, and the researcher was guided by these ethical principles and guidelines applicable throughout the research process in order to ensure that the researcher's conduct was in accordance with the ethical code of conduct for psychologists as per the South African Health Profession Regulatory Authority and the Ethics in Health Research as well as the University of South Africa (UNISA) Policy on Research Ethics. The following section provides a discussion regarding the guidelines in research ethics.

According to Bouchrika (2021) every researcher ought to adhere to ethical norms to ensure trust, accountability, mutual respect, and fairness. Furthermore, researchers must, at all times, consider the privacy of participants and ensure that participants know that participation is

voluntary, where they can withdraw without consequences during the research process. In addition, prior to the research, all participants must first understand and give their consent and must be informed that their data will be confidential and safe. Picardi and Masick (2014) alert the researcher to be accountable for ensuring that the research study is designed and conducted safely and ethically for all the participants. The researcher is obligated to follow the ethical guidelines in the collection of the data, the analysis thereof as well as reporting of the study.

Interestingly, before the commencement of data collection, the researcher had applied for and obtained ethical clearance from the UNISA Ethics Committee in July 2023 for a period of five years. The above ethical clearance was retracted and following meeting and consultations, the ethical clearance was again granted on the 13th November 2023 for a period of 12 months until 13th November 2024. Following further consultation with the staff in the Psychology Department at UNISA, it was noted that the 12-month period was only applicable to the data collection and the researcher was able to complete all the interviews and finalised the data collection by the end of July 2024.

Given the above and following the COVID-19 lockdown restrictions, changes were introduced including the introduction of the Protection of Personal Information Act No 4 of 2021 (POPIA). In light of the above the researcher was obliged to adjust, and changes were made to the original ethical clearance application. The data collection method originally proposed as a result of COVID, via computer-based interviews (via Zoom) had also been changed and face-to-face interviews were done in line with the COVID lockdown restriction lifted as per a UNISA communiqué.

In addition, in light of the POPIA, the researcher was also now not allowed to sample potential participants from an existing internal database and following a 12-month period of consultations and discussions with various other psychologists, the researcher managed to secure an external database. The psychologist, who granted access to the database, sent out e-mails to numerous potential participants who met the inclusion criteria from their database, and adhering to the exclusion criteria as earlier stated. The researcher then had to wait for these potential participants to contact the researcher via email, and/or telephonically. Once this contact was made, the researcher again explained the aim and purpose of the study and ensured their voluntary participation in the study.

From the discussion above, it can therefore be seen that the behaviour of the researcher has to remain objective and professional at all times. Bouchrika (2021) visually presents the ethics of researcher's behaviour, as depicted in the figure below.

Figure 5 *Ethical Principles of Research*

Note. Adapted from Dr. Sohail Bajammal available at https://research.com/research/how-to-write-research-methodology

4.8.1 World Medical Associations' Declaration of Helsinki Ethical Guidelines

The Nuremberg Code of 1949 recommended ten principles, formulated based on scientific human experiments. The ten principles remain relevant to individuals participating in research (Picardi and Masick, 2014). The ten principles are used to maintain ethical standards in research and to protect individuals participating the any research studies. These principles are as follows:

4.8.1.1 Principle One: Voluntary Consent

Participants ought to have the legal capacity to give consent and they must be able to exercise freedom of choice, without the intervention, force, or coercion, while having sufficient skills and knowledge and understanding to comprehend the elements of the research in order to make an informed decision**.** The researcher must explain the nature, duration, and purpose of the study in detail as well as the methods by which the research is to be conducted. Furthermore,

any inconveniences reasonably expected, and any possible effects upon the health of the individual which may arise from participation in the experiment, if applicable, must be addressed and explained in detail to the participants. For the purposes of this research, all participants had legal capacity, and were able to give consent. The researcher explained, in detail, the nature, duration, and purpose of the study, as well as the methods and means by which the research was to be conducted to all participants prior to the study.

4.8.1.2 Principle Two

The study must yield fruitful results for the good of society, which are unable to be procured by other methods, and not random. The outcome of the current research will provide data that could be beneficial to the participants as well as for future individuals who experienced the consequence of an mTBI.

4.8.1.3 Principle Three

The experiment ought to be designed and based on the results of animal experimentation and knowledge of the natural history of the disease or other problems under study so that the anticipated results will justify the outcome of the study. Although this principle is not really applicable to this research, prior to the commencement of the study, the UNISA Ethics Committee approved the research study, and numerous discussions were held with the researcher's supervisor during the completion of the study.

4.8.1.4 Principle Four

The experiment must be conducted in such a way that physical and mental suffering or injury are avoided. The outcome of this study was to provide rich descriptions of the collective experiences of the participants and would greatly benefit the participants, with no risk of physical or mental suffering**.**

4.8.1.5 Principle Five

No experiment should be conducted where there is a prior reason to believe that death or disabling injury will take place. As with Principle Four above, there was no risk of death or

injury associated with the current research procedure.

4.8.1.6 Principle Six

The degree of risk to be taken should never exceed that determined by the humanitarian importance of the problem to be solved by the study. The humanitarian outcome of the study will greatly benefit the current participants in understanding the impact of mTBI on work adjustment, as well as benefit future individuals who suffer from an mTBI, together with managers and clinicians who come into contact with such individuals.

4.8.1.7 Principle Seven

This principle is concerned with proper preparations and adequate facilities to protect participants from harm. Although not directly relevant to this study, the research was prepared to address any psychological discomfort. The researcher possess necessary skills and expertise to address such psychological discomfort and/or if needed, was able to refer participants for additional psychological intervention.

At the time of this study, no psychological discomfort was noted by the researcher and/or experienced by the participants during questioning, and no psychological interventions were required. Interestingly, all the participants expressed feelings of appreciation for being given the opportunity to discuss their experiences following the mTBI for purposes of this study.

4.8.1.8 Principle Eight

The experiment must only be conducted by scientifically qualified people. This principle has already been noted in previous discussions, given the credentials of the researcher under the guidance of a well-trained and qualified supervisor.

4.8.1.9 Principle Nine

This principle deals with the participants' freedom to choose to discontinue the experiment. As stated in Principle One, voluntary consent, participants were informed of their choice to opt

out at any given time during the research, with no negative consequence to them.

4.8.1.10 Principle Ten

During the experiment, the researcher is responsible for stopping the experiment if continuation places the participants at risk. In this study, the same responsibility and ongoing judgement were exercised in order to prevent participants from experiencing psychological and emotional harm.

4.8.2 The Belmont Report

The Belmont Report was composed by the National Commission as a result of the National Research Act of 1974 for the Protection of Human Subjects of Biomedical and Behavioural Research. With reference to the UNISA research guidelines for involving human participants, the Belmont principles are included and are discussed below.

4.8.2.1 Principle One - Respect for Persons

Respect for persons incorporates at least two ethical convictions: firstly, that individuals ought to be treated as autonomous beings; and secondly, that individuals with diminished autonomy are entitled to protection. The principle of respect for persons is divided into two separate moral requirements, namely, the requirement to acknowledge autonomy and the requirement to protect those with diminished autonomy. This principle correlates with the principles one and nine above as described by Picardi and Masick (2014). In addition, and with reference to the UNISA guidelines for ethical research which include, the research respects the autonomy, rights, and dignity of the participants relating to this study.

4.8.2.2 Principle Two - Beneficence

Persons are treated in an ethical manner not only by respecting their decisions and protecting them from harm, but also by making efforts to secure their well-being. The beneficence principle demonstrate similarities between to Principle Four and Five above. Beneficence requires researchers to always “strive for positive outcomes for the subjects, as well as for

themselves, the research community, and society" (Picardi and Masick, 2014, p. 32). In addition, with reference to the UNISA ethical research guidelines, relating to beneficence, the research should make a positive contribution towards the welfare of people, should not cause harm to the participants and should contribute positively to their lives. Interestingly, as earlier noted, at the time of this study, all the participants expressed feelings of appreciation for being given the opportunity to discuss their experiences following their mTBI and indicated that the discussion has a positive impact on their well-being.

4.8.2.3 Principle Three - Justice

There must be benefits to be derived from the research and a sense of fairness in their distribution. During this research, each participant was treated equally and according to their individual needs, effort, and societal contribution. The UNISA guidelines for ethical research relating to the principle of justice note that the benefits and risks of research ought to be fairly distributed. As with Principle Two above, there was no risk of injustice relating to this research, as the researcher treated each participant fairly, and believed that the outcome of the research would be of benefit to the participants and other individuals who had sustained an mTBI.

4.8.3 Applications of the Principles

In the applications of thes3e principles while conducting the research, the following requirements were followed by the researcher.

4.8.3.1 Informed Consent

During the research, the dignity and respect for the participants were upheld. The purpose of the research was fully explained to each participant. This explanation assisted each participant in making an informed decision as to whether they were willing to participate prior to signing the consent form. Each participant was given the opportunity to ask questions to clarify issues. Each participant was given the opportunity to address concerns they may have had regarding the research process and what would or would not happen to them.

These opportunities are addressed when adequate standards for informed consent are satisfied. In addition, the researcher, throughout the research, protected the dignity of the participants as

well as their psychological well-being, taking cognisance of the fact that they had suffered an mTBI.

4.8.3.2 Information

The researcher, at all times, ensured that the participants were given sufficient information relating to the research procedure, purposes, and benefits. Participants were given the opportunity to ask questions, and to withdraw at any time.

4.8.3.3 Comprehension

The information was presented in such a way that the participants had time to consider all the information, and they were given the opportunity to ask questions for clarification as and when needed.

4.8.3.4 Voluntariness

An agreement to participate in this research constitutes valid consent when this consent is given voluntarily and without any forced participation. According to Neuman (2013), participation in research ought to be a voluntary activity that does not involve any form of coercion or undue pressure. As noted, the potential participants were selected from a database at a neuropsychologist's practice, and an email was sent to invite them to contact the researcher. This was done on a purely voluntary basis, and those who were interested in participating in the study thereafter contacted the researcher. The researcher then explained the purpose of the study, and discussed the research ethics clearance that had been obtained. The ethics clearance letter together with a consent letter to participate was emailed to the potential participants.

The researcher also gave the potential participants an opportunity to ask questions and these, if any, were addressed. The researcher again reiterated that participation was voluntary, noting that they were free to withdraw at any time from the study should they wish to do so. The researcher then, at the beginning of each interview, once more explained the aim of the research study to each participant and again noted that their participation was voluntary, and that they were free to withdraw from the study at any time should they elect to do so.

4.8.3.5 Confidentially/Anonymity

Picardi and Masick (2014) state that privacy issues and the need for safeguarding personal information ought to be taken into consideration. In addition, consideration is also given the Protection of Personal Information (POPI) Act of South Africa. This study protected the identity of the participants at all times, which was not known to anyone reading the research. The participants' identities were, however, known to the researcher at the time of conducting the research. The researcher furthermore undertook, at all times, honour the interrelated ethical requirements of privacy, confidentiality, and anonymity, and participants were not expected to reveal any personal information.

Confidentiality means that any identifiable information that the researcher has access to during the research process will not be disclosed to any parties without permission from the participants. In terms of anonymity, the researcher avoided collecting identifying information, such as names, addresses, photographs. All information was presented collectively in categories, and no names were used at any stage of the research.

The researcher was fully committed to the principle of confidentiality and anonymity as well as to adhering to the ethical guidelines and requirements as outlined above. As per the previous principle, the researcher provided the assurance that each participant's personal information was kept confidential at all times. Consent was obtained to use the participants' historic medical records and their previous assessment data for purposes of their RAF claim. Each participant was again assured that such information would be treated anonymously, and that at no stage during the study and/or after the study would their personal details be reflected anywhere. The researcher also explained that confidentiality means that any identifiable information that the researcher has access to during the research process will not be disclosed to any third parties without the participants' permission and consent. Participants were further informed that their personal data will only be kept by the researcher on a password-protected computer, stored in a safe placed in a safe and secure environment. In addition, with further regard to anonymity, the researcher avoided collecting personal information that could lead to the identification of the participants (i.e. such as names, email addresses, contact details and photographs). In this study, in order to ensure anonymity, each participant who agreed to participate was assigned to an alphabetic identifier, for example, Participant A.

4.8.3.6 Benefits and Risk or Harm

This research did not carry any immediate benefits, risk, or harm for the participants. The participants had already undergone a process prior to the study, in order to submit a claim to the Road Accident Fund. The research followed this process and focused on the participants' beliefs regarding their ability to adjust to work following an mTBI. The participants were informed that the study focused on identifying collective experiences from all participants and on developing a collective psychological explanatory model of issues, behaviours, and experiences in work adjustment following an mTBI.

It was hoped that the outcome of the research would benefit the participants, as well as others, in the sense that the identified collective behaviours and experiences could be of some benefit to other individuals with mTBIs in assisting in their work adjustment, as well as human resource departments and industrial psychologists in the workplace, when addressing behavioural issues associated with workplace adjustment. In addition to the benefits to the requirements of good ethical practice, the researcher was obliged to take care of the psychological welfare of the participants (Neuman, 2013). Should any potential discomfort be experienced by any of the participants during the interviews, this would be immediately addressed by the researcher. Any discomfort identified during the interview could be addressed through the necessary psychological interventions, including guidance, counselling, and the provisional of additional time with the participant(s). It was noted, that in the unlikely event, that the participants experienced any form or adverse emotional reactions, further interventions and referral would be recommended.

4.8.3.7 Respect and Dignity

The researcher further, in accordance with the UNISA ethics rules and regulations, as well as the ethical principles outlined above, respected each participant's personal opinions and views, and maintained their integrity and dignity. The researcher acknowledged that the participants may have been vulnerable, and may have presented with emotional related consequences associated with having suffered an mTBI, which may or may not have impacted on their social circumstances as well as their work life. The researcher respected the participants regardless of their personal circumstances, their gender, their race, and their age. The researcher, throughout the research, protected the dignity and integrity of each participant.

4.9 MY POSITIONALITY AND REFLEXIVITY

During the literature review, it was interesting for me to read and evaluate the different views, values and beliefs that can influence a researcher during a research project. Given the research philosophies and paradigms, it became important for me, as a researcher, to gain extensive and appropriate knowledge and to acknowledge my position in the process. This required me to evaluate my own beliefs, values, and views regarding the way in which my research study would progress, and how it should be conducted.

My field of interest is the investigation of the capacity of individuals and their ability to adjust back to returning to work following an mTBI, which has led me to register for this PhD and to complete this research project in the above-mentioned field. Throughout my working career, I have had to make many time commitments, changes and adaptations within my own social and work environments to take on the research and complete this study. My job requires the assessment of individuals who have suffered an mTBI and who experience struggles with adjusting to work, often compounded by the lack of support from their employers. This, together with my interest in the field, as well as my beliefs and values, propelled me to investigate the impact of a mTBI on individuals' collective experiences in South Africa. It was hoped that this information would provide a lens through which I could interpret the individuals' beliefs in their capacity to cope and deal with their challenges during work adjustment following a mTBI.

Bourke (2014) noted that various factors will influence any researcher's positionality and the way in which a research study is conducted, as well as the results. In light of the above, I had to find an area in which I could contribute additional value without any conflict of interest. Following extensive reading and consultation, self-efficacy as a phenomenon became an obvious interest, particularly regarding its impact on an individual's capacity for work adjustment following an mTBI. The focus of my study was therefore on the individual (employee) and rather than the views of the employer. I also believed that my current qualifications, numerous courses and further training, as well as 30 years of experience in private practice as a psychologist, and having assessed and worked with individuals who have suffered various injuries (including mTBIs as a result of a MVA) as well as providing

psychological interventions, would orientate me to becoming more empathetic and sensitive towards these individuals and their beliefs and experiences following an mTBI.

In addition, I have also been involved in a wide range of issues relating to the impact of an mTBI on the individuals in the social and work contexts. I have been instructed, by both private lawyers and public legal representatives to do specialised assessments on individuals in order to determine the impact of an mTBI on their work potential for purposes of their RAF claim, as well as following similar injuries resulting from causes other than a MVA, including sport injuries, gunshot wounds, falls, diving incidents, and other traumatic events. I have also interacted with many professionals from various disciplines, including medical doctors and specialists, including neurologists, neurosurgeons and orthopaedic surgeons as well as psychologists in the field of neuropsychology, counselling psychology and educational psychology and academia, as well as lawyers, advocates, and judges, in order to provide an expert opinion relating to the above. Given the above nature of my work, I wanted to focus the research on the impact of self-efficacy and work adjustment following an mTBI, rather than looking specifically at an mTBI, and return-to-work practices from an employer's viewpoint.

Self-efficacy and an individual's ability to overcome challenges have become recurring themes within both professional and academic discussions. Through my clinical and forensic work, I have observed that many individuals who have sustained an mTBI experience significant challenges during their return-to-work process. These observations, together with the limited body of South African research focusing specifically on self-efficacy and work adjustment following mTBI, strengthened my interest in this area of study.

The process of obtaining ethical clearance and completing the research required sustained commitment, perseverance, and confidence in my ability to overcome challenges. This personal experience also heightened my appreciation for the role of self-efficacy in navigating complex and demanding situations. During data analysis, I continually reflected on my own assumptions and professional experiences to minimise their influence on the interpretation of participants' accounts. The focus remained on understanding and representing the participants' experiences of self-efficacy and work adjustment following mTBI as faithfully as possible.

As both a psychologist and researcher, I believe that this study contributed not only to my own professional and scholarly development but also to a broader understanding of the factors

influencing work adjustment following mTBI. The findings may provide valuable insights for psychologists, rehabilitation professionals, employers, human resource practitioners, and legal professionals involved in supporting individuals following injury. Furthermore, the study may contribute to the development of more informed workplace practices and interventions aimed at facilitating successful work adjustment following mTBI.

4.10 CONCLUSION

The study adopted a qualitative phenomenographic methodology, which is epistemologically grounded in interpretivism and ontologically aligned with a non-dualistic experiential view of reality. Phenomenography is particularly suitable for the purposes of this study, as it explores the variations in how participants experience a phenomenon, specifically the impact of an mTBI on self-efficacy and work adjustment. The data collection, through the use of semi-structured interviews, was designed to encourage the participants to describe and provide, in their own words, rich and authentic insights into their experiences. Historic data was also used to support and further enrich the data collected during the interviews.

The research investigates how the participants experience an mTBI, not what an mTBI is in itself; that is, the focus is placed on a second-order perspective. Through iterative analysis, the researcher attempted to identify patterns of meaning using comparative data and similar conceptions in order to distinguish between different experiences and understandings of the phenomenon. The aim was to explore the diversity of the participants' collective experiences, recognising these variations as meaningful and informative. The use of phenomenography provides insight into the different ways in which participants understand and make sense of their abilities to adjust to work by identifying categories of description and representing a range of conceptions. These categories are then presented in a structural outcome space to highlight the relationships between different ways of experiencing the phenomenon. This is presented in the following chapter.

The researcher values the importance of this research in contributing to the body of knowledge on self-efficacy and work adjustment following an mTBI. Self-efficacy influences how people feel, think, motivate themselves, and behave in order to overcome difficulties. Such beliefs produce divers effects though physical, cognitive, and emotional process during work adjustment following an mTBI. The researcher remained fully committed to the ethical

principles outlined for the research process, which were strictly implemented and adhered to throughout the study, as described in the preceding paragraphs.

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CHAPTER 5: PRESENTATION OF RESULTS

5.1 INTRODUCTION

The chapter will provide the research findings relating to the participants' beliefs and experiences during work adjustment following an mTBI. Phenomenography was used in order to analyse the participants' response. Phenomenography refers to the qualitative ways in which experiences are conceptualised, understood, perceived, and apprehended (Morton, 1994).

The researcher's focus was on their constructed experiences regarding their beliefs (i.e. self-efficacy) in their capacity to achieve adjust to work (i.e. their goal), and not on different or even related phenomena.

Following the sampling process, a total of 17 potential candidates were available to be interviewed. The researcher made use of open-ended semi-structured interview questions in order to elicit participant experiences. In addition, a general self-efficacy questionnaire was administered following the interview session. Biological data as well as historical data were perused, including the participants' age, date of accident, alteration in mental status, cognition and higher integrative functioning score (MSCHIF), as well as their pre-morbid cognitive, physical, and/or behavioural, psychological and emotional symptoms.

The demographic profile and historical data of participants are presented below. Following their interviews, their data is presented in the paragraphs that follow.

5.2 DEMOGRAPHIC PROFILE OF THE PARTICIPANTS

The profile summary of each of the participants and their demographic details as presented and a further summary are also presented in Table 5.1. As discussed in Chapter Four, all participants were purposively selected from a database from a neuropsychological practice in KwaZulu-Natal.

These individuals suffered an mTBI and had previously been assessed by the neuropsychological practice for purposes of providing relevant evidence for their RAF claim.

These potential participants were selected from the neuropsychological database based on the inclusion and exclusion criteria by the neuropsychologist, and emails were sent to potential participants who met the criteria to contact the researcher were they interested to participate. Following numerous emails, 17 responded and were interviewed. However, two participants were used for purposes of the pilot interviews to test the interview setting and questions, and their interview data was thereafter discarded.

5.2.1 Participant A

Participant A was a 25-year-old male when he was involved in a MVA on the 27th January 2020. He completed Grade 12, and became a plumber. He was employed as a plumber at the time of the accident. He suffered a mild traumatic brain injury with a GCS of 14/15 with no loss of consciousness, but a period of confusion was noted, and he was hospitalised for short period of time as per his historic data perused. He returned to work after two weeks following the accident on the 15th February 2020. Participant A had undergone a neuropsychologist evaluation for purposes of his Road Accident Fund Claim on 12th August 2022. Perusal of his historical data revealed that his score in terms of alteration in mental status, cognition and higher integrative functioning (MSCHIF) was 7% (Class 1). He had no pre-morbid cognitive, physical and/or behavioural, psychological and emotional symptoms. Based on his historic data, his post-accident general non-verbal cognitive functioning were assessed as average. Post-accident, he presented with a mild to moderate mood disorder and moderate levels of anxiety. At the time of the interview, it had been four years since the accident had taken place. His self-efficacy scores – that is, his belief in his confidence levels (including emotional, physical, cognitive, behavioural and social skills) in performing and achieving, as well as his confidence in his effort levels in engaging in activities to achieve work adjustment – were assessed as being very high.

5.2.2 Participant B

Participant B was a 33-year-old male when he was involved in a MVA. He completed a Grade 12 along with his South African Police training. He was employed as a constable in the South African Police Service (SAPS) in KwaZulu-Natal at the time of the accident on the 20th May 2020. He suffered a mild traumatic brain injury with a GCS of 14/15 with a period of confusion, and was hospitalised for a few days, as per his historic data. He was off work for a period of

about 15 days and returned to work on the 9th June 2020. Participant B had undergone a neuropsychologist evaluation on the 15th September 2022 for purposes of his Road Accident Fund claim. Following perusal of his historical data, his MSCHIF rating was noted as 12% (Class 1) based on the outcome of his neuropsychological evaluation and assessment results. He had no pre-morbid cognitive, physical, behavioural and/or psychological or emotional symptoms. In addition, his post-accident non-verbal cognitive functioning were assessed as being above average. He presented with a moderate mood disorder (depression) and severe levels of anxiety. At the time of the interview, it had been four years since the accident occurred. His self-efficacy scores were assessed as being above average.

5.2.3 Participant C

Participant C was a 41-year-old female when she was involved in a . She completed a Grade 12 and a Diploma in Sport and Health Management. She was employed as a project manager at the time of the accident on the 5th December 2020. She suffered a mild traumatic brain injury with a GCS of 14/15 with a reported brief period of loss of consciousness at the scene of the accident and a period of confusion. She was hospitalised and had a computed tomography (CT) scan of the brain, which was reported as normal as per historic records made available for perusal. She noted that she returned to work on the 23rd December 2020, and her manager told her to return to take more time off and she then returned work on the 3rd January 2021. Participant C had undergone a neuropsychological evaluation on the 31st January 2022 for purposes of her Road Accident Fund claim. Following perusal of her historical data, it was noted that her score in terms of alteration in mental status, cognition, and higher integrative functioning MSCHIF rating was 16% (Class 1) as a result of her mTBI, based on the outcome of her neuropsychological assessment results. She had no pre-morbid cognitive, physical, behavioural, or psychological/ emotional symptoms, and noted that she was healthy and living a fulfilled life. Based on her historic data, her post-accident general non-verbal cognitive functioning were above average. She presented with a severe mood disorder (depression) on the Beck Depression Inventory (BDI), and moderate to severe levels of anxiety. At the time of the interview, it had been nearly four years since the accident took place. Her self-efficacy scores were assessed as being average.

5.2.4 Participant D

Participant D was a 28-year-old female when she was involved in a . She completed a Grade 12 and a Diploma in Education. She was employed as a credit controller in a corporate company in KwaZulu-Natal at the time of the accident on 2nd December 2018. She suffered a mild traumatic brain injury with a GCS of 14/15 with a reported brief period of loss of consciousness at the scene of the accident. She was hospitalised as per her historic data perused. She was off work for a month returned to work after on the 3rd January 2019 following the accident. Participant D had undergone a neuropsychologist evaluation on the 4th November 2021 for purposes of her Road Accident Fund claim. Following perusal of her historical data, it was noted that her score in terms of alteration in mental status, cognition, and higher integrative functioning MSCHIF rating was 16% (Class 1), based on the outcome of her neuropsychological evaluation and assessment results. She had no pre-morbid cognitive, physical, behavioural, or psychological/emotional symptoms. Based on her historic data, her post-accident general non-verbal cognitive functioning was assessed as average. She presented with a severe mood disorder (depression) on the BDI, and moderate to severe levels of anxiety. At the time of the interview, it had been six years since the accident happened. Her self-efficacy scores were assessed as being low.

5.2.5 Participant E

Participant E was a 26-year-old female when she was involved in a . She completed a Grade 12 and a Diploma in Bookkeeping. She was employed as a stock controller in a corporate company in KwaZulu-Natal at the time of the accident on 20th June 2019. She suffered a mild traumatic brain injury with a GCS of 14/15, with no loss of consciousness, but reported feelings of dizziness and confusion at the scene of the accident She returned to work in mid-July 2019 following the accident. Participant E had undergone a neuropsychologist evaluation on the 3rd November 2022 for purposes of her Road Accident Fund claim. Following perusal of her historical data, it was noted her score in terms of alteration in mental status, cognition and higher integrative functioning MSCHIF rating was 10% (Class 1) based on the outcome of his neuropsychological assessment results. She had no pre-morbid cognitive, physical, behavioural, or psychological/ emotional symptoms. Based on her historic data, her post-accident general non-verbal cognitive functioning were assessed as average. She presented with a mild to moderate mood disorder (depression) on the BDI, and mild levels of anxiety. At

the time of the interview, it had been five years since the accident happened. Her self-efficacy scores were assessed as being average.

5.2.6 Participant F

Participant F was a 30-year-old male when he was involved in a MVA. He completed a Grade 12 and a certificate in Information Technology and various building course. He was employed as a builder at the time of the accident on 23rd August 2019. He suffered a mild traumatic brain injury, with a GCS of 15/15 with indications of a short period of disorientation, based on his historic data made available for perusal. He returned to work after two weeks in early-September 2016. Participant F had undergone a neuropsychologist evaluation on the 13th March 2023 for the purposes of his Road Accident Fund claim. Following perusal of his historical data it was noted that his score in terms of alteration in mental status, cognition, and higher integrative functioning MSCHIF rating was 16% (Class 1) based on the outcome of his neuropsychological assessment results. He had no pre-morbid cognitive, physical, behavioural, or psychological/emotional symptoms. Based on his historic data, his post-accident general non-verbal cognitive functioning were assessed as average. He presented with a severe mood disorder (depression) on the BDI, and severe levels of anxiety. At the time of the interview, it had been six years since the accident happened. His self-efficacy scores were assessed as being above average.

5.2.7 Participant G

Participant G was a 38-year-old female when she was involved in a MVA on the 30th March 2018. She completed a Grade 12 and qualified as a professional nurse. She also completed an Advance Diploma in Nursing Management. She was employed as a professional nurse at a government hospital in KwaZulu-Natal at the time of the accident. She suffered a mild traumatic brain injury with a GCS of 14/15 with a brief period of loss of consciousness at the scene of the accident, as per historical data made available. She was hospitalised and sent for neuro-observations and A computer scan of the brain yielded normal results. She was off work from date of accident for about 30 days and returned to work on the 1st May 2018. Participant G had undergone a neuropsychologist evaluation on the 17th January 2022 for purposes of her Road Accident Fund claim. Following perusal of her historical data, her MSCHIF was assessed as 12% (Class 1) based on the outcome of her neuropsychological assessment results. She had

no pre-morbid cognitive, physical, behavioural, or psychological/ emotional symptoms. Based on her historic data, her post-accident general non-verbal cognitive functioning was assessed as average. She presented with a moderate mood disorder (depression) and mild levels of anxiety. At the time of the interview, it had been six years since the accident occurred. Her self-efficacy scores were assessed as being above average.

5.2.8 Participant H

Participant H was a 40-year-old female when she was involved in a MVA. She completed a Grade 12 and a Higher Certificate in Bookkeeping. She was employed as a credit manager in a corporate company in KwaZulu-Natal at the time of the accident on 3rd October 2020. She suffered a mild traumatic brain injury with a GCS of 14/15 with no loss of consciousness, but with reference to the hospital records and ambulance records, she was confused at the scene of the accident. She was hospitalised overnight for neuro-observation. She returned to work after about two weeks and towards at end of October 2020. Participant H had undergone a neuropsychologist evaluation on the 30th August 2022 for purposes of her Road Accident Fund claim. Following perusal of her historical data it was noted that her score in terms of alteration in mental status, cognition, and higher integrative functioning MSCHIF rating was 10% (Class 1) based on the outcome of his neuropsychological assessment results. She had no pre-morbid cognitive, physical, behavioural, or psychological/emotional symptoms. Based on her historic data, her post-accident general non-verbal cognitive functioning were assessed as poor. She presented with a mild to moderate mood disorder (depression) on the BDI, and severe levels of anxiety. At the time of the interview, it had been nearly four years since the accident took place. Her self-efficacy scores were assessed as being very high.

5.2.9 Participant I

Participant I was a 31-year-old female when she was involved in a MVA. She completed a Grade 12 and a Diploma in Education, but she did not complete her studies. She was employed as a technical operator in a large manufacturing company in KwaZulu-Natal at the time of the accident on 14th July 2019. She suffered a mild traumatic brain injury with a GCS of 15/15, and there were indications in the hospital records of a period of confusion but no loss of consciousness. She returned to work at the beginning of August 2019. Participant I had undergone a neuropsychologist evaluation on the 29th March 2021 for the purposes of her road

accident fund claim. Following perusal of her historical data, it was noted her score in terms of alteration in mental status, cognition, and higher integrative functioning MSCHIF rating was 6% (Class 1), based on the outcome of his neuropsychological assessment results. She had no pre-morbid cognitive, physical, behavioural, or psychological/ emotional symptoms. Based on her historic data, her post-accident general non-verbal cognitive functioning were assessed as being below average. She presented with a severe mood disorder (depression) on the BDI and severe levels of anxiety. At the time of the interview, it had been six years since the accident happened. Her self-efficacy scores were assessed as being low.

5.2.10 Participant J

Participant J was a 37-year-old male when he was involved in a MVA. He completed a Grade 12 and a Diploma in Health and safety in 2016. He was employed as a supervisor at the time of the accident on the 29th May 2021. Based on historic data made available for perusal, he suffered a mild traumatic brain injury with a GCS of 14/15 with a brief period of loss of unconscious at the scene of the accident. He returned to work after two weeks and in about mid-June 2020 following the accident. Participant J had undergone a neuropsychologist evaluation on the 2nd September 2022 for purposes of his road accident fund claim, and perusal of his historical data revealed an as MSCHIF rating of 10% (Class 1) based on the outcome of his neuropsychological assessment results. He had no pre-morbid cognitive, physical, behavioural and/or psychological or emotional symptoms. Based on his historic data, his post-accident general non-verbal cognitive functioning were assessed as average. He presented with a moderate to severe mood disorder (depression) and severe levels of anxiety at the time of his neuropsychological as. At the time of the interview, it had been three and a half years since the accident happened. His self-efficacy scores were assessed as being average.

Following saturation and following the first reading and iteration the following participants' data was not included in the study.

5.2.11 Participant K

Participant K was a 37-year-old male when he was involved in a MVA. He completed a Grade 12 and a Diploma in General Management. He was employed as a Duty Manager at a Casino in KwaZulu-Natal at the time of the accident on the 12th February 2019. He suffered a mild

traumatic brain injury with a GCS of 14/15, with a period of loss of consciousness at the scene of the accident. He returned to work after just before March 2019 following the accident. Participant K had undergone a neuropsychologist evaluation on the 12th September 2022. Following perusal of his historical data, his score in terms of alteration in mental status, cognition and higher integrative functioning MSCHIF was assessed as 20% (Class ii) as a result of injury. He had no pre-morbid cognitive, physical, behavioural and/or psychological or emotional symptoms. Based on his historic data, his post-accident general non-verbal cognitive functioning were assessed as average. He presented with a moderate mood disorder (depression) and moderate to severe levels of anxiety. At the time of the research interview, it had been five years since the accident happened. His self-efficacy scores were assessed as being very high.

5.2.12 Participant L

Participant L was a 25-year-old male at the time of the MVA. He completed a Grade 12 and a Diploma in Crime Prevention. He was employed as a constable in the South African Police Service at the time of the accident on the 28th October 2018. He suffered a mild traumatic brain injury with a GCS of 13/15 with a short period of loss of consciousness at the site of the accident. He returned to work after at the beginning of November 2018. Participant L had undergone a neuropsychologist evaluation on the 6th June 2022. Following perusal of his historical data, it was noted his score in terms of alteration in mental status, cognition, and higher integrative functioning MSCHIF was assessed as 20% (Class 2), based on the outcome of his neuropsychological assessment results. He had no pre-morbid cognitive, physical, behavioural, and psychological or emotional symptoms. Based on his historic data, his post-accident general non-verbal cognitive functioning was assessed as poor compared to his norm group. He did not present with a mood disorder (depression) or with anxiety. At the time of the interview, it had been six years since the accident occurred. His self-efficacy scores were assessed as being very high.

5.2.13 Participant M

Participant M was a 60-year-old male at the time of the MVA. He completed a Grade 12 and a Diploma in Marketing. He was employed as an operations manager at the time of the accident on the 24th July 2020. With reference to his hospital record, it was noted that he suffered a mild

traumatic brain injury with a GCS of 13/15 with a brief period of loss of unconscious at the scene of the accident, was sent for neuro-observations and was hospitalised for one day. He returned to work after in early-August 2020. Participant M had undergone a neuropsychologist evaluation on the 17th August 2022 for purposes of his road accident fund claim. Perusal of his historical data revealed an as MSCHIF rating of 15% (Class 1). He had no pre-morbid cognitive, physical, behavioural and/or psychological or emotional symptoms. Based on his historic data, his post-accident general non-verbal cognitive functioning were assessed as average. He did not present with a mood disorder (depression) or anxiety. At the time of the interview, it had been four years since the accident happened. His self-efficacy scores were assessed as high.

5.2.14 Participant N

Participant N was a 41-year-old male when he was involved in a MVA. He completed a Grade 12 and a Diploma in Marketing. He was employed as an environmental officer at the time of the accident on the 2nd October 2017. He suffered a mild traumatic brain injury with a GCS of 15/15 with a period of dizziness and confusion at the scene of the accident. He returned to work mid-October 2017. Participant M had undergone a neuropsychologist evaluation on the 17th June 2021 for purposes of his road accident fund claim. Perusal of his historical data revealed an as MSCHIF rating of 15% (Class 2). He had no pre-morbid cognitive, physical, behavioural and/or psychological or emotional symptoms. Based on his historic data, his post-accident general non-verbal cognitive functioning were assessed as above average. He presented with a mild to moderate mood disorder (depression) and severe anxiety. At the time of the interview, it had been seven years since the accident happened. His self-efficacy scores were assessed as being average.

5.2.15 Participant O

Participant N was a 38-year-old female when she was involved in a MVA. She completed a Grade 12 and her South African Police training in 2005. She was employed as a sergeant in the South African Police Service (SAPS) at the time of the accident on the 15th March 2019. She suffered a mild traumatic brain injury with a GCS of 13/15, with a brief period of loss of consciousness. She was hospitalised and sent for neuro-observation. She was off work for about 15 days and returned to work after on 1st April 2019. Participant N had undergone a

neuropsychological evaluation on the 24th March 2022 for purposes of her Road Accident Fund claim. Following perusal of her historical data, her MSCHIF rating was noted as 15% (Class 2) based on the outcome of her neuropsychological evaluation and assessment results. She had no pre-morbid cognitive, physical, behavioural, or psychological/ emotional symptoms. Based on her historic data, her post-accident general non-verbal cognitive functioning were assessed as poor, and not in line with her pre-morbid expected level of functioning. She further presented with a severe mood disorder (depression) and severe levels of anxiety. At the time of the interview, it had been five years since the accident happened. Her self-efficacy scores were assessed as being above average.

Table 2 *The Demographic Summary*

	Accident date	Age at MVA	GCS	MSCHIF	Sex	Job	SPM	Score	Depression	Score	Anxiety	Score	SE	Score
A1	27/01/2020	25 y 04 months	14/15	7%	Male	Plumber	Average	47	Mild to moderate	15	Moderate	25	Very High	35
B2	20/05/2020	33 y 02 months	14/15	12%	Male	Constable	Above average	53	Moderate	29	Severe	26	Above Average	29
C3	05/11/2020	41 y 0 months	14/15	16%	Female	Project Manager	Above average	51	Severe	37	Moderate to severe	27	Average	21
D4	02/12 2018	28 y 01 month	14/15	16%	Female	Credit Controller	Average	45	Severe	40	Moderate to severe	38	Low	16
E5	09/03 2019	26 y 03 months	14/15	10%	Female	Stock Controller	Average	42	Mild to moderate	15	Mild	12	Average	20
F6	23/08 2019	30 y 08 months	15/15	16%	Male	Builder	Average	46	Severe	40	Severe	28	High	32
G7	20/03 2020	38 y 11 months	14/15	12%	Female	Nurse	Average	33	Moderate	22	Mild	13	Above average	23
H8	03/10 2020	40 y 07 months	15/15	10%	Female	Credit manager	Poor	31	Mild to moderate	13	Severe	32	Very High	40
I9	14/07/2019	31 y 08 months	15/15	6%	Female	Technical Operator	Below average	25	Severe	42	Severe	34	Low	17
J10	29/05/2021	37 y 06 months	14/15	10%	Male	Supervisor	Average	45	Moderate to Severe	28	Severe	35	Average	25
Data Saturation														
K11	12/02/2019	32 y 0 months	14/15	20%	Male	Duty Manager	Average	34	Moderate	29	Moderate to severe	24	Very High	40
L12	28/10/2018	25 y 06 months	13/15	20%	Male	Constable	Poor	24	Normal	6	Normal	5	Very High	39
M13	24/07/2020	60 y 09 months	13/15	15%	Male	Operations manager	Average	49	Normal	9	Mild	14	High	33
N14	02/10/2017	41 y 02 months	15/15	15%	Male	Environmental Officer	Above average	52	Mild to moderate	18	Severe	27	Average	25
O15	15/03/2019	38 y 0 months	13/15	15%	Female	Sergeant	Poor	18	Severe	41	Severe	34	Above Average	24
Practice Interviews														
P1	23/08/2017	25 y 09 months	14/15	20%	Male	Chef	Average	40	Severe	34	Moderated to severe	17	Average	25
P2	03/12/2017	29 y 03 months	14/15	13%	Male	Technician	Below Average	36	Severe	42	Severe	27	High	27

Note. Author's construct (2024)

5.3 HISTORICAL DATA

Together with historic data and with reference to the narratives from the interview process, the following is a discussion on the impact of self-efficacy and work adjustment based on the outcomes from the research. In addition, it further provides rich description and information in understanding how self-efficacy impacts work adjustment experiences following an mTBI, with reference made to the historic data obtained from the participants.

5.3.1 Historical Data Analysis

Based on the historic data, it was noted that six of the 10 participants' GCS scores were rated as 14/15, with reported brief or short periods of loss of consciousness (LOC) and indication of confusion at the time of the mTBI. The remainder of the participants' GCS scores were noted as 15/15 with no LOC but there were indications of dizziness and some confusion following the mTBI.

With reference to the participants' historic data including their mental status, cognition and higher integrative function score (MSCHIF) reference relating the participants' attention, memory, immediate recall, abstract reasoning, motor speed, and educational achievement as well as depression, emotional fluctuations, social withdrawal and general disinhibition and the global assessment of functioning (GAF), which concerns neurological sequelae of traumatic brain injury, and typically include mental and behavioural disorders. Slabbert and Edeling (2012) stated that, according to this "description" in the Guides, classes and percentages of WPI are defined following their interpretation:

- Class 0 - Normal – 0 percent and defined as "normal".
- Class 1 - Mild abnormalities - 1 percent to 10 percent and defined as "alteration in MSCHIF but patient is able to assume all usual roles_and perform ADLs".
- Class 2 - Moderate abnormalities – 11 percent to 20 percent and defined as "alteration in MSCHIF that interferes with ability to assume some normal roles or perform ADLs".
- Class 3 - Severe abnormalities – 21 percent to 35 percent and defined as "alteration in MSCHIF that significantly interferes with ability to_assume normal roles or perform ADLs".

- Class 4 - Most profound abnormalities - 36 percent to 50 percent and defined as "alteration in MSCHIF that prohibits performance of normal roles or performance of ADLs".

Slabbert and Edeling (2012) state in this regard that there is no indication as to the criteria for rating a mental impairment as "mild", "moderate" or "severe", which is the determination upon which classifications ought to be made in class 1, 2, 3 and 4.This criteria for the evaluation are based on the assessment of various scores relating to interference with the ability to perform activities of daily living (ADL) and, based on the evaluation, then classified (i.e. class one to four) and as a percentage of an impairment of the whole person. The data was included to provide insight into the degree of the participant's impairment relating their mTBI, as determined by the medical experts, as a percentage of their whole person functioning and all participants were classified as Class 1 with MSCHIF score ranging from the lowest of 6%, to the highest of 16 percent. This means that all participants, were evaluated as having a brief or repetitive alteration of state of consciousness and minimal limitations in performance of ADL, where all participants were still able to perform all their ADLs. Three participants were rated at 16%, two were rated at 12%, three at 10%, and the remaining two participants were scored 6% and 7%, respectively.

Based on the inclusion criteria, only participants over the age of 25 were included in the study, noting that the participants must have worked for a period of time prior to the mTBI . From the data, the mean age was noted as 33 years and 11 months, with a standard deviation of 6.1, suggesting that about 68% of the data points fell within the range of mean, indicating a moderate spread of the participants' age around the mean age. Four participants were male, and six participants were female.

On a measure of the participants' wider concepts of intelligence and abilities as well as problem-solving ability, the mean score was 41.80 depicting an overall average problem-solving ability. The standard deviation was, however, 9.1, with some scores far below the average. Interestingly, based on the standard deviation score, it was noted that three of the participants' scores were far below the average. Furthermore, there was no correlation between the participants' SPM score and their self-efficacy scores. A correlation coefficient of 0.07 was calculated indicating a very weak or negligible correlation between their problem-solving abilities and self-efficacy. A correlation coefficient of 0.07 also revealed that any changes in

one variable was unlikely to be accompanied by any noticeable change in the other variable.

From the historic data, a correlation coefficient of -0.5 was noted between the participants' depression and self-efficacy scores indicating a moderately strong negative linear relationship between the two variables (i.e. depression and self-efficacy). This suggests that, should the one variable increase (i.e. increased levels of depression), the other variable will then decrease (i.e. lower self-efficacy), and vice versa. The magnitude of -0.5 however also suggests a moderate, but not perfect, negative association, noting that a decrease in the depression score ought to lead to higher levels of self-efficacy. With reference to Bandura (1982, 1997), it was noted that it is it not impossible to build self-efficacy when a person suffers from psychological difficulties, but it is easier to maintain positive self-efficacy when a person perceives and interprets their emotional and physical status as healthy and positive (Lopez-Garrido, 2023).

Losoi et al. (2015) note that some of the 21 symptoms from the BDI were believed to have some overlap with the symptoms of an mTBI, and were most representative of depression, and the researcher used the some of the selected items to correlate with the data. These symptoms were: sadness, loss of interest, loss of pleasure, and pessimism. Yenene et al. (2020) stated that persisting complaints relating to psychological factors, including depression, was noted following perception of an mTBI. Prolonged recovery from an mTBI was consistently associated with the presence of depression, as well as impaired quality of life and life satisfaction were also noted (Losoi et al., 2015; Rapport et al., 2020). At the time of this study, from the participants' experiences, eight participants reported improved levels of emotional vulnerably, including lesser feelings of depression, and their self-efficacy scores revealed average to high levels of self-efficacy. The two participants who were still experiencing some emotional vulnerability, including feelings of a depressed mood, obtained a lower self-efficacy score at the time of their interviews.

A correlation coefficient of 0.01 was noted between the participants' anxiety score and self-efficacy score. The correlation coefficient of 0.01 indicates a weak positive linear relationship, and that the two variables are barely related, with any changes in one variable unlikely to be reflected in the other. Betz and Hackett (2006, p. 4) noted that anxiety, in Bandura's self-efficacy model, was seen as a consequence of weak and low efficacy, but they noted that it can be "part of the chain of causal influences and may undermine performance as well as efficacy estimates". Thus, at the time of this study and although anxiety was a useful construct to

investigate given the above, Bandura's self-efficacy theory provided a more comprehensive understanding the participants' need for organisational intervention and the understanding of the complex aetiology of the mTBI and consequences thereof on their ability to adjust to work. At the time of this study and data analysis, collectively eight participants did not experience anxiety, and reported high self-efficacy scores. Two participants, however, continued to experience variable levels of emotional vulnerability including anxiety and scored low on self-efficacy at the time of this study.

5.3.2 Comparative Analysis of an mTBI

Various researcher and with reference to Table 5.2 (Chapter Two) revealed that the most frequent symptoms reported following an mTBI were fatigue, followed by headaches, absenteeism, forgetfulness, word finding difficulties, irritability, moods swings, slower work pace, temper outbursts, dizziness, and noise sensitivity (King et al., 1995; Paniak et al., 2001; Ownsworth & McKenna, 2004; Iverson, 2005; Meehan & Cantu, 2015; Zemek et al., 2016; McCrory et al., 2017; Lumba-Brown et al., 2018; Van Velzen et al., 2011; Corrigan & Hammond, 2013).

Post-traumatic headache is noted as one of the most common symptoms following mTBI, with a substantial proportion of adults experiencing persistent headaches after injury (Iverson, 2005; Lucas et al., 2014). Headache prevalence in paediatric populations is also high, with research indicating that children frequently present with headaches, alongside other acute post-concussion symptoms such as dizziness, cognitive difficulties, and visual disturbance (Zemek et al., 2016; Lumba-Brown et al., 2018). A large body of evidence confirms that headache, dizziness or unsteadiness, concentration difficulties, visual disturbance, nausea, and fatigue are among the most frequently reported symptoms following concussion (McCrory et al., 2017; Meehan & Cantu, 2015; Lumba-Brown et al., 2018). Vestibular symptoms such as dizziness and balance disturbance are also consistently identified as common post-mTBI presentations and may persist in a subgroup of individuals, contributing to functional impairment (Alsalaheen et al., 2010).

In terms of injury characteristics, loss of consciousness is relatively uncommon in mTBI cases, with most individuals not experiencing any loss of consciousness at the time of injury (McCrory et al., 2017). Although symptom profiles are variable, the majority of individuals

recover within a few weeks to three months following injury; however, a subset continues to experience persistent post-concussion symptoms beyond this period (Iverson, 2005; Leddy et al., 2018).

Paniak et al. (2001) stated that individuals who suffered an mTBI and following completion of a PCL (problem check list) reported the most common symptoms are firstly, fatigue and followed by headaches and forgetfulness. However, thereafter, based on the PCL check list, the following symptoms were reported: sleeping problems, slower workplace, reduced concentration, anxiety, irritably, word finding difficulties and balance difficulties. In a further article by Tator et al. (2025) the most common symptom reported was also headaches (84.6%), anxiety (72.8%), sensitivity to light (70.6%), memory difficulties (69.9%), sensitivity to noise (66.2%), and depression (55.9%).

Information reported by the Centre for Disease Control and Prevention (2022) revealed that symptoms following an mTBI differ vastly, and affect individuals differently, where some symptoms may last a week, and others may last for years. The physical symptoms may include being bothered by light or noise, dizziness or balance problems, nausea or vomiting, and visual problems, sleeping less or more than usual, and/or being unable to or having trouble sleeping, feelings of tiredness or lack of energy and headaches.

Cognitive symptoms may include attention or concentration problems, feelings of being slow, feeling foggy or groggy, problems with short- term memory and long-term memory, and trouble thinking clearly.

Emotional and behavioural symptoms may include anxiety or nervousness, irritability or being easily angered, feeling more emotional, and feelings of sadness (Centre for Disease Control and Prevention, 2022).

Most of the participants reported initially experiencing changes in their overall feelings of health and wellbeing a result of their challenges following the mTBI. Most participants believe that their physical difficulties resulted in various functional limitations, and impacted on their ability to adjust to work.

The most frequent common symptoms collectively experienced by the participants at the time

of this study, in terms of physical challenges, were fatigue and tiredness (100%), headaches (90%), visual and/or sensitivity to light (60%), as well as sensitivity to noise (60%).

All participants believe that support and accommodation from their employers were paramount in their recovery and resulted in increased self-efficacy in their ability to cope with their job demands, and adjust to their work environment, which, in turn, resulted in feelings of increased health and wellbeing.

From the participants' experiences, it was noted that all the participants reported cognitive difficulties, including variable memory problems, reduced levels of concentration and/or ability to remain focused, feelings of mental fatigue, reduced cognitive processing speed, as well as forgetfulness following their mTBI. All participants reported a belief that they had the cognitive capacity to cope with their challenges based on their premorbid cognitive functioning, and that the mentioned cognitive changes following their mTBI were believed to be temporary but debilitating at the time. However, following acknowledgement and accommodation by their employer, their affected cognitive challenges were experienced as manageable, and this had a positive impact on participants' belief that they can cope, which further resulted in elevated self-efficacy levels.

Work adjustment surveys conducted by the Business Disability Forum (2023) revealed that 78% of injured individuals consider themselves to have initiated the process of work adjustments, while 58% indicated that the adjustments needed and made to their jobs were as a result of higher self-confidence when they asked for support. From the narratives and data analysis, all participants reported that, following their mTBI, they had to initiate discussions with their employers relating to work adjustments. All participants noted that they had to suggest changes to assist with their difficulties following their mTBI. Eighty percent of the participants noted that following support and accommodation, they were able to perform their work tasks, albeit at a reduced level. However, these participants noted that, even with such accommodation and support from their employers, it still took them time to recover. Eight participants noted variable periods of recovery with support and accommodation, of a few weeks to more than a year. Two participants noted that even with accommodations and support from their employer, at the time of this study, they were still struggling with some job tasks, and still had to fully adjust back to work following their mTBI.

5.4 DATA ANALYSIS

A description of the data analysis during a phenomenographic research study as well as the steps and guidelines to follow have been described and set out by various researchers, including Åkerlind (2012), Amoak (2021), Da Rocha-Pinto et al. (2019), Han & Ellis 2019, Jobin and Turale (2019), Marton (1986), Stenfors-Hayes et al. (2013), Sandberg (2000).

For purposes of this study, the researcher was guided by the work of various researchers and there is no agreed guideline to follow. Han & Ellis (2019, p. 5) state that "there is no singular agreed phenomenographic analysis procedure". Marton (1981) noted that the objective of a phenomenographic research study is to identify and described variation in meaning, understanding, and conceptions. The original process proposed and used by Morton and Booth (1997) described the reduction of all the transcripts to utterances with a distinct meaning, and thereafter brought together into categories. However, there has been a shift, with a focus being on the awareness or ways of experiencing a particular phenomenon by the participants (Åkerlind, 2012**)**. Åkerlind (2005) noted that each transport should be analysed as a key data unit, and that each must retain its significant throughout the analysis.

Given the different approaches in data analysis, the researcher adopted the following steps based on a combination of the various approaches (Marton, 1986; Morton & Booth, 1997; Stenfors-Hayes et al., 2013; Jobin and Turale, 2019; Åkerlind, 2005; Åkerlind, 2012; Foster, 2019; Amoak, 2021; Han & Ellis, 2019).

The researcher, throughout the study, abided by the general phenomenography principles and processes as suggested by the above authors. However, some adjustments for purposes of these specific studies were made, of which the researcher felt was relevant, and also Han & Ellis (2019) and Amoak (2021). At this stage of the research the focus was purely on the steps as set out below although slightly modified for purpose of this study approaches (Marton, 1986; Morton & Booth, 1997; Stenfors-Hayes et al., 2013; Jobin and Turale, 2019; Åkerlind, 2005; Åkerlind, 2012; Foster, 2019; Amoak, 2021; Han & Ellis, 2019).

The process and stages for this phenomenographic study are shown in the flow diagram below:

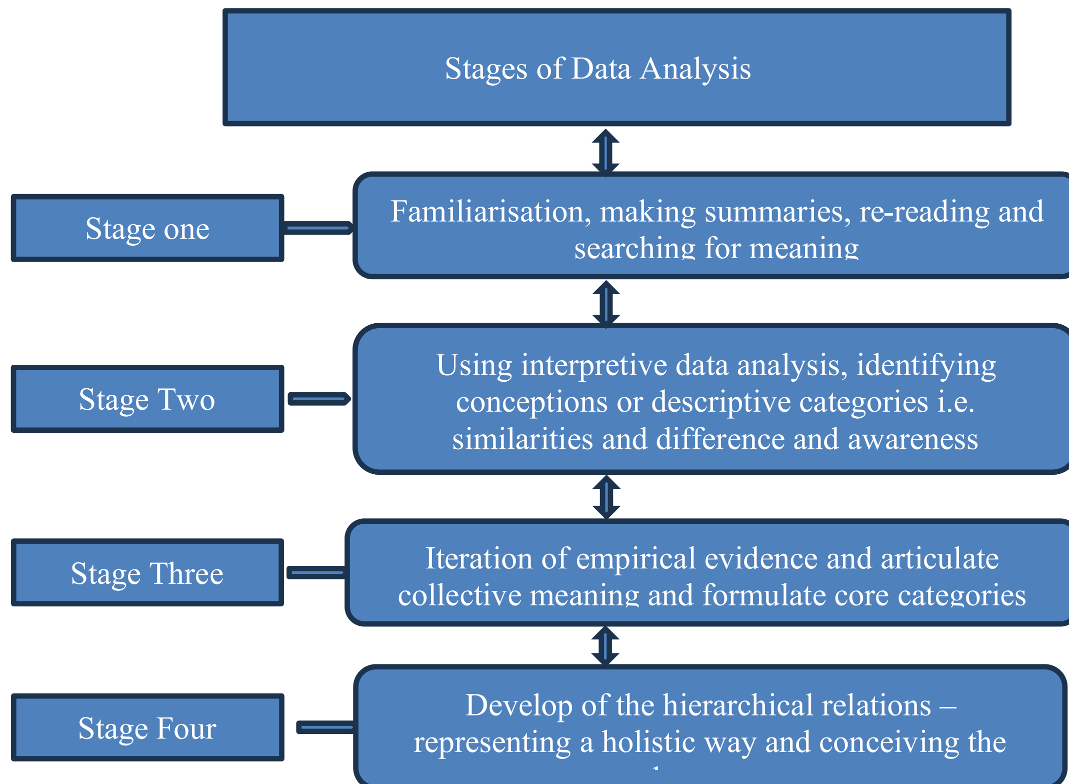

Figure 6 *Phenomenographic Data Analysis Stage Pertaining to this Study*
Note. Author's construct (2024) and adapted and as per Amoak (2021, p. 29).

5.4.1 Stage One – First Reading and Summaries

During the first step, the researcher read through the interview transcripts in order to become familiar with the content through the interpretive analysis of the data. The researcher approaches the transcripts with an open mind in search of collective expressions that would reflect the participants' ways of experiencing the phenomenon. The researcher was able to start identifying quotes or statements that describe the participants' experiences. Following these readings, the researcher was to start identifying variations in meaning and the ways the participants made sense of their experiences.

By way of illustration, the researcher presents two examples of the first stage of the readings and data analysis in the table below, showing how the researcher summarised the transcripts, which were transcribed verbatim, with the addition of the researcher notes.

Table 3 *Illustrative Extracts from the Transcripts*

Participant A
I felt exhausted and struggled (*health and wellbeing*). I had to think about ways to deal with issues to cope (task requirements). Convince myself that I was okay, needed to make changes (*resilience, physical adaptation*). Worried about my performance (*task requirement*). Worried about myself (*health and wellbeing*) had such an impact on my life (*health and wellbeing*). Suffered from mental fatigue - made mistakes (cognitive fatigue). Getting h*eadaches,* neck stiffness, spells of dizziness, light headiness (*physical difficulties*). They did not understand (*lack of knowledge*) what I was going through (*emotions)*. I struggled, taking days off work (*absenteeism)*. Worried about productively levels (*task requirement*). Irritable and sad (emotions). I am strong person and always overcome difficulties (*resilience*). I have all the abilities had to belief in myself my ability (*affirmation*). I was not motivated, worried about my job, might lose my job (*fear of losing job*). I started reminding myself of how I worked before (*health and wellbeing, affirmation, resilience*), slower (*physical cand cognitive*) wrote down thoughts. I tried to talk to my employer and tell them about my challenges(validation and support). Discussed KPAs (*task requirement, growth mindset, s*uggested some changes (*time management, taking action, grown mindset*)
Participant H
I had headaches, blurred vision and the lights bother me (*physical difficulties*). Struggled to cope with the noise drove me insane (*physical inadequacies, emotions*). *A*ffected my whole life and my performance (health and wellbeing). A month before the accident I won an award, now my manager was complaining about my performance, threatening me with retrenchment *(fear/job loss)*. I was not coping with my job stayed get away from work, I took sick leave*,* exhausted my sick leave *(absenteeism)*. It hit me hard, affected my health (*health and wellbeing*). I was not coping with my job (*physical inadequacy, absenteeism)*. I try to cope (*affirmation/resilience*). They moaned I needed to explain (*validation, lack of support)*. I was not well (*wellbeing, emotions*). Spoke to manager and asked for help, and he tried and accommodate me (support and accommodation). Asked for my working hours to be reduced (*task requirements*). Relationship with my manager became a problem (*emotional vulnerabilit*y). They did not understand (*validatio*n). I spoke to my manager (self-advocacy). My work colleagues checked on me and told my boss that I was not doing my job (*physical inadequacy, emotions*) I just struggled all the time (crying) (depression). I felt anxious (*anxiety*). I just had to plan (*time managemen*t).

Source: Author (2024)

5.4.2 Stage Two – Identification of Conceptions and Categories

During this stage, the researcher assigned the quotes from the transcripts to a particular first draft of categories. Every transcript or expression of meaning was interpreted within the context of all the transcripts or meanings as a whole, in terms of similarities to and differences from other transcripts or meanings (Åkerlind, 2005). The categories of a description would then represent the qualitatively different way the participants constructed their experiences of the phenomenon, namely the participants' beliefs in their capacity to adjust to work following an mTBI. During the analyses the interview data, the researcher was able to start identifying categories of description and reflect how the notes were transformed into categories.

Following a further reading, the researcher was able to identify a first potential list of categories of the descriptions on the basis of the similarities noted in each transcript. At this stage, the researcher felt that data saturation had been reached. Clements (2021) state that a researcher must, at all times, monitor participants' responses and should take note of when data saturation is reached and control the number of participants interviewed. Saturation is often proposed as an essential methodological element within qualitative research (Hennik and Kaiser, 2021). Glaser and Strauss (2017) defined saturation as the criterion for judging when to stop sampling individuals' responses and/or data pertinent to a category that had reached theoretical saturation. During the second reading the researcher felt that no additional information was noted from the interviews to assist in the identification and development of the properties of the categories. At this stage, researcher felt empirically confident that the category has reach saturation. If needed, the research may then look for further participants to provide diverse data, just to make certain that saturation is based on the widest possible data range for the category. Mack et al. (2005) describe this as a point where no new data can introduce any additional information to answer the research question, if needed. Saturation is described or occurs when the constructs are fully represented by the data (Mack et al., 2005 and Saunders et al., 2018). This process was done for the 10 transcripts. This also meant that not one interview transcript, was used or understood in isolation from the other transcripts. The researcher started gaining insight into the conceptions and started categorising the participants' statements based on similarities and/or differences.

The following table provides some short extracts from the first reading of the transcripts of two participants. showing the researcher's first attempt during the analyses of the data and attempts in identifying themes based on the variations of experiences as illustrated below

Table 4 *Illustrative Summarise Extracts from the Transcripts with Themes*

Extracts from the Transcripts	Themes
Participant A: I felt exhausted, and I struggled. I had to think about ways to deal with job duties, made changes to my job. I was worried about my health. I felt sick; I was always fit and healthy. I was worried about myself, worried about my job, impacted my life. I had to think about ways to cope, working less shifts, reduced my hours or change my KPAs. I was not sure if my job was going to be save. They did not understand what I was going through. I started staying away from work phoning in sick. Participant H: *I felt sick. It affected my whole life. This really hit me hard and affected my general wellbeing and ability to even go to work. It affected my whole being and impacted on my health. I had bad headaches and such blurred vision for months and the lights bother me. I felt sick, I struggled to cope with the noise in the factor it was driving me insane.* I was not coping with my job and just wanted to get away from work, and I took extra sick leave to try and recover. Then they moaned about me not being at work. I was worried about my health and knew that I had to do something as my job might have been at risk. I just wanted to get away and I, took a lot of sick leave – I actually exhausted my sick leave. I was really worried about my health.	Health and wellbeing Job requirement Performance concerns Working hours Absenteeism Job Security Taking Action
Participant A: I felt physically exhausted and tired. I made mistakes I was getting headaches - neck stiffness, spells of dizziness and light headiness. I was worried about meeting my job tasks. Changed shifts and hours, it really helped. I suggested assigning fewer physical tasks I had to think about ways to deal with my duties. I suggested taking some time out and relaxed working hours as well as reduced performance targets, just to get back to normality again. I had to think about other ways to deal with my issues, like negotiate reduced working hours and changes in KPAs. I suggested assigning fewer physical tasks I had to think about ways to deal with my duties. I suggested performance targets, just to get back to normality again. Participant H: I had bad headaches; I had blurred vision, and the lights bother me. I also suddenly struggled to cope with the noise it was driving me insane. I really struggle to sleep and work up so tired. I struggled to wake up in the morning. I also suddenly struggled to cope with the noise in the factory, and it was driving me insane. There was a period where I had work change discussions with my manager. My work colleagues checked on me and told my boss that I was not doing my job. We agreed that I would check on weekly basis rather than daily, and I had some slack in meeting my performance targets. I felt less overwhelmed and more "in tuned" with my abilities again to adjust to my work tasks. My job was mentally exhausting.	Work challenges Headaches Fatigue and Tiredness Neck stiffness Dizziness Vision/ Noise Nausea Reduced hour Environment

Extracts from the Transcripts	Themes
Participant A: I suffered from mental fatigue. I made mistakes. I started prompting myself of how I worked before, I was mentally slower. *I was mentally slower; I started to write down things. This thing was a learning process. I had to make a conscious effort to stay focused, my mind was wondering. They did not understand what I was going through. I knew I still had all the mental abilities I had to belief in myself.* I knew that I could still do my job, and I just needed time, but I know my job, and I did a good job before. I knew I was still mentally capacity I just needed time. *I had to belief in myself, and I had to take some action.* I think my boss thought that I just wanted to do less work. Participant H: I was mentally exhausting. I had to attend various courses shortly after my accident. It was hectic and I struggled to cope, the accident was still fresh in my mind, and you try but you can't focus. I felt mentally fatigued and made silly mistakes, but you have to survive. I had to tell myself that everything will be find and that I will cope mentally. I tried to make time, after hours, to just go through the work for the next day just to get my mindset right. It helped. You have to adjust, mentally, to cope. I have been in my job for years and never had to performance issues, then this; suddenly I felt that I am not performing at the same level, and you have to remind yourself that you can do the job. You have to adjust mentally to cope.	Memory Forgetful Metal fatigue Slow work processing Cognitive challenges
Participant A: I am a strong person, and I have always overcome difficulties in my life. I knew I still had all the abilities I had to belief in myself, and I had to take some action, I had to do something. I had to get my life back I felt stressed out I was just not as motivated. It is difficulty, you just don't feel well, you feel demotivated and overwhelmed and very emotional. I never had any emotional or psychological difficulties before. It is frustrating and there were days that I felt such anger towards my employer there was not assistance. After the mTBI, suddenly I was emotional, but I had to control my emotions and get the job done. I felt irritable and stressed. You just need to focus on your strengths can cope. Participant H: I know that I was irritating my colleagues because of my emotional outburst. I felt drained, physically and emotionally drain. Just thinking of going to work and facing them (colleagues) stressed me out. Driving to work stressed me out. I had to try and control my mood, one minute I was fine, and a small thing would trigger my emotions, and would set me off. I would snap over stupid little thing. I just felt frustrated, and everybody just irritated me. Not sure why but it is how I felt. I went into survival mode You must show tenacity, yes, you suffered an mTBI, but nobody cares about you issues at work. You have to deal with your issues and adapt. You need to face and deal with your emotions, it is hard, it is very hard. My relationship with my manager became a problem. I knew that it was up to sort me to sort out my issues.	Depression Anxiety Fear Stress Anger Frustration Resilience

Extracts from the Transcripts	Themes
Participant A: I had to think about ways to deal with my duties. There was no sympathy. I felt frustrated and anger toward them. I had to set up meetings. Nothing came from my boss. I had to foster relationship. I had to constantly explain my problems, and they did not acknowledge my problems. I had to read up and show them what can happen to a person after an mTBI. My employer was so uninformed. We set up meeting and discussed support and accommodation, work schedules, changes to my KPAs and shift changes. Most people think it is just an excuse for an injury, and they don't understand the impact thereof on your life. I think it is important to communicate your specific accommodation needs in context of other people's need who may have suffered a similar injury. I think through the HR department the company can set up a way for staff to engage and make suggestions to assist a person who is struggling to cope after an mTBI. I also think that some employers have lost touch with their employees, and it is all about money. There should be a way that, after an injury that an employee can freely seek support and request interventions at work to assisting in recovery to adjust back to work. They can set up for example a specific email address or some form of communicate to imitate support. We have to attend so many meetings sometime daily, about work performance and setting KPA and reporting on our work progress and performance. Participant H: I spoke to manager and asked for help, and he tried and accommodate me, but nothing really happened I eventfully, after numerous attempts I got my manager to sit down with me and I explain in detail to him what was happening to me, physical and emotionally. He was still rather sceptical but more understanding. It was not easy to try and convince him that I was really struggling to do my job. They moaned I needed to explain why I was not being at work. I spoke to manager and asked for help, and he tried and accommodate me, but nothing really happened. I have worked for my company for many years, and they know my strengths and capabilities and following my mTBI, I was still the same however, certain of my strengths and skills were temporarily impaired and they need to understand and take cognisance thereof. They can set up informative session about the symptoms of mTBI as well as other injuries and recovery periods and suggest accommodation. Communication is key here. Had he known we could have to discuss my difficulties and maintained an amicable relationship. I would have had time to recovery. Rather I was "abused" and reduce to tears. Supporting the individual in gradually resuming physical or cognitive tasks, such as in a paced and manageable way build self-confidence, rather than breaking down a person's confident while vulnerable. Collaborating with the individual to create achievable milestones for cognitive recovery and celebrating progress to boost self-efficacy.	Need for Empathy Need for knowledge Support and Intervention Accommodation Connectivity

Note. Author (2024)

Following the summarising of the transcripts, the researcher was able to identify similarities and variations in the participates' experiences and in the way they constructed their beliefs regarding their capacity, their perceptions, and the awareness that influenced their ability to adjust to work across the transcripts. The researcher identified a first list of possible categories as presented below:

1. Headaches/dizziness, visual/hearing difficulties and physical related issues
2. Physical fatigue and tiredness
3. Working space/working environment, working hours and absenteeism
4. Job demands/task performance concerns
5. Risk of failure/losing job
6. Memory, mental fatigue and concentration and cognitive related work issues
7. Depression and anxiety
8. Resilience and self-awareness
9. Need for empathy and work relationships
10. Lack of knowledge
11. Satisfaction/dissatisfaction
12. Motivational issues
13. Inventions, work accommodation and support

Following the first attempt at a list of categories of descriptions, the researcher was ready to move on to Stage Three where the above list was used as a means of moving closer to formulation of the core categories.

5.4.3 Stage Three – Iteration and Articulating of Meaning and Core Categories

Stage Three involves the iteration and articulating the collective meaning and formulating of the core categories. During this stage, it was important for the researcher to remain involved and focused on the narratives, while getting further familiarised with data. Bowden (2005) noted that, during this stage, it is important for a researcher to be aware of the following factors while working with the data, such as:

- Using only evidence from the interview transcripts and not to be influenced by any other sources of evidence.
- Bracketing of the researcher's own relation to the phenomenon.
- Remain focused on the group analysis and not on the individual transcripts. The research here had to constantly stay focused on the group analysis as some participants provided long details descriptions of their experiences while other participants' responses content was limited to a short sentence even following further probing questions during the initial interview stage.

- Focus was placed on the identification and description of the categories, and postponing the initiation of the structural relation between the possible categories identified. This process was taxing, and on various occasions the researcher had to refocus on the development and formulation of the categories of description as there was an obvious structural relationship emerging during this stage.

With the above in mind, the researcher was well aware that long list of categories needed to be refined and reviewed. Following a thorough re-reading, generating more notes and summaries, the researcher was also able use the identified conceptions or the themes of awareness to gain a better understanding of the participants' experiences for the development the categories of description. Åkerlind (2012) also stated that the researcher needed to take into consideration the following regarding the themes of awareness:

1. Firstly, the data relating to the different ways of experiences had an internal and external orientation.
    - The internal experience refers to the participants personal "internal experiences" regarding how their beliefs influenced them and specifically relating to their physical, cognitive, and emotional ability to adjust to work following the mTBI, and their lack of acceptance or non-acceptance thereof.
    - The external experiences relate to the participants' belief as an "externally experience" relating to their company, work environment, and job requirements, as well as the lack of understand of their issues following an mTBI, and need for assistance from an external source to assist in adjusting to work.
2. Secondly, the data presented insight into the organisation and how the participants constructed their experiencing regarding their beliefs about their company and others in their company including their colleagues, peers and superiors/manager regarding their capacity following an mTBI to adjust to work as part of the organisational environment and their performance expectations.
3. Thirdly, the data reflected the individual and emotional self, namely: what was believed to be important to regain their capacity and confidence to adjust to work and maintain or secure their job security; as well as the need for remedial inventions including self-evaluating, self-preservation, motivation, interpersonal issues; and asking for help and/or understand and assistance from others to adjust to work.

Following reading the transcripts again, making further notes and summaries, and comparing the initial list of categories and the identified variation in meaning across all the transcripts, similarities and difference were filtered into the categories. This was done by identifying the meaning of the participants' similar experiences and understanding of the phenomenon, and then allocating these similar collective experiences to a category, in an attempt to develop a final set of categories. The e researcher was then able to start developing outcome space, which will be described and addressed in the section below. The researcher initially identified 13 potential categories; thereafter, the list of categories was reduced through iteration and re-iteration. Some categories were merged with others and further refined through critical scrutiny of the categories vis-à-vis the transcripts in an attempt to reduce the categories.

The following table shows the illustrate extracts and potential categories of descriptions as the researcher first attempt in identifying and building the categories for formulation of the outcome space.

Table 5 *Illustrative Extracts with Categories of Descriptions (First Attempt)*

Identified Categories	Potential categories of Description
1. Headaches, vision and hearing, vertigo, dizziness (impact and effect, health, physical) 2. Fatigue and tiredness (impact and effect, health, physical and task performance) 3. Depression, irritability and anxiety (health, emotional and behavioural, task performance) 4. Job performance, KPAs, time management (task performance) 5. Memory and concentration (breadth and impact, health, cognitive and tasks performance) 6. Working hours and absenteeism (health, physical and task performance) 7. Resilience/self-awareness (emotional and behavioural) 8. Risk of failure (health, physical, cognitive, emotional, task performance, reflection) 9. Empathy/support needed (employer support, reflection, validation, cognitive issues, emotional and behavioural, physical) 10. Lack of knowledge (impact and effect, health and wellbeing, work relationships, support and accommodation, validation)	Breadth impact and effects Time management Task performance Job requirements Physical impact Workspace Work environment Perception and awareness Emotions Lack of knowledge Cognitive impact Resilience Overall well-being Health issues Medical difficulties Interventions required Environmental considerations Expectations Reflecting Motivational factors Job satisfaction Work relationships Support and accommodation Validation

Note: Author (2025)

The researcher made further notes and summaries against the transcripts thought multiple readings. These notes and summaries were transformed and a revised list of categories of description were formulated.

A further attempt an interpreting the transcripts, as described below, was noted.

1. Health concerns and general wellbeing, headaches, vison, hearing, vertigo and dizziness, light sensitivity, nausea, lack of support, lack of knowledge, emotions (breadth of impact, physical impact, emotional impact, support).
2. Fatigue and Tiredness (breadth of impact, physical and task performance)
3. Depression, irritability and anxiety (task performance, emotional and behavioural impact)
4. Performance concerns (breath of impact, tasks performance)
5. Memory, mental fatigue, slow processing, reduced concentration and ability to stay focussed (cognitive impact)
6. Workspace, working hours and absenteeism (task performance)
7. Resilience/self-awareness (emotional and behavioural)
8. Risk of failure and risk of losing their jobs (breadth of impact, physical, cognitive, emotional, knowledge of symptoms, reflection and validation, cognitive, effort and impact)
9. Empathy/support and knowledge (reflection and validation, task performance, cognitive, needs for understanding, needs for knowledge, reflection and learning).

Following the above, as well as further transcript readings, discussions with a colleague and addition literature reviews, the above categories were assigned to more identifiable categories of description based on the similarities and interpretation of meaning of the different experiences and underpinned by situated instances and conception of collective pool of meaning (Bowden & Green, 2005).

The researcher was able to formulate the following specific category of description as noted below:

- Breadth of impact and effects
- Physical impact
- Cognitive impact
- Emotional and behavioural impact
- Work and psychosocial support impact

The above categories represent the researcher's interpretation of the participants' collective data and narratives relating to the participants' different ways of experiencing the impact of self-efficacy i.e. their beliefs regarding their physical, behaviour and emotional capacity on work adjustment following an mTBI.

The researcher felt confident that the list of categories, along with the themes of expanding awareness, presented the aggregation of the collective view of how participants understood and experienced the phenomenon. The researcher was then ready to move onto Stage Four, which involved articulating and capturing the core meaning of the categories of description and the expanded themes of awareness together with the formulation of the hierarchical relationship and outcome space as noted and described in Stage Four below.

5.4.4 Stage Four: Formation of the Hierarchical Relationships

During Stage Four the researcher presented the formation of the structural and hierarchical relationships. Åkerlind (2005) stated that the categories, along with the themes of expanding awareness, from an aggregation of the collective view of how the participants understood and experienced the phenomenon and their responses are presented. Åkerlind (2012, p. 116**)** described "this relationship as the outcome of the research and is represented analytically through examining and discovering a number of different qualitatively meanings or ways of experiencing the phenomenon".

These experiences are then identified as 'categories of description' to distinguish the empirically experience (the different experience or observed category) from the hypothetical experience (or theoretical experience) that it represents. These experiences form the structural relationships and link the empirical and theoretical different ways of experiencing (Marton, 1986; Åkerlind, 2005; Åkerlind, 2012; Foster, 2019; Amoak, 2021; Han & Ellis, 2019).

By defining and interpreting the categories of description into a flow of connected relationships about the phenomenon, the data analysis reveal the different ways in which the participants constructed their experience (Marton, 1986; Åkerlind, 2005; Åkerlind, 2012; Foster, 2019; Amoak, 2021; Han & Ellis, 2019). For purposes of this study their experiences relate to the impact of self-efficacy and work adjustment following an mTBI. Åkerlind (2005) stated that the conceptions or themes of awareness form an aggregation of the collective view of the participants understanding and ways of experiencing the phenomenon in relation to the categories of description.

Following further readings across the transcripts, the range of meanings or variation in meaning across interview transcripts were further confirmed and assisted the researcher in the formulation of the structural relationship. Although phenomenographic researchers would generally agree that the constitution of meaning and structure is a combined one, some researchers emphasised the importance of not prioritising the search for structure too early during the data analysis process, as this may lead to not fully appreciating aspects of the meaning to be found in the data (Ashworth & Lucas, 2000; Bowden, 2000; Åkerlind, 2012; Amoak, 2021). Throughout the process the researcher attempted to separate the variations in the meaning from the narratives and thereafter build on and formulated the structure relationships.

The variations in meaning in the participants' experiences represent a relationship between themselves and the phenomenon in question (Marton, 1986; Åkerlind, 2005; Åkerlind, 2012; Amoak, 2021; Han & Ellis, 2019). This relationship leads to the expectation that variations in experiences will be logically related through the phenomenon. The core assumption is then that the different categories of description or ways of experiencing a phenomenon as described above, would be logically related to one another, typically by way of a hierarchically inclusive relationships i.e., the structural relationship (Marton & Booth, 1997, Ashworth & Lucas, 2000; Bowden, 2000; Åkerlind 2012; Amoak, 2021).

The strength of phenomenographic research lies in the above process and stages provides the researcher with a method to develop the above hierarchal structure and to build the outcome space. The outcome space provides "a picture" of the experiences of the phenomenon, while providing the ability to read into the structure as much of the complexity of the experiences as it is consciously and practically possible (Åkerlind, 2012; Amoak, 2021).

The hierarchical relationships are based on the meaning and interpretations of the researcher and represents the hierarchically structure or relationships for purposes of formulating the outcome space, in terms of providing "an illustrative figure or picture" of the relations between different experiencing the phenomenon (Åkerlind, 2012, p. 116).

The figure below shows how the researcher made used of the narrative data in identifying categories and themes of expanded awareness to illustrate that structural and/or hierarchical relationship.

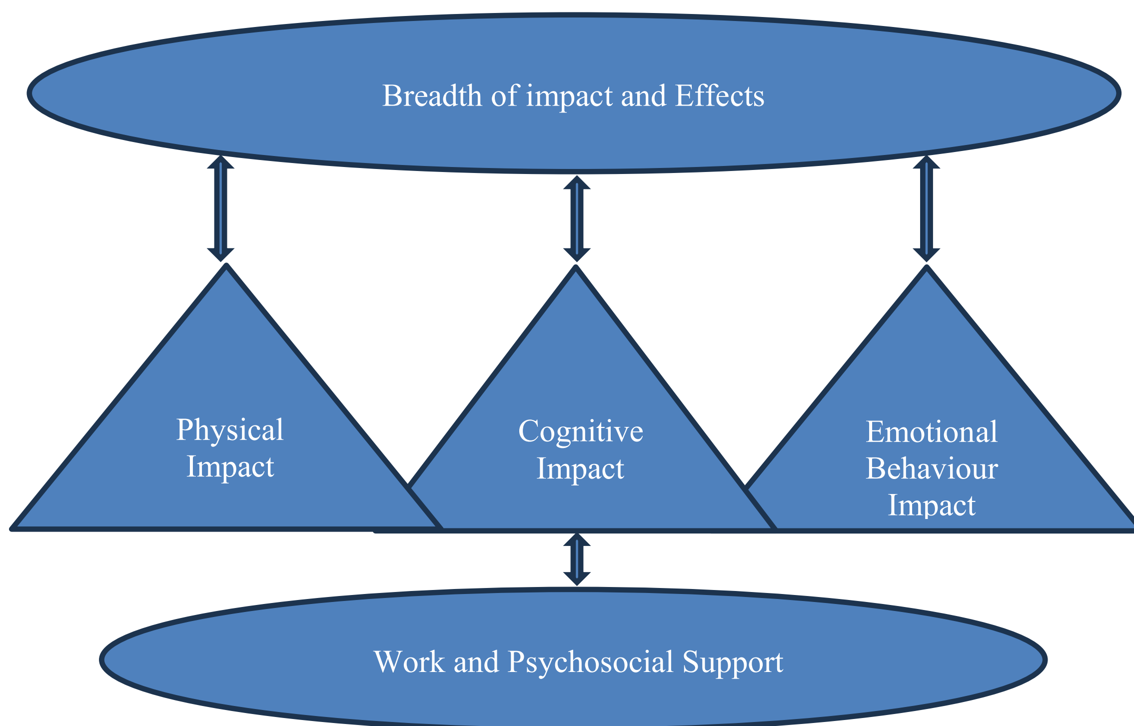

Figure 7 *Hierarchal Structure*
Note. Author's construct (2025)

There is a common element in phenomenographic research, with references to hierarchically structure, based on the assumption of a part-whole structure to the awareness of phenomena (Åkerlind, 2012; Amoak, 2021). By integrating the various categories of description into a flow of connected relationships about the phenomenon, the data analysis revealed the interconnectedness and relationships about the phenomenon. At the time of this study this relationship relating to participants' experiences of self-efficacy and their understanding and meaning of the difficulties and symptoms that affected their ability to adjust to work were evident in the data.

These collective experiences were based on a foundation of their experiences of self-efficacy and their capacity to overcome their difficulties and to adjust to work following an mTBI. Work adjustment seemed to have occurred based on the participants' belief in their capacity together with the outspoken need for support and accommodation that enabled an environment of engagement and connectivity, to achieve the desired performance impacts while adjust to work following the mTBI.

Phenomenography initially takes on ontological perspective, meaning that participants are not separate and independent of each other (Ornek; 2008 & Marton & Booth, 1997). Marton and Booth (1997, p. 13) further noted that the "assumption of the structural relationships is also based on the epistemological assumptions but also adopts a non-dualistic ontology.

A non-dualistic ontology refers to the nature of existence consisting of one interconnected whole rather than many separate things put together. Marton and Booth (1997) further stated that the questions asked will assist the researcher in gaining knowledge about the participants' world and the participants' way of experiencing something.

Marton and Booth (1997, p. 13) stated that "the world (as experienced) is not constructed by the participants, nor is it imposed upon them, but that it is constituted as an internal relation between them". Consequently, the researcher aimed to construct not just a set of different meanings, but a logically inclusive structure of and relating to the different meanings as presented by the participants.

The hierarchical relations of the categories of description constituted by the researcher represents the different experiences and awareness of self-efficacy on work adjustment and further represented as a structured set in phenomenography and known as the outcome space. The outcome space thus provides an interconnected picture or structure, and a way of understanding the collective impact of self-efficacy on work adjustment following an mTBI.

Table 6 shows the researcher's workings and understanding of the conception or themes of awareness and categories of description.

Table 6 *Categories and Themes of Awareness and Descriptions*

Categories	Themes of awareness	Descriptions
Breadth of impact and effect	Awareness of health and wellbeing	Task performance Avoidance behaviour Action orientation behaviour
Physical Impact	Awareness of physical capacity	Physical inadequacy Work adaptation
Cognitive Impact	Awareness of cognitive capacity	Cognitive alterations Affirmation/growth mindset
Emotional Effort	Awareness of emotions	Emotional vulnerability Resilience
Work and psychosocial support	Awareness of support and accommodation	Validation and Self-advocacy Work connectivity

Note. Author (2025)

The structural and/or hierarchical relationship represents, within each category the relationships and interconnectivity of the categories (Bruce et al., 2004; Åkerlind, 2012; Amoak, 2021). Hierarchical relationship and the outcome space are "useful in the understanding of the phenomena" as experiences by the participants (Bruce et al., 2004, p. 146). The outcome space further represents the variations in meaning of the participants self-efficacy experiences, as represented by the sample group collectively interviewed at the time of this study. The outcomes space also provided a foundation for other employees who suffered an mTBI to understand and seek support and assistance in adjusting to work. The outcome space depicts and provides a picture of the different ways of experience self-efficacy collectively amongst the participants. The interpretation is exclusively derived from the data and narratives obtained during the interview phase (Watkins and Bell, 2002; Bruce et al., 2004; Åkerlind, 2012).

With reference to the categories and themes of awareness as noted in the hierarchical structure above the following paragraphs provide a discussion of the descriptions.

5.4.5.1 Breadth of Impact and Effects

For purposes of this study, the researcher describes the impact and effects as referring to the participants' experiences of self-efficacy that either assisted or undermined their belief in their overall wellbeing and health during work adjustment following an mTBI. During the selection of the potential research participants, the inclusion and exclusion criteria were strictly adhered to. Potential participants who demonstrated physical disabilities or premorbid health issues,

psychological or psychiatric difficulties, or a previous concussion and/or mild head injury, these potential participants were not selected. The researcher obtained consent to access and peruse the participants' historic medical data as presented in the hospital records and their neuropsychological assessment results previously conducted for purposes of their RAF claims. All participants included for purposes of this study and interviewed were noted as physically healthy and fit, and without any cognitive and psychological difficulties reported prior to the mTBI.

The researcher described the breadth of impact and effects as referring to participants' beliefs regarding their health and wellbeing experiences following an mTBI. The impact and effects were described as participants' experiences of the consequences and challenges associated with the mTBI that affected their health and overall wellbeing. This awareness resulted in participants questioning their ability to adjust to work due to the impact of the mTBI on their health and general wellbeing. The category of breadth of impact and effects was strongly associated with the biological context of the BPS theoretical model (McMahon et al., 2014; Silverberg & Iverson, 2011; Wade & Halligan, 2017). Furthermore, self-efficacy theory, through vicarious experiences and mastery experiences, reinforced the importance of the individual's overall health and wellbeing in the development and maintenance of self-efficacy (Bandura, 1997). The narratives further suggested that participants' perceived health and wellbeing were closely linked to their beliefs regarding their overall performance ability and capacity to adjust to work. Within this category of descriptions, the narratives from the transcripts supported concerns related to their health and wellbeing experiences. The following was noted:

- *I was always fit and healthy and never off sick, and suddenly I felt that and my whole world was falling apart. I felt sick all the time. I could not get up in the mornings. I was feeling exhausted and tired. My life was not good* (Participant A).
- *I lived a healthy life. Now I was questioning my health. I felt ill, I struggled to manage my job and was unable to cope. I did not feel good; I was not the same. I experienced such dissatisfaction being at work. I just felt so demotivated. I was never like this; I was fit and healthy before. My health is not the same even now* (Participant B).
- *It affected my personality and wellbeing. I was never sick and never took sick leave. It affects my whole life. I felt overwhelmed and a bit out of control and struggled to do my*

job. I felt sick all the time; you know you're just not feeling great. Our team performance ratings were going down because of me. I was at the gym all the time before the accident. I just could not get myself to go and exercise (Participant C).

- *I am still struggling all these years later. I still battle to cope with my environment. I still feel overwhelmed and tired. It affects your confidence and overall wellbeing, and you start doubting your ability to do the job that previously was not a problem. I was worried about my health. I still feel overwhelmed and unable to cope* (Participant D).
- *I felt drained, sick, tired. I did not want to go back to work I was not coping with work. You start worrying about everything, this thing hit me hard, my life was falling apart* (Participant E).
- *I was not well, affect my health. I was not coping; work was not pleasant. I took me a solid year to recover, and it affected my health. I was previously healthy and able to do my job; I struggled to cope* (Participant F).
- *I felt sick. It affected my whole life. This really hit me hard and affected my general wellbeing and ability to even go to work. It affected my whole being and impacted on my health* (Participant H).
- *I was not feeling the same. I was able to do my job but. I was now worried about my health and my life in general. I felt so low I felt sick all the time, and I was generally not doing well I started suffering from rather severe emotional difficulties and that had a major impact on my health and well-being. I was not feeling the same. I was worried about my health and my life in general I worried how I was going to cope* (Participant I).

Two participants believed that the mTBI did not have a major impact on their health and wellbeing, although there was acknowledged minor health and wellbeing concerns. They noted their capacity to adjust to work, and the following extracts were taken from the narratives:

- *I was a bit shaken after the accident and I experienced some minor issues that affected my health and ability to adjust back to work. The accident and memories thereafter impacted on your life, and you question life (Participant G).*
- *I can't really recall having any major issues after the accident. I am generally fit and healthy and there were some problems. But trust me, having suffered a head injury, even mild like mine affects your overall life; you do think about life, your health and your future (Participant J).*

Given the above narratives, all participants relayed experiences regarding the impact of an mTBI on their health and wellbeing and their ability to adjust to work following the injury. The participants appeared to have experienced a life-changing event, albeit at varying levels of intensity. These experiences prompted them to search for meaning in order to understand what had happened to them, how it affected their general health and wellbeing, and how it influenced their perceived capacity to meet their task requirements during work adjustment following the mTBI.

All participants believed that their general health and wellbeing impacted their capacity to perform their jobs, which led to questioning or doubting their ability to meet their task requirements. The following quotes were taken from the individual transcripts regarding health and wellbeing concerns and their perceived capacity to meet task requirements during work adjustment. Two participants (Participants G and J) noted that they were able to cope with their tasks, as indicated below:

- *I was worried about not meeting my job requirement; it was not great, and I was not coping. I had to change my working hours and KPAs* (Participant A).
- *My performance was not the same anymore and I initially struggled to manage and cope, and it affected me so badly I was so worried about my job* (Participant B).
- *It affected my personality and my wellbeing. I had to check in on a daily basis regarding my job performance. My life was upside down. Our team performance ratings were going down because of me. I felt overwhelmed and a bit out of control and unable to cope with my tasks. I knew my performance was bad and it became an issue.* (Participant C).
- *I tried to stay up to date with my job, but my performance was deteriorated, I struggle with some of my job tasks, I did not know what to do. It initially affecting my life and health and I felt overwhelmed and unable to perform and to get back to my previous level. Adjusting to the work environment was not easy and it took a few weeks before everything was back to normal again* (Participant D).
- *I struggled to cope with my job. I tried but they complained about me not making deadlines, my performance was bad. I felt devastated and unable to perform* (Participant E).
- *Being at work was not pleasant, I struggled to cope, work was not pleasant, and I just took time off, sick days until my manager started questioning. I was not coping with my job. I*

was worried about my job, and I just could not work, and I could not adjust back to work. I took me a solid year to recover, and it affected my health (Participant F).

- *It affected my whole life and my performance. I was not coping with my job and just wanted to get away from work* (Participant H).
- *I felt so low and I felt sick all the time. I was generally not doing well. I was not feeling the same; things changed. I started suffering from rather severe emotional difficulties and that had a major impact on my health and well-being and meeting my job demands* (Participant I).

Two participants believed that the mTBI did not have a major impact on their ability to meet their task requirement although they acknowledge some concerns. They believed that they had the capacity to adjust to work, and the following extracts were noted and taken from the data.

- *I did not experience any major performance issue; there were some minor difficulties but nothing serious like tiredness and my work shift made it worse, but I managed and slotted back into my job after a few weeks* (Participant G).
- *There were some issues with my manager in that I was not meeting all my job requirements, and I did struggle with some tasks but I overall I think my performance remained unchanged* (Participant J).

From the above narratives, the participants noted that awareness of their health and well- being concerns impacted their ability to meet task requirements and to adjust to work. These doubts regarding their ability resulted in reduced feelings of wellbeing and negatively influenced their capacity to perform their tasks and adjust to work. Most participants noted that they struggled to meet their task requirements, resulting in time off and/or avoidance of work. For purposes of this study, the researcher identified the above absenteeism experiences as a form of avoidance behaviour (Bandura, 1997; Sharma, 2022; Snell et al., 2023).

The researcher further described these experiences as a pattern of behaviour characterised by attempts to avoid challenging or stressful situations. This pattern of avoidance behaviour was evident in the narratives and included behaviours such as procrastination, delaying job tasks, avoiding tasks, and ultimately absenteeism. The following quotes were taken from the narratives illustrating avoidance behaviours:

- *I felt exhausted, and I struggled. They did not understand what I was going through. I started staying away from work, phoning in sick* (Participant A).
- *I just did not want to work. I just spiralled into a hole of blackness; I felt so sick and just stayed away* (Participant B).
- *My life was upside down; our team performance ratings were going down because of me. I got up in the morning and then would go back to sleep. I then told them—my employer—I was feeling sick and did not go to work* (Participant C).
- *I did not feel right; I sometimes just stayed away or just worked fewer hours. I just started staying away from work* (Participant D).
- *I felt drained, sick, and tired. I did not want to go back to work. I asked if I could take a few days off and this became a problem* (Participant E).
- *I was not coping with my job, and I just wanted to get away from work. I took extra sick leave to try and recover* (Participant F).
- *I was a bit shaken after the accident. I did take some time off as I felt I needed to just refocus. There were some issues, some minor issues like tiredness and working shift. I really struggled with headaches and battling with my work, so I just took days off* (Participant G*).*
- *I was not coping with my job, and I just wanted to get away from work. I took extra sick leave to try and recover. Then they moaned about me not being at work (Participant H).*
- *I felt so low, I felt sick all the time, and I was generally not doing well. I was just taking time off—sick leave. I just stayed away* (Participant I).
- *I did take some time off due to headaches as these really got bad. I struggled during the day to cope. My employer was not happy, but I needed to deal with my headaches. Some days when I got up it was really bad, and I just did not go to work, and I would put a day's sick leave in and just not go to work* (Participant J).

From the above narratives, all participants believed that their health concerns and reduced capacity to meet their task requirements resulted in increased levels of absenteeism and work avoidance, as well as indications of task avoidance behaviour. These behavioural experiences resulted in a fear of failure or beliefs that their jobs were at risk. Those participants who stayed away from work and avoided addressing their difficulties in adjusting to work following the mTBI appeared to experience lower self-confidence and reduced self-efficacy. Interestingly, Bandura (1997) explains that self-efficacy is strengthened through mastery experiences and successful engagement with challenging tasks,

whereas avoidance and withdrawal from tasks may undermine confidence and perceived capability. he above findings aligned with the participants' experiences of avoiding work and difficulties related to post-mTBI work adjustment, which contributed to lower self-confidence and reduced self-efficacy (Bandura, 1997; Sharma, 2022; Snell et al., 2023). These findings also align with evidence suggesting that avoidance behaviour is associated with poorer work outcomes (Snell et al., 2023).

From the collective experiences, the above avoidance behaviour appeared to be fuelled by the participants' belief that their job security was threatened, which further affected their overall health and wellbeing (Castro-Castañeda et al., 2023). The participants felt compelled to take action to safeguard their jobs. For purposes of this study, the researcher refers to this type of behaviour as action-oriented behaviour (Castro-Castañeda et al., 2023; Van Zyl et al., 2013).

The following quotes were taken from the transcripts regarding their belief in their capacity to take action to safeguard their jobs as noted below:

- *I was getting worried about my job, and I was not sure if my job was going to be safe. I had to think about ways to cope, working fewer shifts, change my hours and my KPAs. They did not understand what I was going through* (Participant A).
- *I thought that I was going to lose my job. I was unable to work, and I am still scared because I thought that I was going to lose my job. I knew that I needed to do something and asked to meet with my superiors* (Participant B).
- *I knew that I had to do something. I had to take some action, and I had to make some changes to cope with my issues at work. The willingness to make some changes to get my job back on track and to secure my job* (Participant C).
- *I still feel overwhelmed and unable to cope with my job. I still don't know what to do and I am scared I'm going to lose my job. I knew that I had to get help* (Participant D).
- *I struggled to cope, and I was starting to worry about losing my job. I knew that I had to pull myself together and do something to survive otherwise I was going to be in trouble* (Participant E).
- *I was worried about my health and knew that I had to do something. I was worried that they might ask me to leave but I needed my job. It is a terrible feeling. You know you have to take action, but I was not sure what action to take* (Participant F).

- *You do worry about your job security when something like this happens to you - asking for shift changes, you do feel that you are putting yourself and your job at risk. I, however, had discussions with my manager. You have to adjust otherwise you will lose your job* (Participant G).
- *I was not coping with my job. I was worried about my health, and I knew that I had to do something as my job might have been at at risk* (Participant H).
- *I was not coping with my job and knew that I was not performing up to standard. I was worried about my job. I did not know what to do but I had to do something to save my job* (Participant I).
- *I had to do something to save my job. I had to make some changes to cope at work as my employer showed no willingness to assist. I was worried about losing my job; I had to make work role and workspace suggestions to cope with my job so as not to lose my job* (Participant J).

From the above narratives, it was noted that most participants took action and assisted in implementing workplace changes to meet their job requirements (Sharma, 2022; Castro-Castañeda et al., 2023; Snell et al., 2023). Most participants suggested changes within their work environment and identified workflow adaptations to accommodate their difficulties during work adjustment. Most participants also actively attempted to make changes to their jobs due to fears of losing their employment.

Yeager and Dweck (2021) stated that individuals may approach performance difficulties by functioning just outside of their comfort zones. Yeager and Dweck (2021) further described these behavioural traits as contributing to improved performance when confronted with difficulties, thereby connecting to action-oriented behaviour that may enhance self-efficacy. Given the participants' action-oriented behaviour, their narratives suggested a willingness to take action to address their task requirements and demonstrated a sense of commitment to work adjustment.

From their narratives, the participants' collective experiences revealed that their action-oriented behavioural responses impacted their overall health and wellbeing and contributed to improved task performance and achievement of their goal, namely work adjustment. Most participants believed that it was their actions and behaviours that assisted in their work

adjustment. However, some participants continued to struggle to take action to address their difficulties and continued to experience challenges related to their overall health and wellbeing and ultimately work adjustment (lower self-efficacy), compared to those participants who demonstrated stronger beliefs in their own capabilities and consequently found it easier to adjust to work (higher self-efficacy) (Bandura, 1997).

In summary, given the heightened awareness of the impact of the mTBI on the participants' health and wellbeing, as well as reduced task performance and avoidance behaviour (i.e. absenteeism), most participants initially experienced reluctance to take action because of fears of losing their jobs and the associated impact on their health and wellbeing. Most participants reported fears regarding job security and believed that they had to take action to safeguard their employment. Most participants believed that their attempts to resolve their difficulties and implement action-oriented strategies contributed to successful work adjustment and an enhanced sense of self-efficacy, as reflected in their narratives.

Most participants acknowledged temporary incapacity ranging from a few days to several months, and most participants noted that their symptoms continued beyond a three-month period. It was noted that mTBI symptoms are usually present during the first few days or weeks after the injury, while approximately 80% of individuals continue to experience some symptoms during the three months following the injury (Mittenberg et al., 1993; Silverberg & Iverson, 2011; Riggio & Wong, 2009). One participant acknowledged incapacity up to 12 months (Participant F), while another participant was still experiencing difficulties five years post-injury (Participant B).

5.4.5.2 Physical Impact

For purposes of this study, the researcher describes physical impact as referring to the experiences of self-efficacy that either assisted or undermined the participants' belief in their physical capacity to adjust to work following the mTBI. Physical impact refers specifically to the participants' awareness of their physical ability to adjust to work. Physical impact relates to both the biological and psychological contexts within the BPS model. Furthermore, Bandura's concept of task mastery reinforces the role of physical capacity in the development and maintenance of self-efficacy (Bandura, 1997). The participants' awareness of their physical consequences following an mTBI resulted in varied experiences of physical

inadequacies that impacted their ability to adjust to work (Hutcheon, 2006; Walder et al., 2021).

All participants experienced, openly expressed, and acknowledged an awareness of their physical inadequacies. The following extracts from the transcripts support the participants' experiences of physical difficulties following the mTBI that impacted on their sense of self-efficacy and work adjustment:

- *I felt physically exhausted and tired, and I really struggled. I was getting headaches and neck stiffness. I also had spells of dizziness and light-headedness when standing up or bending down* (Participant A).
- *I suffered from headaches, I could not sleep and felt tired, I had visual difficulties and the noise at work drove me off the wall. I experienced nausea for months and still now. Occasionally my headaches are still here, even now. I had to make some changes to address the noise and distractions* (Participant B).
- *I was suffering from blurred vision. My vision affected my job rather badly. I was trying my best to cope and managed to stay focused, irrespective of my vision. Although my vision is fine now, it is not the same as before and a constant reminder of the accident. I struggled to relax, and my sleeping patterns were a mess, and I felt tired* (Participant C).
- *I had headaches, I felt dizzy, I would get up in the mornings feeling physically exhausted and tired. At work my neck was getting stiff. I felt exhausted at work, I struggled to cope with my working hours. By 2 o'clock I was so tired and fell asleep at my desk. I struggled with the lights and the noises (it never bothered me before the accident), but now it drove me insane. Even the coffee machine, the constant talking, the photocopier, the typing—it was too much; it was like somebody was banging my head against a wall all the time* (Participant D).
- *I had bad headaches, I felt nauseous all the time. I could not sleep, but during the day I would fall asleep and sleep a lot; I could not get up—I just felt tired all the time. I had these dizzy spells. I work in an open-plan office, and I really struggled to cope with the noise at the office. I struggled to cope—it felt like people were standing right next to me screaming in my ears* (Participant E).
- *I suffered from constant headaches at the top of my head and the frontal area. I battled with double vision. I still struggle with vertigo, and this is bad in my job as a builder. The noise, drilling, bashing walls were just too much to cope with; it was bad. I never had a*

problem before (Participant F).

- *Although I did not really suffer from headaches, work was a struggle; I really felt fatigue and this made me very sleepy. The tiredness and constant feeling of fatigue really got to me. I felt physically less capable* (Participant G).
- *It was very difficult to adjust to work. I struggled to wake up in the mornings. I was feeling tired all the time. I had bad headaches, and my eyes were just not the same. I had such blurred vision for months and the lights bothered me. I also suddenly struggled to cope with the noise in the factory, and it was driving me insane* (Participant H).
- *I started having problems like bad headaches, nausea, dizziness, vomiting, and I was tired all the time. I was not coping with my job; they had to adjust the lights in the workshop and although I am not sure, it affected my vision. It was just like I was experiencing blurred vision; it was so strange* (Participant I).
- *Getting back to work was hard. I still suffered from headaches, and I felt tired most of the time. It was strange, but I struggled with the office noise. I battled to sleep and would wake up tired. I had to get my "ducks back in a row"* (Participant J).

The participants collectively acknowledge varied physical experiences that impacted on their belief in their ability to cope with task requirements. Furthermore, within this outcome space category of description, physical impact is constituted as participants' varied awareness of bodily change following an mTBI, which appeared to have shaped their perceptions of their ability to meet work demands. These beliefs were associated with a loss of physical capacity and physical limitations affecting work adjustment. Across the collective narratives, participants experienced a range of physical symptoms that were understood as limiting their functional capacity and, in turn, influencing their sense of self-efficacy in relation to work adjustment. These experiences varied in intensity and combination, highlighting the qualitatively different ways in which physical impact was experienced and understood. The following symptoms or difficulties were recognised albeit at different levels of intensity and included the following:

1. Headache: One of the most common complaints among participants. Eight of the then participants reported headaches while two participants did not report headaches.
2. Fatigue and tiredness: A general feeling of tiredness or lethargy was reported by seven participants.

3. Visual difficulties. Blurred vision, sensitivity to bright light and general visual disturbances were noted by approximately 60% of participants.
4. Sensitivity to noise: Increased sensitivity to sounds was reported by six participants.
5. Neck stiffness. Several participants reported neck stiffness and muscular discomfort.
6. Dizziness and balance difficulties. Some participant described feeling of dizziness, unsteadiness, or difficulty maintaining balance.
7. Nausea. Some participating reported nausea that negatively affected their ability to cope with their job tasks and adjust to work.

In light of the above, the participants' belief was that their physical inadequacies affected their ability to adjust to work. Participants expressed a great need for workplace adjustment to assist them with managing their physical inadequacies. For purposes of this study, the researcher identified and described these experiences, through which participants managed to cope or adjust to their physical work environment, as work adaptation. Hutcheon (2006) noted that adaptation involves both (re-)interpretation as well as (re-)creation. Adaptation has also been described as modifications or changes to work tasks, including the integration of alternative procedures into existing work activities, requiring employees to apply their knowledge, skills, and physical abilities in new ways (Bresciani et al., 2007; Johansson et al., 2018; Copeland et al., 2020; Walder et al., 2021). Edwards (2007, p. 269) further describes work adaptation as "in the strictest sense" to adapt is to make it fit. The intransitive verb names the adaptation task as finding yourself in a potentially unfamiliar setting and seeking to fit in (Edwards, 2007; Walder et al., 2021).

The following extracts from the transcripts illustrate the participants' experiences:

- *I had to think about other ways to deal with my issues, like negotiate reduced working hours and changes in KPAs. I needed some time off and relaxed working hours as well as reduced performance targets, just to get back to normality again and to adjust back to work I managed to change my shift and shift hours for a few months, and it really helped. I suggested assigning fewer physical tasks I had to think about ways to deal with my duties. I suggested performance targets, just to get back to normality again* (Participant A).
- *I was trying my best to cope. I had to make some changes to address the noise and distraction in my work environment, but I did not know what to do I was unable to take*

action, but I knew I had to do something. I showed him the psychologist report from the RAF claim. He was still sceptical but then I was told that I must showed HR, and they took some action to assist with my work. I really felt better, and they put me light duties (Participant B).

- *I started reminding myself of how I worked before, I was definitely slower. I started writing down positive thoughts and steps to get back on track. I attended a meeting with the human resource officer, and we made some changes to my hours, my time and job tasks, I got help from a colleague. I tried to change my working hours and to schedule my tasks, breaking down my projects into smaller manageable tasks. I also allocated specific times for the projects per day* (Participant C).
- *I had to do something to change my work and workspace. I set up a meeting with my manager and the Human Resource Department to discuss possible flexible hours, and asked for my move my desk to be moved as the noise was really driving me mad* (Participant D).
- *I tried to schedule my time tasks for the week. My boss and colleagues were really nice but did not offer support. I worked in an open plan office, and I asked if I could get a wall divider and use headphone. I moved my desk – no assistance to get away from the bright lights and noise. I negotiated changes in my work hours. I was more in tune with myself* (Participant E).
- *I requested working nightshift, quieter. I had to learn to manage my time better, but I definitely felt less connected to myself and my job. You need to realign yourself to achieve the connect again and adapt to your difficulties. You have to look after yourself. I had to make my own adaptions to adjust to work* (Participant G).
- *There was a period where I suggested work change with my manager. We agreed that I would check in on weekly basis rather than daily basis. I had some slack in meeting my performance targets. I felt less overwhelmed and more "in tuned" with my abilities to adjust to my work tasks* (Participant H).
- *I needed to do something and take some action. My manager said that he will try and help me and accommodate me. They moved me another department, which I actually suggested. They work more flex hours, and I was able to get to work a bit later, which really helped. You had to be at work between 09h00 and 15h00. On the days that I felt better, I would get to work earlier and worked later to make up the hours. Wednesday and Thursdays were busy, and I felt exhausted by 15h00. I tried to work longer hours on the not-so-busy days*

in order to make up my hours. Those were the days that I felt better and was able to get to do my job tasks without all the distractions (Participant I).

- *I had to make changes to my work role and workspace. I suggested way to try and cope with my job. I did not want to lose my job. I always had a planned work schedule, and I prepared this on a monthly and/or weekly basis, which I now did in more detail to cope with small tasks at a time. I still had headache the whole day. I however coped because I made changes and adjustment to my tasks and work schedules, and work environment not them* (Participant J).

From these experiences, it was evident that successful work adaptations resulted in participants feeling more capable and confident in managing job challenges and adjusting to work. For example, successfully modifying workspace environments, working hours, and task requirements reflected increased levels of self-efficacy and enhanced beliefs in participants' capacity to adjust following mTBI. Even minor workplace adaptations appeared to influence self-efficacy positively and strengthened participants' belief in their ability to perform work-related tasks. The implementation of workplace accommodations created a more supportive environment, which contributed to improved self-efficacy, increased work performance, and enhanced work adjustment (Johansson et al., 2018; Walder et al., 2021).

In light of these physical inadequacies, participants were initially unable to fulfil their job duties and performance requirements, which resulted in lower confidence in their ability to adjust to work following mTBI. These physical inadequacies contributed to avoidance behaviour, including absenteeism, and fears of losing employment, which subsequently motivated participants to pursue workplace adaptations (Walder et al., 2021). The narratives indicated that participants generally needed to take initiative and suggest workplace changes in order to facilitate successful work adjustment.

Participants' believed that reduced working hours, prioritised tasks and goals, adjusted performance targets, and minimising workplace distractions enhanced their ability to achieve successful work adjustment. The researcher noted that participants collectively identified and suggested workplace changes, including modifications to work hours and workspace environments, in an attempt to accommodate their physical inadequacies and facilitate adjustment following the mTBI. Most participants believed that changes in their behaviour and requests for assistance contributed to improved work adjustment, which the researcher

identified as action-oriented behaviour. Although certain participants were initially unable to adjust effectively, their efforts to address physical inadequacies through adaptive behaviour ultimately facilitated achievement of their work adjustment goals. This aligns with occupational adaptation literature, which conceptualises adaptation as a dynamic process involving responses to environmental and performance demands through ongoing adjustment and restructuring of occupational engagement (Walder et al., 2021; Johansson et al., 2018). These adaptations also appeared to improve workplace relationships through acknowledgement of participants' physical difficulties and the disruption in their perceived ability to meet occupational demands following mTBI. Occupational adaptation literature further supports the view that successful adaptation results from the interaction between the person, occupation, and environment, thereby enhancing participation and functional reintegration (Copeland et al., 2020; Johansson et al., 2018; Walder et al., 2021).

The narratives also revealed variation in participants' beliefs regarding their ability to implement workplace changes and physical adaptations successfully. Participants collectively acknowledged varied physical experiences that affected their capacity to cope with task requirements. These beliefs were associated with perceived losses of physical ability and physical limitations affecting work adjustment (McCrory et al., 2017; Johansson et al., 2018; Walder et al., 2021).

The above insight, together with the participants' awareness of the broader implications of their physical capacity, and the need for workplace and task adaptation, appeared to have enhanced self-efficacy and strengthened belief in their capacity to cope (Johansson et al., 2018; Walder et al., 2021). Participants' awareness of physical impact therefore appeared closely linked to self-efficacy. Their beliefs and awareness regarding the role of physical functioning shaped their experiences, including perceptions that they were initially physically incapable of meeting job demands and adjusting to their work environment without assistance. However, failure to secure assistance and/or failure to implement workplace changes resulted in reduced action-oriented behaviour and poorer work adjustment outcomes, irrespective of whether participants initially reported lower or higher confidence in their ability to adjust. In addition, indications of absenteeism, avoidance behaviour, feelings of inadequacy, and self-doubt were evident. Despite these difficulties, participants continued to emphasise the importance of addressing physical inadequacies and implementing workplace adaptations in order to facilitate work adjustment.

The participants' experiences of physical inadequacies and workplace adaptations contributed to increased self-efficacy and self-confidence through deliberate action and the active pursuit of workplace accommodations. Once participants recognised the benefits associated with task modifications and time-related interventions, they were better able to perform occupational tasks with reduced physical strain and increased confidence in maintaining effectiveness during work adjustment.

In summary, participants experienced an mTBI as a significant physical setback that negatively affected their self-efficacy and initial beliefs regarding their capacity to adjust to work. Most participants were also able to employ strategies and work and/or workspace adaptation in an attempt to deal with their physical inadequacies to adjust to work. However, most participants employed adaptive strategies and workplace modifications in an attempt to manage their physical inadequacies and facilitate work adjustment. The implementation of these strategies and workplace adaptations appeared to increase confidence in their ability to adjust successfully to work. Through persistence over time, participants were able to adjust to work despite ongoing physical difficulties, perceived failures, and limited workplace support. These adaptive behaviours appeared to contribute to learning, growth, and enhanced self-efficacy (Bandura, 1997; Johansson, 2018; McCrory et al., 2017). In light of the above, the narratives, suggested an association between perceived loss of physical abilities and reduced self-efficacy (Bandura, 1997). Furthermore, participants believed that even minor workplace adaptations enhanced their overall sense of capacity, thereby strengthened self-efficacy.

5.4.5.3 Cognitive Impact

For purposes of this study, the researcher describes cognitive impact as the experiences of self-efficacy that either assisted or undermined the participants' belief in their cognitive capacity during work adjustment following the mTBI. Cognitive impact refers to self-efficacy and the influence of the participants' beliefs on their mental and cognitive capacity to adjust to work and relates to the psychological context within the BPS model (Iverson, 2005).

Furthermore, observational learning, task mastery and verbal experiences reinforced the support of the individual's mental and cognitive capacity in the development and maintenance of self-efficacy (Bandura, 1997, 2012; Leddy et al., 2018).

Awareness of cognitive impact refers to the participants' experiences of alterations in their mental and/or cognitive capacity following an mTBI in order to achieve work adjustment. The following narratives were taken from the transcripts and reflect the participants' awareness of their cognitive alterations following mTBI, and the manner in which these alterations affected their self-efficacy and work adjustment:

- *I suffered from mental fatigue. I made mistakes. I started reminding myself of how I worked before, I was mentally slower, I started to write down things. This thing was a learning process. I had to make a conscious effort to stay focused, my mind was wandering. They did not understand what I was going through. I knew I still had all the mental abilities I had to believe in myself, and I had to take some action. I think my boss thought that I just wanted to do less work* (Participant A).
- *I suffered from memory problems and felt mentally tired. I had to make a conscious effort to overcome these difficulties, but I struggled to do so. All accidents are serious, but because I could not show a broken arm or leg, my employer did not view my accident as serious. I had to return to work shortly after the accident, and it affected me mentally. I suffered from memory problems and was unable to cope with my job. I could not stay focused and felt as though I no longer knew how to do my job. I started doubting my mental abilities. This affected me significantly, and I felt unable to cope. Even today, I still suffer from memory problems and mental fatigue. I struggled to focus, and writing reports became difficult. My concentration was not the same, and I made mistakes. I had to tell them that I needed help to cope with my job. You have to cope, but you also have to appear strong; otherwise, they label you as a "sissie" in my job. We are expected to be strong men and not show weakness* (Participant B).
- *I really struggled in the beginning to stay focused during the day. Your mind wanders, you make mistakes, and your workplace is not the same because you are unable to focus. I started to doubt my mental abilities. My concentration levels collapsed. It is not easy when nobody really cares and you are on your own. I felt distracted and unable to focus. After the accident, I felt mentally vulnerable, but I knew that I was capable of doing my job. I had to tell myself, "You've got this"* (Participant C).
- *I felt that I had to make a conscious effort to stay focused. You cannot simply do your job; it becomes an effort. Mentally, I felt drained for weeks. You begin to doubt yourself, then you start making mistakes, and once you are afraid of making mistakes, you continuously recheck your work. By the end of the day, I was unable to complete my tasks. It became a*

vicious cycle of doubt. It would have been helpful to receive some empathy from my manager, but instead there were only complaints (Participant D).

- *I had to ask for assistance with my work adjustment. These days I am much better, but there are still days when I struggle to focus, and my concentration fluctuates, causing errors and slow processing. My mind wandered, and I had to remind myself to stay focused. I felt that my work speed diminished for a while. I would forget to complete routine tasks, which was unusual for me. It was difficult to stay positive because you feel mentally drained, but I believed there was always light at the end of the tunnel. It was difficult, but I tried my best* (Participant E).
- *I was all over the place; I really struggled to concentrate. I was forgetful, drained mentally. I was all over the place I struggled to focus, and I made silly mistakes. I procrastinated and I had to repeat it to myself over. I need to implement ways remained focus and not drift off, I had to think of ways to check myself and just to get the job done. I did stupid things, and I forget to put my safety harness on. I just forgot to do a lot of basic things. I did not know what was going on, I wanted to run away* (Participant F).
- *I struggled with some of my job duties as a result of the fatigue and headaches. I started making mistakes and you get shouted at, now you are scared, and you check your work, not meeting your daily targets, which causes fatigue; so your concentration levels dropped, and I struggled to stay focus. This really impacted on my mental status* (Participant G).
- *I was mentally exhausted. I had to attend various courses shortly after my accident. It was hectic and I struggled to cope, the accident was still fresh in my mind, and you try but you can't focus. I felt mentally fatigued and made mistakes, but you have to survive. I had to tell myself that everything will be fine and that I will cope mentally. I tried to make time, after hours, to just go through the work for the next day just to get my mindset right. It helped. You have to make adjustments, mentally, to cope* (Participant H).
- *It was really hard to stay focused after the accident. I would just sit at my desk. I struggled to focus on my job. I would check my work; I felt mentally exhausted at the end of the day. I made silly mistakes, and my supervisor got very angry. I was scared, and I would check my work, and I felt mentally exhausted at the end of the day. It was terrible you suddenly feel like you are not capable of doing your job, but you know you can, and you know it because of the accident* (Participant I).
- *I felt mentally overwhelmed and struggle to manage my time. My head felt a bit fuzzy. I was not able to keep up with my team for a while. I was mentally fine, but this whole thing seems*

to consume your mind. I however felt a bit mentally overwhelmed. You overthink, you make mistakes, you just feel generally mentally tired, and you seem to process information just that bit slower. I tried to stick to my work schedule as there were some days that I suddenly did not feel as mentally capable as before, it was the strangest experiences, I was not sure why I felt so distracted (Participant J).

Participants acknowledged that their experiences were associated with a perceived loss of cognitive capacity and/or cognitive limitations in adjusting to work following mTBI.

The following experiences relating to participants' awareness of their cognitive capacity were identified in the transcripts, albeit at varying levels of intensity and duration:

- They report an inability to focus, and difficulty concentrate on their tasks;
- Some participants noted that difficulty keeping track of information during this time;
- They were easily distracted and experienced challenges in ignoring their internal thoughts relating to their difficulties;
- Cognitive limitations were noted that were affected by external stimuli (such as workplace noise and visual distractions such as bright lights);
- The participants expressed feelings of mental fatigue and reduced levels of concentration, leading to an inability to problem-solve;
- There were indications of forgetfulness, and described as difficulties in being able to remember to complete their daily tasks;
- Cognitive challenges were noted by most participants relating to the completion of their tasks and this affected their time management;
- There were numerous indications of increased error-proneness due to the participants reduced ability to stay focused and their reduced concentration levels;
- They noted an awareness that their cognitive difficulties were perceived as feigned, faked or exaggerated by their superiors and colleagues; and
- Most of the participant's noted cognitive limitations affected their mental processing, and as they were taking longer to think through their task demands, resulting in slow task completion.

From the above experiences, it was evident that most participants were acutely aware of cognitive changes that affected their self-efficacy. This involved recognising and

understanding the cognitive alterations experienced following mTBI, as well as the impact these alterations had on their ability to adjust to work. Cognitive alterations were described in terms of reduced concentration, impaired problem-solving abilities, reduced focus, mental fatigue, slowed cognitive processing, and increased error-making. Participants further acknowledged that these cognitive limitations negatively affected both their confidence and their perceived capacity to perform their jobs and adjust to work.

Furthermore, participants strongly believed that their cognitive limitations were not acknowledged by employers, supervisors, or colleagues as legitimate difficulties, and that they were often perceived as exaggerating or fabricating their symptoms. The participants' self-efficacy beliefs influenced the ways in which they interpreted and evaluated their cognitive alterations and capabilities (Bandura, 1997; Iverson, 2005; McCrory et al., 2017). This included recognising both their remaining strengths and the areas in which they experienced limitations affecting work adjustment.

Given the above cognitive alternations, most participants used affirmation to reinforce their beliefs in their cognitive capacity during their recovery, and their ability to adjust to work. This process acknowledges that mental alternations on the part of the participants were described by the researcher as affirmation. For purposes of the study affirmation, refers to the participants' belief in their cognitive abilities and the process of acknowledging that, while they may be experiencing certain cognitive alternations or difficulties, that these were mainly temporary. This includes reduced levels of concentration, memory difficulties, and slowed processing speed. The following quotes were taken from the transcripts to illustrate the participants' affirmation of cognitive capacity to adjust to work:

- *I knew that I could still do my job. I know my job, and I did a good job before. I knew I was still mentally capable; I just needed time* (Participant A).
- *I had to tell myself all the time that I am okay, and I had to take control of my job, I had to speak to work colleague and my captain and told them I just need some time. I had to tell them that I need help to cope with my job. You have to cope, but you have to show strength, otherwise they label you as a "sissie" in my job. We have to be like a strong man you can not show any weaknesses. I had changed my mind set and learn from my mistakes and take control of "me". I had to implement changes and learn to focus my mind, and I learnt a lot from the experience. You have to try and stay positive, and you have to adapt to make things*

better for yourself (Participants B).

- *My work involves projects and requirement continuous cognitive and strength. After the accident I felt mentally vulnerable, but I knew that I was capacity of doing my job. I had to tell myself you've got it* (Participant C).
- *I had to remind myself all the time that they employed me because I had good experience and good reference from my previous employer. I knew that I was good at my job but this thing really it me so hard. I felt that I had to make a conscious effort to remind myself that I was able to do my work and I can still do my work. I just had to make every effort to try and cope, yes to try and stay focussed.* (Participant D).
- *You are on your own you, it is really hard to stay positive, you feel tired, and mentally drained but there is always a light at the end of the tunnel. It was hard but I tried my best* (Participant E).
- *I was all over the place, I struggled to concentrate, struggled to focus, and I made silly mistakes; you had a setback you will be okay; I had to tell myself that I will get better, and I will be fine. This constant thought in your head that you are not coping but you have to cope forced me to remain focuses on getting back and adjusting to the new me after the accident. I have always been positive, but this hit me hard. I had to tell myself that I am still the same person, I had to tell myself, you had a setback, you will be okay; I told myself, you will be fine, you need to focus and learn from this'* (Participant F).
- *I have always had a very positive mindset, and I do love my job but after my accident, I had to continuously tell myself, you are fine, you will be okay, take it easy, you will cope with the job'. I felt drained some days and I just battling a bit with some mental issues in my job. We had to learn a new method, and I was a bit worried as you feel that you are drowning, and it affects your learning capacity. But I had stay positive and tell myself that I will pass and that I can do it'* (Participant G).
- *I have been in my job for years and never had to performance issues, then this, suddenly I felt that I am not performing at the same level, and you have to remind yourself that you can do the job. You have to adjust mentally to cope* (Participant H).
- *I was referred to the employee assistance programmes (EAP) and told her about my issues. I wanted to work but I just could not get over my issues. It took me about six months for me to settle back. During this period, I just had to tell myself you will be okay, and you can do this. I tried to set smaller tasks, and I had to stay just positive and tell myself you will be okay, but it is really hard* (Participant I).

- *I tried to stick to my work schedule as there were some days that I did not feel as mental capable as before, it was the strangest experiences, I knew what to do and what to say, but I suddenly felt a bit distracted and unable to focus. You just have to remind yourself that you are still capable, but it is difficulty* (Participant J).

From the above narratives, most participants believed that they experienced cognitive alterations in their ability to do their jobs following an mTBI. The participants, however, believed that they had the cognitive capacity to recovery over time to adjust to work following the mTBI. Through constant affirmation, the participants fostered a positive mindset that encouraged them to embrace their cognitive challenges, to learn from the criticism received from their employers, including their superiors and/or work colleagues, and to find cognitive ways to overcome their cognitive limitation during work adjustment.

- The participants recognised that their capacity to adjust to work and working at their full potential following their mTBI had been temporarily affected, and that they needed time to recovery and regain their full potential albeit providing different experiences and timeframes for their recovery.
- The participants felt that, especially with time off to recover, that a more empathetic work environment and with company interventions, their ability to recover and adjust to work would have been more effective.
- All participants had undergone a neuropsychological assessment for their RAF claims, and they felt that this process further assisted them, as it provided confirmation that their mTBI had indeed impacted o their cognitive capacity and they could provide evidence to their employer and/or work colleagues. This also provided them with the tools to initiate interventions and/or to request assistance. The acknowledgement of their difficulties by their employer had an immense and immediate impacted on the participants and improvement in their functioning were noted, and assisted in adjusting to work and returning to their full work positional.

Given the above affirmation and the participants' beliefs in their cognitive capacity enforce a positive mindset and reinforcement of their previous abilities assisted with their belief that they are capable, accompanied by an eagerness to get back to their jobs and premorbid functioning. The literature suggests that a positive growth mindset involves individual's belief in their

cognitive abilities and intelligence, and can develop with effort, learning, and persistence. This positive mindset encouraged the participants to embrace their cognitive challenges following their mTBI, and assisted in what they described as successful work adjustment (Dweck &Yeager 2016). Dweck and Yeager (2016) described a positive growth mindset as the belief that an individual has the capacities, or can develop over time, and this mindset or power of belief influences an individual's behaviour to act. Interestingly, the key characteristics of a positive growth mindset were noted during the data analysis (Tromp, 2021):

- The participant embracing their cognitive challenges and viewed them as opportunities to learn and grow, rather than as setbacks.
- Most participants believed that their experiences in adjusting to work led to a re-evaluation of the relative importance of their work life;
- The participants embraced their physical challenges, albeit with difficulty, but they remained mostly positive that, following assistance and time, that they had the capacity to adjust and return to their work capacity comparable to their capacity prior to the mTBI.
- All participants believed that their cognitive efforts were important components in mastering their cognitive difficulties in achieving work adjustments.
- Interestingly, some participants were alienated by the criticism they received from their superiors and their colleagues. Initially they felt that it was personal attack, but with time, they used the criticism as a feedback tool for their own self-improvement, rather than seeing it as such.
- Some participants also felt emotionally vulnerable, given their cognitive challenge following their mTBI. However, their positive growth mindset empowered their cognitive capacity, resulting in more determination to adjust to work (Tromp, 2021).

The participants' belief in a positive mindset provided reinforcement of their cognitive abilities to succeed in work adjustment. Increased levels of self-confidence were reported following acknowledgement of their cognitive difficulties by their employers. Although their cognitive limitation affected their confidence in adjusting to their work, most participants found further encouragement when reflecting on their previous achievement. The strong self-efficacy discussed above appears to have had a significantly impact on their motivation and ability to adjust to work following their mTBI.

- Most participants belief that they had the capacity to execute behaviours necessary to adjust, but they also felt a need for acknowledgement of their injuries suffered following their mTBI in terms of their cognitive limitation, and a need for support from their superiors and/or organisation.
- Most participants presented with a positive mindset to promote their confidence, their motivation, and well-being, despite the lack of support and understanding from their employers.

In summary, the participants were able to recognise their cognitive limitations and, through affirmation, reinforce their beliefs in their cognitive abilities, thereby fostering a growth mindset during work adjustment. It was noted that most participants relied on their previous work experiences and, together with positive affirmation, were able to make adjustments and create opportunities for cognitive reintegration and learning when required. This contributed to the development of a positive growth mindset and further positively influenced self-efficacy (Dweck & Yeager, 2016). During the adjustment process, and through the use of external sources of assistance, as well as support from their employers, the participants developed a positive growth mindset. This contributed to improvements in their overall well-being, work satisfaction, and enhanced self-efficacy. It was evident from the data analysis that most participants experienced a temporary setback in their cognitive abilities and relied on their premorbid cognitive experiences, as they believed that they still possessed the cognitive capacity to perform their jobs.

However, as a consequence of the mTBI, they experienced a temporary reduction in their cognitive functioning. This belief in their cognitive abilities (high self-efficacy) resulted in affirmation of their capacity to overcome their cognitive difficulties, thereby facilitating the development of a growth mindset and more timeous work adjustment (Bandura, 1997; Dweck & Yeager, 2016).

5.4.5.4 Emotional Impact

For the purposes of this study, the researcher describes emotional and behavioural impact as referring to the participants' self-efficacy belief that either assisted or undermined their

perceived emotional capacity during work adjustment following the mTBI. Emotional impact refers to the manner in which the participants' emotional beliefs influenced their ability to successfully adjust to work and relates to the psychological and social context within the BPS theoretical model (Engel, 1977; Wade & Halligan, 2017). Bandura's self-efficacy theory supports the above, through the concept of emotional arousal, where the emotional well-being of the individual can significantly influence how they perceive themselves and their ability to act in a particular situation (Bandura, 1997; Lopez-Garrido, 2023).

It is further argued that an individual's interpretation of their emotional states and/or reflection on their ability or capacity to achieve or accomplish a task or goal influence the outcome of that task or goal (Silverberg & Iverson, 2011). Lopez-Garrido (2023) states that the emotional, physical, and psychological well-being of an individual can have a substantial impact on how perceive themselves and their abilities to function effectively in a particular situation. How individuals interpret their emotional or psychological states, and how they reflect on their ability or capacity to achieve a task or goal, will consequently influence the outcome of that task or goal. Emotional and physiological states therefore highlight the importance of context and overall health and well-being in the development and maintenance of self-efficacy (Bandura, 1997).

In addition to the difficulties imposed by physical inadequacies and cognitive deficits, all participants revealed underlying emotional difficulties and an awareness of variations in their emotional experiences (Caprara et al., 2008; Silverberg & Iverson, 2011). These experiences reflected a strong relationship between the participants' self-efficacy beliefs and their perceived emotional and behavioural capacity to adjust to work (Bandura, 1997).

This category also incorporated the ways in which the participants' beliefs regarding their emotional regulation and resilience influenced their confidence, expectations, motivation, satisfaction, and coping mechanisms during the process of work adjustment (Bandura, 1997; Caprara et al., 2008; Silverberg & Iverson, 2011; Cancelliere et al., 2016).

Interestingly, the reported emotional difficulties appeared to constitute one of the most overwhelming aspects of the participants experiences, significantly affecting their self-efficacy and work adjustment (Silverberg & Iverson, 2011). All participants expressed variable experiences and meanings in dealing with and managing their emotional sequelae following

the mTBI. All participants reported emotional difficulties, albeit at variable levels and with differing means of managing their emotions, including variable levels of depression, anxiety, stress, lack of motivation, and reduced self-efficacy. The following experiences were identified from the collective narratives and summarised below:

- *I am a strong person, and I have always overcome difficulties in my life. I knew I still had all the abilities; I had to believe in myself, and I had to take some action. I had to do something. I had to get my life back. I felt stressed out; I was just not as motivated. It is difficult; you just do not feel well. You feel demotivated, overwhelmed, and very emotional. I never had any emotional or psychological difficulties before. It is frustrating, and there were days that I felt such anger towards my employer because there was no assistance. I was so emotional, but I had to control my emotions and get the job done. I felt irritable and stressed* (Participant A).
- *My emotions were on edge, and in fact, my emotions are still on edge, and it is not easy to just continue working. I just felt so stressed when I got back to work. I am still stressing even now. You suffer from mood changes and feelings of frustration* (Participant B).
- *It really felt freaky. I struggled emotionally and constantly burst out in tears, and I felt generally flat. I had an emotional breakdown. I continuously had to tell myself that I am emotionally strong, but I was emotional and stressed out. There were days that I felt out of control. I had a meltdown and struggled to control my emotions. It was just so frustrating* (Participant C).
- *It was terrible to adjust back to "normal", and I struggled with fitting in after being off work for a while. I felt so low and experienced such emotional trauma. I felt depressed, anxious, irritable, and in general I just did not want to be at work. I was so demotivated and emotional all the time. I cried all the time, and I could not sleep. All I wanted to do was sit in a heap and cry. I was hospitalised for depression and anxiety after the accident* (Participant D).
- *My whole life hanged after this accident. I felt that I was on another planet. I struggled to understand what was happening to my emotions and in my head. I never had any issues prior to this accident doing my job, but then it was just too strange, and I could not keep my emotions intact. I cried and cried for no reason. I had no physical injury to show, only a diagnosis of mTBI, and the MRI scan showed nothing. I could not sleep and became very emotional, struggling to cope. My emotions were out of control. I felt so low; I felt useless.*

Everything was a problem. I was depressed. I suffered an emotional breakdown at work. I really struggled to cope doing my job; I just struggled emotionally. I have never had any psychological problems. I felt like an idiot, crying at work. I started taking pills to lift my mood, but it did not work. I knew that I had to do something. I could not stop crying. I knew they were judging me. I was an emotional wreck, and at work I could see that my colleagues were looking at me strangely (Participant E).

- *I was really stressed out because of my headaches and lack of motivation to get back to work after my accident. I love my job. I had a panic attack. I just did not feel the same, and I was not functioning like before. I had a panicky attack. The psychologist wrote to my manager and explained to him that I needed some time out. I needed to be placed in a less physical job for a few months to adjust to my circumstances and go for some rehabilitation. It did not go down well, and that caused even more stress and anxiety in my life. I just could not get back to work; it took a few months even more stress and anxiety in my life. I just could not get back to work; it took a few months* (Participant F).
- *When you struggle with tiredness and headaches, it does affect your mood. You get irritated by small things that previously I did not even notice; it is strange. You just seem to be more emotionally vulnerable. You are more sensitive towards any criticism, and it creates fear and anxiety* (Participant G).
- *I know that I was irritating my colleagues because of my emotional outbursts. I felt drained, both physically and emotionally. Just thinking of going to work and facing them (colleagues) stressed me out. Driving to work stressed me out. I felt overwhelmed by the thought of going to work and just doing my job. One of my work colleagues said, "What is wrong with you?" It hit me hard. I had to try and control my mood. One minute I was fine, and then a small thing would trigger my emotions, and it would set me off. I would snap over stupid little things. I would walk to the coffee machine, and somebody had left the milk on the counter. I lost it and shouted, "How could anyone be so selfish? Must I put the milk in the fridge?" Previously, I do not think I even saw the milk, but now it was a major issue in my life, and such a stupid thing destroyed my whole day. On another day, I had an emotional breakdown over a pen. I just felt frustrated, and everybody irritated me. Not sure why, but it is how I felt. Thinking back now, it took a while for me to realise that there was something wrong with me. I accused my colleague of stealing my pen in front of the whole office. It caused such drama in the office. She felt angry that I could accuse her of stealing when I had no evidence that it was her. We got into a rather hectic exchange of words until*

another colleague arrived with my pen, telling me that the pen was left in the bathroom. I had been to the bathroom a few minutes before. I knew then that I was losing it. My manager got involved, and I just suffered a total emotional breakdown. I was in a heap, and I could not stop crying. He told me to stop "this nonsense" and do my job. He told me to get on with the work. I was broken. Actually, I am still no longer the same person (Participant H).

- *I really struggled emotionally and constantly burst out in tears. I felt generally emotionally "flat" and just really depressed. My confidence was so low. I had feelings of hopelessness and withdrawal. I had to make my own plans to see somebody to try and cope better* (Participant I).
- *After the accident I was fine, but I really struggled emotionally. It was definitely not how things were supposed to be when I got back to work. At work, I have always been treated like a number, and there is no human factor involved. I knew that this was not going to be easy for me. Physically I was fine, but I struggled to cope emotionally. I have always been strong and positive. I felt weak and teary, and I really struggled to adjust after the mTBI. My manager kept on saying, "You hit your head on the windscreen. A lot of people have suffered far more severe injuries. What is the problem?" He does not understand that it caused major havoc in my head. Although I suffered an mTBI, I suffered from bad flashbacks. My car rolled down a bank, and I was awake the whole time, bashing my head against the windscreen. I think I was out for a few minutes, and then I had to crawl up the bank where my car had gone down. I was just an emotional wreck and started taking a lot of medication that made me feel worse, tired, and nauseous. My GP booked me off sick and, in a letter to my company, suggested temporary disability pay rather than sick leave. Suddenly, they were concerned because I was taking time off and apparently costing the company money, and I was called in by HR. Even when I told them about my problems, I got treated so badly, and I struggled emotionally* (Participant J).

Their portrayal of emotional difficulties, as discussed above, revealed a degree of emotional vulnerability. From the participants' experiences, their reported emotional vulnerability impacted their self-efficacy and ability to adjust to work. Higgins et al. (1986) described emotional vulnerability as a state of emotional exposure during which an individual experiences a period of emotional uncertainty.

Emotional vulnerability may also refer to heightened emotional sensitivity and increased reactivity to emotional challenges as a result of the psychological impact on work adjustment. The participants' emotional vulnerability manifested in different ways and influenced their perceptions of the severity of the injury and their inability to cope with their emotions (Godfrey et al., 1996; Hanks et al., 1999; Schönberger et al., 2014). This was further aggravated by the lack of support received from their employer. The following emotional and behavioural dysregulation were noted from the narratives:

- Most participants reported mood changes that impacted their work performance and ability to adjust to work.
- Most participants indicated increased levels of irritability as a result of both the work environment and their job and tasks requirements and/or job demands.
- The participants noted and indicated heightened level of anxiety while trying to do their jobs.
- There were indications of feelings of sadness, and this resulted in poor ability to cope with the work demands during work adjustment.
- Most participants reported elevated levels of stress.
- There were indications of the participants feeling overwhelmed by their work demands, noting that they previously completed these tasks without any difficulties.
- Most participants noted increase level of feelings of frustration.
- Some participants experienced difficulty controlling their emotional responses, leading to emotional outbursts, aggressiveness, and a lack behavioural control.

During the initial phase, many challenges were noted relating to the participants' emotional capacity to cope with work adjustment following the mTBI. The initial return to their jobs and work environment was characterised by elevated levels of frustration, irritability, anger, stress, a depressed mood, heightened anxiety, and feelings of being emotionally overwhelmed by their inability to cope with job demands and readjust to work.

Their perception that they were expected to perform their duties without sympathy and with little or no acknowledgement of the sequelae of their mTBI created underlying feelings of disappointment and low self-confidence, resulting in poor adjustment to work.

Interestingly, the participants' emotional vulnerability and sensitivities also exacerbated their cognitive and physical difficulties, and resulted in reduced self-confidence, increased fear relating to a possible risk of losing their jobs and diminished self-efficacy. Studies have shown that these emotional difficulties are common following an mTBI and may affect an individual's behavioural regulation (Laskowski et al., 2016). At the time of this study, difficulties in behavioural regulation contributed to emotional vulnerability and temporarily feelings of incapacity to adjust to work (Laskowski et al., 2016).

All participants confirmed that they had to make a concerted personal effort to control their emotional vulnerabilities in order to adjust to work. Most participants demonstrated both strength and sensitivity in facing their emotional challenges. The researcher identified these collective experiences as resilience. Resilience, for the purposes of this study, is described as the participants' experiences of overcoming emotional difficulties and work disruption during work adjustment following the mTBI (Cutuk & Aydogan, 2019). Resilience can be described as a dynamic process that allows a person to recover from a negative situation and enables the ability to achieve, maintain, and regain emotional health (Cutuk & Aydogan, 2019; Losoi et al., 2015; Rapport et al., 2020; Reid et al., 2018).

Most participants noted that, despite their emotional challenges, they had to approach and rethink ways to deal with their emotional vulnerabilities in order to cope with work adjustment, and the following collective and variable experiences and meaning were noted from the narratives and summarised below:

- *After the mTBI I was emotional, but I had to control my emotions and get the job done. You just need to focus on your strengths can cope* (Participant A).
- *I knew that I had to pull myself together to get the job done I know that it was up to me to sort out my job* (Participant B).
- *I continuously reminded myself that I am emotionally strong, I was emotional, but I knew that I had to remain positive. Being positive is a strong characteristic and I have always lived and have always had a positive outlook on life. This thing set me back but my positive attitude and belief in myself and capabilities propelled me to get back to normality* (Participant C).
- *Following my hospitalisation and taking my medication I felt better. You need to persevere*

yourself and be resilient. I told myself, be patience, I read and leant about mTBI, and saw that it can take three months to a year to recover. You must be patience and tolerant, and take it one step at a time, and day by day. That is all that you can do. You can't talk to your employer, but don't expect miracles, because they don't think an mTBI is a real injury. Don't expect help, go out and look for help (Participant D).

- *Only later after I suffered an emotional breakdown at work, I was told to go and see the human resource officer, things started changing and I was more able to deal with my mood and get my life back on track* (Participant E).
- *Yes, going back to work after the accident was hard. Yes, I struggled to cope and adjust to my work and work environment. Yes, I was frowned upon, yes, I was told that I am faking my issues, and that I and just lazy. Yes, I had to deal with this 'abuse' on a daily basis for months. Yes, I survived and here I am, I just had to adjust and cope with my emotions* (Participant F).
- *Crying and feeling sorry for yourself won't help you to get back to your normal self. You need to have some strength to cope. We all cope with trauma differently. Some people recovery like "quick and easy" some of us struggle to get to terms with it. We are all different. But you tell yourself that "it is what it is", what has happened has happened. The accident happened and you can't go back in time it is irreversible you need to deal with it. You need to be strong. Nobody is going to help you; you can only help yourself. It is up to you to put things in place to adjust and get back to your normal self and job. Even if you pretend to be fine at work, "check, check yourself, your job, your work". Go home, recover, and build up again. It is hard, but you have to adjust, otherwise you will lose your job. At the end of the day, I still had my job, and I knew I just needed some time to deal with my issues and my emotions, and I did. You have to cope you have to take control over your emotions* (Participant G).
- *You must show tenacity, yes, you suffered an mTBI, but nobody cares about you issues at work. It is difficult. Having to go back to work as if nothing has happened to you, it is not easy, and it is rather difficult to go back as if nothing has happened to you. They (your work colleagues) do not acknowledge your problems and are not going to change; you have to deal with it and adapt. You need to face and deal with your emotions, it is hard, it is very hard. Work never cared, I had to continue as if nothing happened to me; "it was only an mTBI" nothing serious. I had to adjust me; I had to adjust my work to try and cope. I am not an emotional person, but this got to me, it affected my whole being and impacted*

on my health. I had to make changed I had to suggest changes; I had to beg for them to implement even minor changes for me to get my job done (Participant H).

- *I had to re-evaluate my life and the things that were important to me in my life. I made some changes, and I did cope better afterwards but I am still feeling rather depressed* (Participant I).
- *I really tried to just do my job, but my emotions got in the way. I was shouting at the staff; I knew that I had to control myself* (Participant J).

From the collective narratives, it was noted that most participants identified, believed and enable themselves to attend and maintain their emotional well-being during to work adjustment following their mTBI. Resilience was further described by the participants as their experiences in their emotional difficulties, and overcoming such emotional difficulties to adjust back to work (Losoi et al., 2015; Rapport et al., 2020; Reid et al., 2018).

Given the experiences from the narrative it was noted that, through this self-introspection approach, the participants were able to realise their emotions vulnerabilities, and from their collective experiences, it was noted that resilience strengthen their self-efficacy, seeking support from their employers, and/or professional support, setting achievable goals, and celebrating being able to cope (Losoi et al., 2015; Rapport et al., 2020; Reid et al., 2018). All participants noted that resilience was important to overcoming their emotional difficulties, and facing their problem at work. They collectively experienced strong emotional resilience and believed in their capacity to return to their pre-accident emotional stability and level of self-confidence. They were able to adjust to work, albeit at different levels, and within time periods consequent to their emotional difficulties. The participants collectively experienced a need for acceptance of their new reality and to continue to be resilient, following their mTBI.

Resilience or persistence has been described in experiencing a setback, like an athlete trying to build muscle for a major event, but then sustaining a minor muscle tear and is unable to participate (Tromp, 2021). In a similar conceptualisation, it is argued that humans also develop and "train" their emotional resilience, often described as emotional "muscles" that can be strengthened over time through experience and coping efforts (Tromp, 2021; Wardlaw et al., 2018). Within the context of mTBI, the injury may therefore be understood as a disruption to an individual's emotional, cognitive, and functional equilibrium, resulting in reduced perceived

capacity to manage work demands and adjust effectively. The above aligns closely with Bandura's self-efficacy theory, which emphasises that individuals' beliefs in their ability to manage challenges influence their motivation, persistence, and recovery behaviours. Participants in this study similarly experienced mTBI as a major setback that undermined their self-efficacy and disrupted their perceived ability to function at pre-morbid work levels.

From the participants' collective experiences, it emerged that their emotional vulnerability including a depressed mood, feelings of anxiety, self-doubt, and reduced confidence initially had a negative impact on the participants' ability to adjust to work following the mTBI.

Participants noted that it took time to realise their emotional vulnerabilities and to seek emotional assistance from their employers and/or from outside the work environment. Most participants noted that initially, there was no emotional assistance from their employers. Participants noted that they had to educate their employers on the sequelae of an mTBI, including their emotional difficulties, in order to gain acknowledgement. Such disbelief experienced by their employers had an immense effect on the participants' emotional functioning during work adjustment. However, all participants believed that, following the initiation of discussions, there was some acknowledgement and validation from their employers regarding their emotional difficulties.

The participants, however, showed variable levels of resilience, including perseverance and self-reflection, resulting in increased emotional stability and the ability to cope with and adjust to work challenges. Resilience seems to have played a crucial role in strengthening self-efficacy, allowing them to manage their work-related demands despite their emotional vulnerabilities (Reid et al., 2018; Wardlaw et al., 2018). The acknowledgement by the participants of their emotional vulnerability reduced their emotional stressors and resulted in positive behavioural changes, as well as an increased sense of self-worth and improved work adjustment.

5.4.5.5 Work and Psychosocial Support impact

For the purposes of this study, the researcher describes work and psychosocial support as referring to experiences of self-efficacy that either assisted or undermined participants during

work adjustment. Work and psychosocial support refers to the participants' belief that organisational support ought to form an integral part of assisting work adjustment following an mTBI. Work and psychosocial support and accommodation fall within the psychological and social (work) context of the biopsychosocial theoretical model. A supportive work environment that accommodates challenges and/or limitations following an mTBI appears to foster and support work adjustment (Franche et al., 2005).

Through the integration of self-efficacy theory, including verbal persuasion, vicarious learning, and mastery experiences, the participants were able to articulate and validate the impact of their injury and request support and accommodations from their employers to assist in work adjustment (Bandura, 1997; Usher & Pajares, 2008; Dawis & Lofquist, 1984). Scott and Kowalski (2011) stated that work adjustment has significant implications for employee wellbeing, as well as motivation and performance, which is consistent with broader evidence linking job attitudes and adjustment to wellbeing outcomes (Judge & Kammeyer-Mueller, 2012: Dong et al., 2016).

From the collective experiences, participants believed that prior to gaining support from their employers, they had to articulate and gain validation of their challenges and limitations to adjust to work following an mTBI. For the purposes of this study, the researcher defines such articulation and acknowledgement of their challenges and limitations as a form of self-advocacy and validation. Self-advocacy refers to an individual's ability to understand and effectively communicate their need for support and accommodation (Test et al., 2005). Self-advocacy was identified as an important form of awareness through which participants communicated their specific accommodation and workplace support needs during their work adjustment process following mTBI (Test et al., 2005; Hawley, 2016; Dong et al., 2016). The participants described the following:

- *I had to constantly explain my problems to my colleague, my supervisor my manager as they did not believe me. I had to read up and show them what can happen to a person after an mTBI* (Participant A).
- *I needed my employer to acknowledge that I had an injury. In my job, we deal with trauma all the time, but there was now support for my problems. You are just an employee. I had to made various efforts to set up times to try and explain my problems to my superiors. I*

really tried it - took a few months (Participant B).

- *My company, and I assume, all companies, need to acknowledge that a knock to the head can dramatically change a person; and it changed me. I had such a knock in my confidence. It is so strange. I did not "fake it" but you get the feeling that they (manager and colleagues) think that you are faking it. I knew I needed to make some changes, I recognised the changes in me, I read about it, and it confirmed my symptoms – they were real and not fake. I could not control it. It was really hard the first month, I think for about three months – I was treated so badly, you know, like a fake, it was really unpleasant at work and made me angry. I was left on my own with no support, you have to face and deal with it on your own. It is not easy, nobody really cares about you at work, you are on your own. I had to stick to my guns* (Participant C).
- *I think that my manager and work colleagues initially thought that I was faking my problems. My manager made some real nasty comments about me. It affects your self-esteem and confidence and sadly your commitment to work. I have given so much of my time to my company and never took any time off. However, when I needed them, I was treated so badly. I had such an emotional breakdown at work, and I was rushed to hospital. I had a bad anxiety attack. When the doctor gave me, a letter confirming my anxiety and booked me off, only then manager realised that maybe there is a problem. My manager then spoke to our human resource department, and they arranged an appointment for me to go and see a doctor. It was only then that the company took notice of my issues. It made me angry. They eventually, after a few weeks, made a bit of an effort to assist me* (Participant D).
- *My boss and colleagues were really nice, but they had no idea of the trauma I went through. I convinced my supervisor that I needed help. He just did not care; I was just "lazy". When I got back, I was more in tune with myself. It is important that your employer understands what you are going through, because they don't really know, and think you are just "lazy". For me, it is very important that companies realise that an mTBI is real it is a serious injury. Companies must realise the impact and learn not to be treated like I was treated. The company did not offer any support, and it was hard to explain to others what I was going through. I was the one suffering, but I had to explain my problems, and the support was not there. They thought I was "faking" my problems it made me angry. I had an accident, I suffered an mTBI, but I had to constantly try and justify my injury. You need support at work, you are there all the time, but when you need them there is nothing, it was*

actually shocking (Participant E).

- *They (my superiors) thought that I was making up my problems. They don't think that sustaining an mTBI is an injury, they think it is just a way for you to justify doing less works and to take more time off. In fact, I was told that I am just lazy and that I just want time off with pay. They had no idea. The staff could not understand why I was "acting", yes acting but it was really hard to cope. I was tired all the time; my headaches were killing me. It was emotionally draining having to deal with the horrible accusation of laziness and "stealing money" from my supervisor (i.e. taking paid sick leave). I needed them to understand, and only after a got medical confirmation that I needed time off to go for a CT scan to assess the source of my headaches (from the mTBI) was there some sympathy and acknowledge of my problems* (Participant F).
- *I work in the medical industry, but it is interesting that even here I was frowned upon when I made any mention of my challenges. I did not have any difficulties with my superiors it was more the administrative and human resource staff that questioned the changes suggested. I was called in a few times and had to explain the reasons for the changes* (Participant G).
- *…after numerous attempts, I eventually got my manager to sit down and I explain in detail to him what was happening to me, physical and emotionally. He was still rather sceptical but more understanding. It was not easy to try and convince him that I was really struggling to do my job* (Participant H).
- *My confidence was low, I felt hopeless and withdrew from my work and colleagues. My employer did not believe me and blamed me for poor work relationships. I had to explain my problems, and they asked all the medical questions. I eventually consulted with my doctor and got a sick note. I was booked off for a week. On return my manager was really rude to me and I had to try and explain to him again. It just made things worse. I really tried but I was feeling that I had to try and justify my problems, but my problems were real. I eventually spoke to the Human Resource officer, and she called a meeting* (Participant I).
- *Working on the shopfloor and with people that really don't understand was hard. I spoke to my manager about some support and if he could just get help me cope with some sales figures, but the meeting quickly resorted to "but we have target to meet, you need to up your game". There was just no sympathy, and it was only after I had a bit of setback as a result of the problem after the accident and had to take time off that there was some enquiry*

into my performance and my problems where noticed. We then sat down, and I was able to explain to him what happened and how it impacted on me and my job (Participant J).

Self-advocacy could be influenced by a number of factors, such as employee–employer relationships, the individual's priorities, such as choosing their health first, and their lived experiences of mTBI, including insight into their functional abilities and ongoing symptoms (Gourdeau et al., 2018; Hawley, 2016; Dong et al., 2016). Most of the participants had acute insight into their difficulties and functional limitations.

Most participants experienced difficulties or changes in their relationships with employers, managers, supervisors, and colleagues during work adjustment. Participants' experiences suggested that psychological empowerment, and closely associated with self-efficacy, was reflected in their perceived ability to communicate their needs, assert themselves constructively, and actively participate in workplace discussions relating to their adjustment and accommodation needs (Bandura, 1997: Hawley, 2016; Dong et al., 2016; Oducado, 2021).

Through self-advocacy, the participants were able to foster some understanding of their challenges as a result of mTBI among their employers, managers, colleagues, and support staff. From the way in which participants recounted their experiences, they believed that creating knowledge and understanding among employers resulted in more realistic expectations and assisted the participants in adjusting to work. When supported, self-advocacy appears to contribute significantly to work adjustment (Franche et al., 2005; Bandura, 1997). Self-advocacy was seen as an important factor in building and maintaining good work relationships and empowered participants to take control of difficulties and pursue their goals in convincing their employers to provide work accommodation and support in adjusting to work following the mTBI (Hawley, 2016; Dong et al., 2016).

Through self-advocacy, the participants had to make their voices heard; however, their employers did not initially acknowledge the consequences of an mTBI. For the purposes of this study, the researcher identified participants' experiences of their employers' lack of initial acknowledgment of support as a lack of validation. Validation refers to recognition and acknowledgment of participants' experiences, feelings, and need for support and accommodation as both real and legitimate (Test et al., 2005). Validation played a crucial psychosocial role by affirming the often invisible nature of the injury and specifically relate to a mTBI (Franche et al., 2005). Symptoms such as office noise sensitivity, error proneness, and

slower work pace (cognitive difficulties), and increased irritability (emotional difficulties) may persist. Validation was reflected upon as a need for acknowledgment of challenges and need for support following the mTBI (Bandura, 1997; Hawley, 2016).

The following collective experiences were identified from the narrative as noted below:

- *I had to think about ways to deal with my job duties. There was no sympathy. I felt frustrated, and anger toward them. I had to set up meetings. I had to constantly explain my problems, and they did not acknowledge my problems. I had to read up and show them what can happen to a person during an mTBI. My employer was so uninformed about mTBIs. There was no sympathy and absolutely no support from my employer. I had to foster relationship to gain support and acceptance from my employer. It was only after about three months of issues with me not being able to do my job that my employer eventually acknowledges my challenges and limitation* (Participant A).
- *I needed my employer to acknowledge that I had an injury. They just did not understand or maybe they did not want to understand what I was going through. It was only after months that there was some recognition of my problems when, my challenges, impacted and affected the whole section. Suddenly my superiors were more understanding which resulted in improved working conditions. It is unacceptable employer behaviour not acknowledging an mTBI* (Participant B).
- *My company, and I assume, all companies – need to acknowledge that a knock to the head can dramatically change you. I had such a knock in my confidence. I did not "fake it" but you get the feeling that they (company) think that you are. I was treated so badly, you know like a fake it was really unpleasant at work and angry. I was left on my own with no support. Every month, he would make some comment about me not doing my job and every month and I had to remind my manager of my visual problems and headaches., You have to face and deal with it on your own. It is not easy, nobody really cares at you at work, you are on your own. I had to stick to my guns. It was hard and it is still hard knowing that my manager does not really care about my problems. I like my job, and I know that it is up to me to embrace my relationship with him at work. It was only when I got a letter from my psychologist that my employer realised that I am not a fake and that my problems were real* (Participant C).
- *I think that my manager and work colleagues initially though that I was faking my problems. My manager made some real nasty comments about me They did not believe*

me, and I had to explain why I am so emotional. How did they except me to explain my emotions, while they accused me of having lost it. I was really struggling emotionally. I was treated so badly in my department. The doctor explained to me what happened on and return to work I explained to my manger and gave him the letter from the doctor. I don't understand why it had to get to this; it was really unpleasant. When the doctor gave me, a letter confirming my limitations and asked for time off and only then manager realised that maybe there is a problem. I do belief that most employers don't understand what you go through when you suffer s mTBI. It is like a stigma attached to it, if you had an mTBI people think that you are faking your problems. You must just get on with it, it is emotionally draining, and with no support and interventions it is worse. I read extensively about the impact of an mTBI. I showed and discussed this with my managers to try and get some sympathy but nothing. It was a long road and sadly but interestingly, my supervisor's wife was then involved in a MVA and suffered an mTBI and suddenly he started acknowledging my difficulties, he asked about my emotional wellbeing, and we discussed ways to deal and cope with my job (Participant D).

- *My boss and colleagues were really nice, but they had no idea of the trauma I was going through. The company did not offer any support, and it was hard to explain to others what I was going through. I was the one suffering, but I had to explain my problems, and the support was not there. I had to talk to my supervisor, and told him exactly what was happening to me. It is important that they understand what you are going through, because they don't really know and think you have just become "lazy". They thought I was "faking" my problems, it made me really angry, I had an accident I suffered an mTBI, but I had to constantly try and justify my injury. I had to suggest changes and support to get back to my pre-accident functioning. Eventually, after months, there was some acknowledgment and assistance. For me, it is very important that companies realise that an mTBI is real it is a serious injury and not to be treated like I was treated. Although I struggled for more than two years and only after my RAF assessment and following discussions between the psychologist and my manager did acknowledge that I had problems after the accident. Follow this discussion he was really good to me, and I got support from my company* (Participant E).
- *My problems and injury were not seen as serious by my employer. It however had a severe impact on my social and work life. I needed support. They (my superiors) thought that I was making up my problems. They don't think that sustaining an mTBI is an injury, they*

think it is just a way for you to justify doing less work, and to take more time off. In fact, I was told that I am just lazy and that I just want time off with pay. They had no idea. I needed them to understand, and only after a got medical confirmation that I needed time off to go for a CT scan to assess the source of my headaches (from the mTBI) was there some sympathy and acknowledgement of my challenges (Participant F).

- *I work in the medical industry, but it is interesting that even here, I was frowned upon when I made any mention of my challenges. I was called in a few times and had to explain the reasons for the changes. They really need to be educated. I did suggest that they should be trained, and some action was taken in acknowledging my requests for some support* (Participant G).
- *I had to explain in detail to my manager what was happening to me, physical and emotionally. He was still rather sceptical but more understanding. It was not easy to try and convince him that I was really struggling to do my job* (Participant H).
- *My employer did not believe that my injuries were serious and blamed me for poor work relationships. I had to explain my problems, and they asked all the medical questions. I eventually spoke to the HR officer, and she called a meeting* (Participant I).
- *There was just no sympathy, and it was only after I had a bit of setback as a result of the problem after the accident. Suddenly, they were concerned, and I was called in by HR. It was only two years later when things changed, following my assessment for my RAF claim, and due to my results, I had a meeting with my boss and there was some acknowledgement of my problems* (Participant J).

From the above narratives, all participants experienced validation when their difficulties and challenges were recognised by their employers as valid. Such validation by the employer resulted in psychosocial support, and the need for acknowledgement and learning following an mTBI, necessary for support and accommodation while adjusting to work.

The participants identified a significant need for information sharing regarding the consequences of mTBI. Due to limited awareness and understanding among managers, supervisors, colleagues, and, in some instances, even family members, participants believed that increased education regarding the effects of mTBI would promote greater workplace understanding of the condition and its associated challenges. Participants expressed concern that their symptoms and behavioural changes were often misunderstood or perceived as

exaggerated or illegitimate. Most participants therefore sought validation from their employers through acknowledgement of their difficulties and recognition of mTBI as a legitimate injury associated with significant challenges in work adjustment (Gourdeau et al., 2017).

Participants felt that when their employers, including colleagues, human resource staff, and healthcare professionals, acknowledged their injuries and challenges, they were able to move on, resulting in a feeling of psychological safety, a sense of belonging, and the ability to reconnect and, as a result, adjust to work (Edmondson, 1999; Gourdeau et al., 2017). From a self-efficacy perspective, such validation seems to have enhanced their ability to adjust to work (Bandura, 1997).

However, there were some indications that a lack of validation also resulted in diminished confidence, increased absenteeism, avoidance behaviour, and poor work adjustment (Judge & Kammeyer-Mueller, 2012). Based on the participants' experiences, it can be deduced that validation is fundamentally important in enhancing self-efficacy and capacity to adjust to work following mTBI. Validation resulted in enhanced self-efficacy, increased motivational levels, and satisfaction, knowing that their employer understood and acknowledged their difficulties in work adjustment (Judge & Kammeyer-Mueller, 2012). As such, employer validation and support guided the participants in rebuilding their confidence in their abilities to adjust to their work tasks and environment following an mTBI.

From the data above, and even following acknowledgement of their challenges, the participants explicitly experienced a lack of support and accommodation from their employer following the mTBI. Most participants believed that work and psychosocial support were paramount for recovery and that it was necessary to adjust to work following the mTBI (Franche et al., 2005; Shaw et al., 2014). The participants felt that, through their own initiative in terms of self-advocacy and validation, this further propelled their employers to provide support and accommodation.

For the purposes of this study, work and psychosocial support is conceptualised as employer involvement in providing structured and relational support aimed at facilitating workplace accommodation and work adjustment. Psychosocial support encompasses a range of interventions and interpersonal relationships designed to assist employees in coping with physical, cognitive, and emotional demands, thereby promoting health, wellbeing, and

effective reintegration into the workplace (Franche et al., 2005; Shaw et al., 2014). Some participants reported elevated levels of frustration, anger, and emotional vulnerability, which they attributed to insufficient support and/or lack of workplace accommodation within their organisational environments. All participants indicated that they actively contributed suggestions regarding workplace adjustments and support strategies to facilitate work adjustment following mTBI. The following suggested support strategies and interventions that emerged following self-advocacy and validation in order to assist in work adjustment:

- *I think it is important to communicate with employers about specific challenges following an mTBI since most people think it is just an excuse for an injury, and they don't understand the impact thereof on your life. I think it is important to communicate your specific accommodation needs in context of other people's need who may have suffered a smilax injury. I think through the HR Department the company can set up a way for staff to engage and make suggestions to assist a person who is struggling to cope after an mTBI. I also think that some employers have lost touch with their employees, and it is all about money. There should be a way that, after an injury that an employee can freely seek support and request interventions at work to assisting in recovery to adjust back to work. They can set up for example a specific email address or some form of communicate to imitate support. We have to attend so many meetings sometime daily, about work performance and setting KPA and reporting on our work progress and performance. I think as important, and employers can make some time available to set a meeting to educate or rather inform staff about the impact of mTBI or more severe injuries and to the discuss assistance and support to adult to work. I know that requesting workplace adjustments to improve task performance and well-being would also lead to quicker recovery and the employer would then still benefit (Participant A).*
- *There is so much that they could have done, and I know if they helped me, I would have been in a better place much earlier. I struggled with the noise, the lights and just even people taking in the office. I asked to be moved just for a while and if I could work from home, but was told to get on with my job. It was really bad, and it was only after I was assessed for purposes of my RAF claim and provided a letter from the neuropsychologist contacted my employer, did they provide some support and accommodation. I was given an enclosed office, like a booth, and it really helped. I was taken off active duties and worked in the station for a few months while receiving treatment. Although limited support*

was given just being out of the big office, I was far less distracted and able focus and able to get through my work (Participant B).

- *Employers could provide make more visual and accessibility policies for any person that suffered an injury. This will give a person easier access, and make it so much easier to seek solutions together in order to address and work-related difficulties. Employers can implement work strategies to assist with short-term changes in task performance requirements; they can adjust the work environment; like implementation of noise reduction; and change the lights or even just move you. I suggest reduced working hour to accommodate my difficulties and ways to engage with my manger and colleagues to obtain necessary support and to retain good working relationships. I also belief that organisations should implement wellness programmes and assistance to speed up recovery after a person was involved in an accident* (Participant C).
- *Employers can assist in addressing fear of judgment from others as there is a sense of fear that you may lose your job. Rather than avoiding addressing the issues, employers ought to provide a forum in which staff can voluntarily join and discuss their difficulties and relationship with their supervisors and colleagues relating to their task difficulties after an mTBI. Rather than staying away from work, the employer could provide emotional support, such as EAP support, to try and reduced trigger in the work environment that does not support reintegration and work adjustments. Our company even has a resident psychologist, and programmes such as coping strategies and stress management techniques would be provided to avoid the psychological stress and anger that I endure as a result of my mTBI* (Participant D).
- *I struggled with noise after my mTBI; I suggested some changes in the work environment – I worked in an open plan office and asked if I could get a wall divider and wear headphones. I was the one suffering, but I had to explain my problems the support was not there. I had to talk to my supervisor and told him exactly what was happening to me. I think it is very important for the company do implement a health-related policy addressing all types of injuries. There are so many car accidents, and I feel sorry for our staff. At least I was able to speak up they just suffer in silence and then resign because they cannot cope. I think it would make everyone's lives easier and assist to adjust back to work. We have to attend so many courses but there is nothing on workplace injuries and assistance. We are not a big company, but it would be nice to have something in place to assist you and to have access to assistance somebody in need* (Participant E).

- *I needed support at work, you are there all the time, but when needed, they turn their back on you. It would be nice if people can share, like we doing now, their experiences and learn from it. The company needs to assist. They did nothing for me except for complaining that I was not doing my job. I needed some support desperately, and it made me angry. It was only after I had a total breakdown that I was given an assistant, and I was also allowed to work on a more flexible work schedule, and I was assigned a few less strenuous tasks, and it really helped, and I was able to get back to normal* (Participant F).
- *I have worked for my company for many years, and they know my strengths and capabilities and following my mTBI, I was still the same, however, certain of my strengths and skills were temporarily impaired, and they need to understand and take cognisance thereof. We are constantly sent on courses to improve our skills and performance. The company can offer, as part of their employee wellness programme, some form of education to all staff regarding mTBI. They can set up informative session about the symptoms of mTBI, as well as other injuries, and recovery periods and suggest accommodation. Communication is key here. My manager was unaware of the complications following an mTBI, and accused me of poor performance. Had he known we could have to discuss my difficulties and maintained an amicable relationship. I would have had time to recover, and we could have discussed a recovery timeline. Rather, I was "abused" and reduce to tears. Supporting the individual in gradually resuming physical or cognitive tasks, such as in a paced and manageable way, build self-confidence, rather than breaking down a person's confident while vulnerable. Collaborating with the individual to create achievable milestones for cognitive recovery and celebrating progress to boost self-efficacy* (Participant H).

Following employer acknowledgement, even minor workplace interventions implemented over time were associated with notable improvements in participants' overall wellbeing and their capacity to adjust to work. Increased emotional stability was reported in relation to employer interest in participants' emotional difficulties, as well as sustained organisational support (Franche et al., 2005; Shaw et al., 2014). Prior to the formal implementation of workplace support, even small employer-driven interventions appeared to positively influence participants' emotional states, leading to a re-evaluation of their emotional wellbeing and behavioural regulation.

The findings indicate that most participants were required to initiate discussions regarding

workplace assistance themselves, often engaging Human Resources departments and Employee Assistance Programmes (EAPs). This aligns with literature suggesting that workplace accommodation is frequently self-initiated, requiring individuals to recognise and communicate their support needs within organisational systems (Baldridge & Veiga, 2001; Test et al., 2005; Franche et al., 2005; Gourdeau et al., 2017). Participants initially appeared to undergo a process of personal recognition of their physical, cognitive, and emotional difficulties before they were able to actively engage in workplace adjustment strategies, consistent with self-regulatory processes described in self-efficacy theory (Bandura, 1997).

Interestingly, irrespective of their difficulties, all participants reported the importance of work in their lives and had a strong desire for support and accommodation from their employers to reconnect. Their experiences and interpretations of their abilities and capacity to cope influenced their adaptation and change during work adjustment. This concept was particularly relevant during their transitional stages, characterised by reported absenteeism and difficulties coping with working hours; however, following interventions such as time management, stress management, and task or work schedule adjustments, the participants were able to adjust back to work.

Work connectivity, within the context of this study, refers to the changes in functional engagement and reintegration that occur when individuals are able to adapt to the reorganisation of their work tasks and work environment, thereby enabling more stable execution of work-related activities and successful adjustment back into their occupational roles. Work connectivity emerged as one of the most important factors influencing participants' ability to regain their performance levels while adjusting to work following mTBI (Bandura, 1997; Edmondson, 1999). Most participants experienced an increased sense of belonging and connection to their work environment following acknowledgement of their difficulties by their employers. These experiences further contributed to healthier workplace relationships and enhanced participants' perceptions of support, which facilitated more effective work adjustment following mTBI (Dawis & Lofquist, 1984). The following extracts from participant accounts bear this out:

- *At the end it is your life, and your job is on the line. You have to insist on support and accommodation in order to adjust to your work and work environment and try to connect with your supervisor and make them understand an mTBI and the impact on a person. We*

set up meeting and discussed some form of support and accommodation. However, even with a slight interest shown by my manager, I felt more wanted; and you want to connect and get back to where I was before and reconnect with my work, colleagues, and work environment (Participant A).

- *After I spoke to my boss and the human resource person, I felt less stressed and less overwhelmed and more "in tuned" with my abilities again to adjust to my work tasks. I belief that organisations should implement wellness programmes and assistance, which would speed up recovering and to adjust and reconnect with your work and colleagues* (Participant C).
- *They (supervisor/company) have the attitude that you must just get on with the job. It is emotionally draining, but with support and interventions you do cope, and you do adjust to your work and work environment. It is like reconnecting your wires* (Participant D).
- *I knew that I had to pull myself together and do something to survive otherwise I was going to be trouble. I had to take some action to show my employer that, irrespective of my problems and not recognised by them, I wanted to get back to my job, adjust to my new situation. The company did not offer any support, and it was hard to explain to others what I was going through. It is rather strange that I was the one suffering, but I had to explain my problems and suggested actions to them, but the support was just not there. I needed to know that my job was save and that I was not going to get fired. I am still suffering but I am trying. My boss and colleagues were really nice, but they had no idea of the trauma I went through. Once I got some support and some work accommodation was implemented, I was more in tune with myself and able to adjust to my difficulties and able to do my job* (Participant E).
- *I am telling you, yes, it is classified as an mTBI, but I am telling you, I sustained a serious injury. All the staff could not understand why I was acting so differently because "there was nothing wrong with me, I just had a bump to my head". I did not know what was going on, I wanted to run away. My boss called me in and told me that if I don't "shine up" I will be fired. I needed my boss to provide support, but there was nothing. Companies should provide support after an accident. We do the work, and it is a two-way relationship, and I did not ask for assistance. I wanted to know that I will be okay and that my job was okay, but nothing. I still suffer and I am still battling to get back to where I was, although I try my best. I was eventually given an assistant, and I was also allowed to work on a more flexible work schedule, and I was assigned a few less strenuous tasks. Once these minor*

> *changes were implemented, I was coping better. It took a few weeks, but I connected with my job, and I adjusted* (Participant F).

Given the above, the participants strongly believed that there ought to be immediate interventions in the form of support and accommodation in the workplace in order to minimise the impact of an mTBI and/or similar trauma on a person's life. All participants felt that their company ought to be more informed regarding the impact of an mTBI and ways of managing it and assist injured employees in work adjustment and returning to pre-morbid functioning. The participants believed that their employers became more action-oriented and provided efficient accommodation, assistance, and support during work adjustment following mTBI, following their suggested changes.

Yeager and Dweck (2021) argue that performance difficulties emerge when individuals are required to operate beyond their perceived capabilities and are confronted with demands that exceed their sense of control and established mindset. Yeager and Dweck (2021)) further describes that, once these behavioural traits are confronted and assistance offered or support given, it would result in action-oriented behaviour and improved performance and connectivity improving their mindset. Such a combination would then further result in more efficient work adjustment and improved self-efficacy, following a trauma, including an mTBI (Heggestad & Kanfer; 2005; Bandura, 1997). Interestingly, following interventions including support and accommodation, an increase in connectivity was noticed between the participants' self, their health awareness, their cognitive and emotional awareness, and their general feeling of work, which emerged from the narratives presented above (Heggestad & Kanfer; 2005; Bandura, 1997).

Furthermore, participants highlighted the importance of feedback processes in identifying areas requiring support and facilitating performance reflection. Such processes contributed to increased self-confidence in task execution and more effective work adjustment. Overall, participants reported improved adaptation to workplace demands following mTBI, particularly when supported by supervisors, colleagues, and organisational structures.

5.5 INTERPRETATION OF THE OUTCOME SPACE

For purposes of this study, the outcome space was graphically represented (see Figure 8), to

illustrate the hierarchical and relational structure of the participants' collective awareness across the categories of description. Each category reflected a distinct, yet interconnected, dimension of experience relating to self-efficacy and work adjustment following mTBI, namely: (1) breadth of impact and effects, (2) physical impact, (3) cognitive impact, (4) emotional impact, and (5) workplace and psychosocial awareness.

The outcome space, within phenomenographic research, is represented diagrammatically to illustrate the hierarchically structured categories of description that emerge from participants' collective experiences of a phenomenon (Åkerlind, 2012). It demonstrates the logical and structural relationships between the categories of description and reflects the varying ways in which participants understood and experienced the phenomenon under investigation.

Watkins & Bell (2002, p. 17) argued that the "finite number of categories of description" reflects participants' limited capacity to discern and simultaneously experience all possible ways of understanding a phenomenon, despite the theoretically infinite nature of awareness and meaning construction.

Marton & Booth (1997) & Åkerlind (2005*)* identified three primary criteria for evaluating the quality of a phenomenographic outcome space:

1. Each category should reveal a qualitatively distinct way of understanding the phenomenon.
2. The categories should demonstrate a logically related hierarchical structure characterised by inclusive and relational connections.
3. The outcome space should remain parsimonious, meaning that the categories should represent the phenomenon comprehensively while maintaining as few categories as necessary.

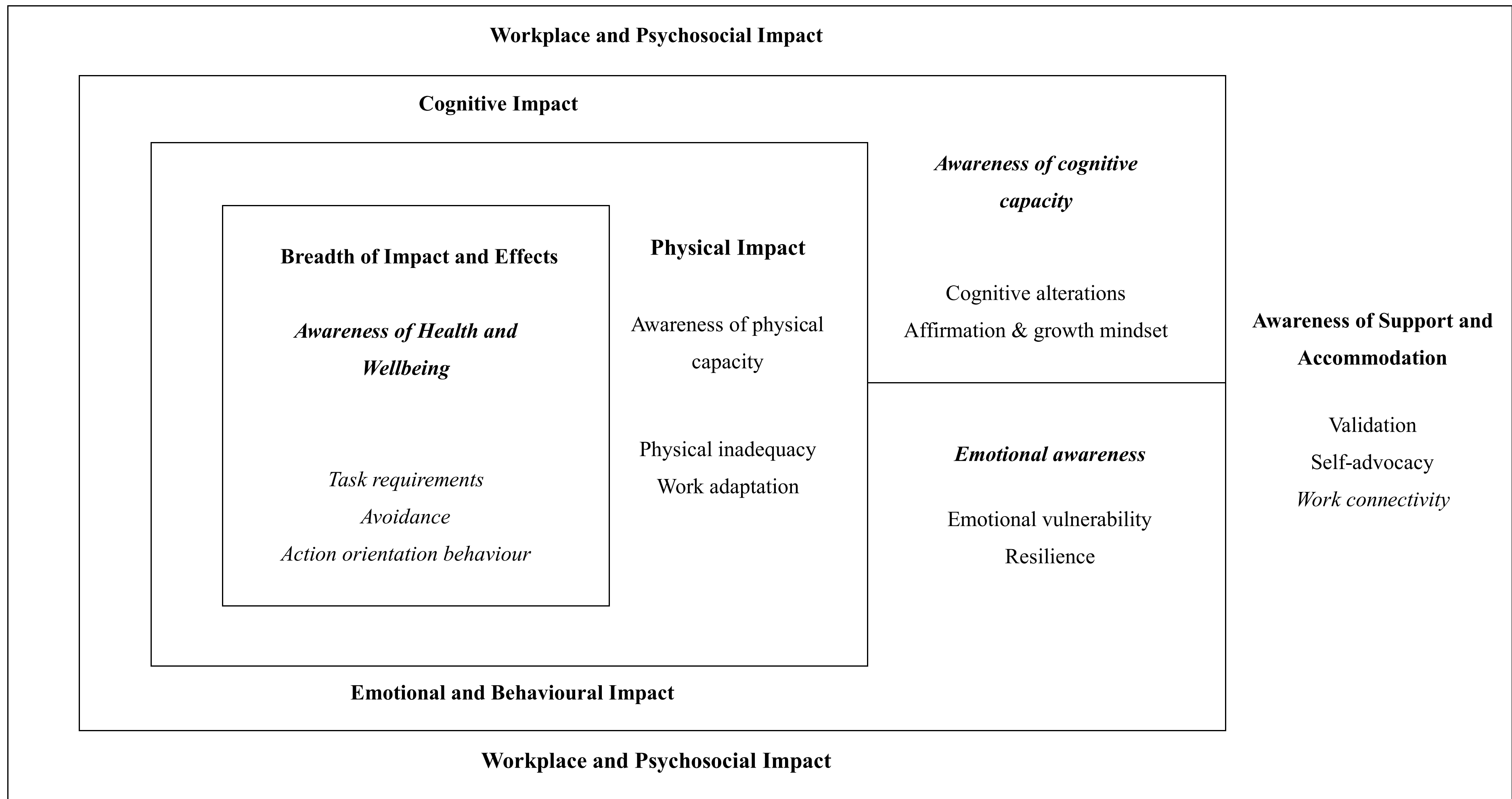

***Figure** 7 The Outcome Space – Impact of an mTBI on Self Efficacy and Work Adjustment*

Note. Author's construct (2024)

The dimensions of awareness identified in this study were important in understanding how participants perceived and navigated their beliefs relating to self-efficacy and work adjustment following mTBI. In consideration of these principles, the researcher was able to finalise the outcome space by organising the participants' experiences into a coherent descriptive and hierarchical structure. The outcome space therefore provided a conceptual representation of the data (Marton & Booth, 1997; Åkerlind, 2005*)*. This representation reflected the multidimensional impact of self-efficacy across the identified categories of description derived from the participants' collective narratives and experiences.

Furthermore, the outcome space contributed to an understanding of the support, management strategies, and interventions required to facilitate work adjustment following mTBI. The categories illustrated participants' beliefs regarding their overall wellbeing, perceived job and task performance, and their experiences of physical, cognitive, emotional, and behavioural difficulties encountered during the work adjustment process following mTBI.

Bruce et al. (2004, p. 145) noted that "mapping of the variations constitutes a framework" which the phenomenon may be understood. Within the present study, this framework reflected the impact of self-efficacy and the ways in which participants experienced and interpreted their adjustment to work following mTBI. In phenomenography, the descriptive framework provides both the "elements of meaning and structure" (Bruce et al., 2004, p.146). Meaning is represented through the categories of description, while structure is reflected in the logical organisation and hierarchical relationships between the categories. In this study, the categories of description were grouped logically to reflect the participants' collective experiences, identify patterns of similarity and variation, and illustrate the complexity of self-efficacy and work adjustment following mTBI (Bruce et al., 2004).

In light of the above the following section provides an discussion on the outcome space and the conceptual implications.

5.5.1 Breadth of Impact and Effect and Self-Efficacy Regulation

The participants emphasised that overall health and well-being were central to their functioning, and that awareness of maintaining health contributed to the strengthening and maintenance of self-efficacy beliefs. The outcome space demonstrates that participants'

experiences were shaped by a multidimensional awareness of health and functioning, consistent with the BPS model (Engel, 1977). Participants' experiences of compromised wellbeing and difficulties adjusting to work frequently resulted in action-oriented coping behaviours, particularly in contexts where organisational support and accommodation were perceived as inadequate (Shames et al., 2007; Hawley & Levine, 2003). Participants adopted compensatory strategies in an attempt to maintain occupational functioning despite ongoing physical, cognitive, and emotional challenges (Bandura, 1997; Silverberg & Iverson, 2011). Betz and Hackett (2006, p. 4) noted that higher levels of self-efficacy are associated with "approach" rather than "avoidance" behaviour, which was reflected in participants who actively engaged in adaptive coping and workplace problem-solving strategies.

The BPS model was particularly relevant in the context of an mTBI, where the participants' physical, cognitive and emotional challenges affected their self-efficacy and their perceived capacity to adjust to work. Bandura's theory of self-efficacy (1977, 1997) further provided a framework for understanding how the participants perceived ability to manage multidimensional challenges relating to health and wellbeing and occupational functioning a following an mTBI (Bandura, (1977, 1997). Within the BPS framework, self-efficacy functioned as a mediating psychological mechanism influencing the participants' belief in their capacity to make adaptative choices, demonstrate resilience, and cope with work adjustment challenges (Schyns & Von Collani, 2002; Felfe & Schyns, 2006; Lukow et al., 2015).

Bandura (1997) posits a reciprocal relationship between self-efficacy beliefs and goal-directed functioning, including health-related behaviour and well-being. High self-efficacy is associated with adaptive outcomes such as resilience, stress management, improved occupational performance, and sustained engagement in daily activities (Bandura, 1997).

Participants indicated that maintaining overall health and wellbeing was essential for successful work adjustment and required appropriate workplace support, accommodation, and intervention strategies (Möller et al., 2021). Participants further associated poor health and unresolved symptoms with increased absenteeism, avoidance behaviour, and emotional vulnerability, all of which negatively affected workplace relationships and occupational functioning. These findings align with Bandura's (1997) assertion that perceived self-efficacy strongly influences emotional regulation and adaptive functioning.

Most participants demonstrated relatively strong self-efficacy beliefs, which were associated with improved coping, resilience, and successful work adjustment over time (Bandura, 1997; Schyns & Von Collani, 2002; Shame et al., 2007). In contrast, two participants reported persistently lower self-efficacy, accompanied by reduced motivation, ongoing emotional distress, and continued difficulty managing work demands. Although most participants reported symptom improvement within months to a year post-injury, these two participants continued to experience functional and emotional difficulties at the time of the study.

Participants initially demonstrated avoidance behaviours and reduced confidence in their ability to adjust to work. However, over time, participants with higher self-efficacy engaged more effectively in mastery experiences, utilised vicarious learning opportunities, responded positively to verbal persuasion, and demonstrated improved emotional regulation, thereby facilitating adaptation to workplace demands. These findings support evidence that self-efficacy is strongly associated with adaptive occupational functioning and resilience within workplace contexts (Schyns & Von Collani, 2002; Felfe & Schyns, 2006).

Participants who demonstrated higher self-efficacy reported greater use of proactive coping strategies and increased engagement with the workplace demands. These experiences were associated with improved wellbeing, enhanced work connectedness, increased motivation, and stronger perceptions of successful work adjustment following mTBI (Scott & Kowalski, 2011; Brouwer et al., 2015). Conversely, participants with lower self-efficacy demonstrated withdrawal behaviours, persistent emotional distress, and reduced occupational engagement, which negatively affected their adjustment outcomes.

In light of the above, within the BPS framework, self-efficacy provides a useful explanatory mechanism for understanding how individuals interpret and respond to health-related challenges following an mTBI.

The integrated theoretical approach adopted in this study highlights not only the importance of strengthening self-efficacy to support recovery and work adjustment, but also the interconnected nature of biological, psychological, and occupational factors in addressing post-injury functioning and work adjustment following an mTBI (Schyns & Von Collani, 2002; Felfe & Schyns, 2006).

5.5.2 Physical Impact as a Constraint on Task Mastery

All participants experienced varying degrees of physical deficits following mTBI, which, although differing in severity, impacted their ability to adjust to work. Their collective awareness of these physical limitations affected their capacity to meet job demands and was associated with reduced self-efficacy. Reported symptoms included fatigue, headaches, nausea, and visual and auditory disturbances. These were not experienced in isolation but were understood in relation to cognitive and emotional challenges, consistent with the BPS model.

Collectively, participants expressed uncertainty regarding their physical ability to meet occupational demands, reflecting diminished confidence in task execution and ultimately work adjustment. The findings suggest that their physical inadequacies interacted dynamically with self-efficacy beliefs, shaping the individuals' perceived capacity to perform work-related tasks. This interaction contributed to time management difficulties and increased absenteeism, which negatively affected workplace relationships with supervisors and colleagues. Their physical inadequacies further contributed to emotional distress, including stress and fear of job loss, thereby reinforcing reduced self-efficacy and impairing work adjustment.

Where participants received workplace support and accommodation for physical inadequacies there was a shift towards greater acceptance of their condition and increased awareness of their physical and functional boundaries. This, in turn, facilitated engagement in supported task mastery and gradual rebuilding of perceived capability. Successfully overcoming physical setbacks contributed to enhanced self-efficacy, as participants gained confidence in their ability to manage symptoms and progressively return to previous levels of functioning.

Participants emphasised the importance of addressing physical limitations in order to adjust effectively to work. They perceived recovery and adaptation of physical functioning as central to improving self-efficacy (Bandura, 1997; Kempen et al., 2003; Benight & Bandura, 2004; Möller et al., 2021). When employers acknowledged and accommodated physical difficulties, participants reported increased willingness to engage in work-related tasks. Active participation and repeated task engagement facilitated mastery experiences, which in turn strengthened self-efficacy and perceived competence (Shames et al., 2007; Levack et al., 2015). While engaging in task behaviours there were experiences of increased self-competence, which reinforced their beliefs that they can succeed in adjusting to work.

Furthermore, the participants' gained self confidence in their ability to manage their physical difficulties and task challenges, which resulted in increased functionality when compared to their self-confidence prior to such, as acknowledged by the employers.

Summarily, the participants' awareness of their physical deficits and acknowledgement and implementation of support on the part of their employer provided a work environment that was conducive to addressing their physical limitations (Bandura 1997, Kempen et al., 2003; Benight & Bandura, 2004; Möller et al., 2021). Examples included reduced working hours, environmental modifications (e.g., lighting and noise reduction), temporary allocation to lighter duties, and gradual workload escalation. These interventions supported physical recovery and facilitated progressive return to pre-injury levels of functioning, thereby enhancing self-efficacy and work adjustment.

Participants' increased awareness of physical capacity was closely linked to improvements in self-efficacy. However, most participants also reported that physical challenges contributed to cognitive strain and emotional vulnerability. Where accommodation was provided, participants experienced improved endurance, increased confidence, and enhanced self-efficacy. Conversely, lack of workplace acknowledgement was associated with reduced confidence and poorer self-efficacy outcomes (Bandura, 1997; Silverberg & Iverson, 2011; McInnes et al., 2017; Cancelier et al., 2023).

Social support from colleagues further contributed to positive adjustment, with encouragement and shared assistance strengthening perceived capability. Participants with higher self-efficacy tended to interpret physical limitations as temporary setbacks rather than permanent barriers, which promoted persistence and proactive engagement in workplace adaptation (Silverberg & Iverson, 201; Van Velzen et al., 2009).

Within the BPS framework, task mastery experiences, social persuasion, and physiological states collectively influenced self-efficacy development (Engel, 1977). Participants' beliefs in their physical capabilities were shaped through mastery experiences, self-advocacy, and employer-supported accommodation (Schyns & Von Collani, 2002; McInnes et al., 2017). While most participants achieved successful work adjustment under supportive conditions, two participants continued to report lower self-efficacy and ongoing adjustment difficulties despite intervention.

In summary, employer support and environmental modifications played a critical role in validating participants' physical limitations and facilitating adaptive functioning. These interventions strengthened self-efficacy and contributed to improved work adjustment following mTBI.

5.5.3 Cognitive Impact and Self-Affirmation Processes

Cognitive impact refers to the influence of perceived cognitive functioning on individuals' ability to perform work-related tasks during adjustment following mTBI. Empirical evidence indicates that individuals often experience subtle but persistent cognitive difficulties after mTBI, including impaired concentration, reduced attention, memory difficulties, and slowed information processing (Katz et al., 2015). These challenges can significantly affect occupational functioning, particularly during work reintegration.

Cognitive awareness reflected the participants' beliefs in their cognitive capacity and influenced their self confidence in meeting occupational demands. Within a self-efficacy framework, these cognitive appraisals shaped participants' perceived ability to perform work tasks and adjust effectively following mTBI (Cicerone et al., 2019; Ownsworth & McKenna, 2004).

Tator (2025) revealed that an mTBI leads to cognitive difficulties, such as problems with forgetfulness, mental fatigue, memory problems, reduced levels of attention, and slower processing speed. These cognitive difficulties resulted in various challenges for the participants in performing their jobs tasks and also affected their self-confidence and levels of motivation, which undermined their belief in their abilities for extended periods. Katz et al. (2015) stated that the consequences of an mTBI, and was conceptualised as multidimensional disorders, including firstly, a constellation of symptoms such as headaches, fatigue, and sleeping; and symptoms, such as cognitive symptoms with more prolonged periods, such as a few months to a year, or several to many years. Consistent with findings in the physical domain, all participants reported cognitive difficulties of varying severity, which collectively impacted their ability to meet job demands and adjust to work. These experiences were associated with reduced self-efficacy as a result of the negative impact on their self confidence in cognitive demands.

At the time of the research, most participants used affirmation to reinforce their beliefs in their ability to succeed in work adjustment. Participants frequently engaged in positive self-statements and cognitive reframing to reinforce their belief in their ability to recover and adjust to work. This process aligns with self-affirmation theory, which suggests that individuals are motivated to maintain a positive self-view and respond to threats to self-integrity through adaptive cognitive strategies (Cascio et al., 2016). Such processes can reduce stress, enhance psychological resilience, and support behavioural adaptation. Cascio et al. (2016, p. 621) state that self-affirmation theories understand people to be motivated to "maintain a positive self-view, and that threats to perceived self-competence are met with resistance".

When threatened, affirmations can restore self-competence by allowing individuals to reflect on sources of self-worth, such as core values. Cascio et al. (2016) further observe that large body of literature demonstrates that affirmations have benefits across various situations, and can decrease stress, increase well-being, and make people more open to behavioural change.

Affirmation at the time of this study was experienced through the participants' outspoken thoughts and beliefs in their ability to adjust to work. However, affirmation processes often require a balance of self-awareness, together with the support from others, including their employers, and, in some instances, as was experienced by the participants at time of this study, professional interventions, in order to ensure that they regained their self confidence in their cognitive abilities, while being mindful of their pace of recovery and ability to adjust to work (Arbabi et cl., 2020; Barua et al., 2024; Cascio et al., 2016; Shames et al., 2007; Cicerone et al., 2019) .

The participants' awareness of their cognitive difficulties through affirmation resulted in a positive growth mindset. The participants' growth mindset brought about increased levels of motivation and effort to adjust to work. Within Bandura's self-efficacy theory (1997), these cognitive affirmations are closely linked to mastery experiences and verbal persuasion, which strengthen beliefs in personal capability. Participants who adopted a more positive cognitive orientation demonstrated a growth mindset, which was associated with increased motivation and engagement in work-related tasks. Examples included reframing cognitive challenges as temporary, expressing confidence in recovery, and actively engaging with employer-supported strategies.

Participants evaluated their cognitive skills and abilities based on previous experiences and their premorbid functioning. Affirmation of their cognitive strengths was identified as an important factor in overcoming workplace challenges and facilitating work adjustment following mTBI. Positive self-evaluations appeared to enhance self-efficacy, self-confidence, and motivation, whereas two participants continued to report negative self-appraisals, which contributed to diminished confidence and poorer work adjustment outcomes. Participants who believed in their ability to succeed demonstrated greater persistence, motivation, and willingness to engage with workplace demands, reflecting characteristics associated with a growth mindset and adaptive coping behaviours. In contrast, participants who remained uncertain about their cognitive abilities reported ongoing difficulty adjusting back to work at the time of the study.

Within a self-efficacy framework, awareness and appraisal of cognitive abilities influenced participants' expectations regarding recovery and occupational functioning. Positive perceptions of competence contributed to increased confidence in managing work-related demands and strengthened participants' belief in their ability to overcome cognitive challenges and gradually return to premorbid levels of functioning (Bandura, 1997; Pajares, 2002). Participants who demonstrated higher levels of self-efficacy also reflected characteristics associated with a growth mindset, including perseverance, adaptive problem-solving, and confidence in achieving occupational goals (Dweck, 2006). These attributes appeared to positively influence cognitive adjustment to work demands (Schyns & Von Collani, 2002).

Employer acknowledgement and understanding of participants' cognitive difficulties were further identified as important contributors to cognitive adaptation and work adjustment. Participants reported that workplace accommodation and support contributed to more realistic expectations regarding their abilities and reduced feelings of cognitive overload. Interventions such as task modification, workload reduction, restructuring duties into smaller and more manageable components, minimising distractions, and allowing regular breaks enabled participants to experience greater control over their work demands. These supportive interventions facilitated mastery experiences, which strengthened self-efficacy by reinforcing perceptions of competence and improving participants' ability to cope with cognitive challenges (Bandura, 1997; Levack et al., 2015; Shames et al., 2007)

Most participants' belief that earlier employer interventions would have assisted in creating an

accommodated environment by organising workspace and minimising distractions, redesign tasks goals, and breaking jobs down in into smaller parts. Most participants noted that their inability to remain focused and concentration difficulties had a significant impact on their ability to cope with the cognitive challenges. Most participants believed that breaking down their tasks, resulted in increased levels of concentration and cognitive ability. The provision of regular breaks also assisted in maintaining focus, and lessen feelings of being overwhelmed.

Within the BPS theoretical model (Engel, 1977), cognitive difficulties were not viewed solely as neuropsychological impairments, but rather as the outcome of interacting biological, psychological, and occupational factors. Emotional strain and physical fatigue further exacerbated cognitive difficulties, highlighting the interconnected nature of overall functioning. These findings are consistent with literature indicating that cognitive symptoms following mTBI are frequently influenced by emotional distress, fatigue, stress, and environmental demands, all of which may negatively affect occupational functioning and adjustment. Participants with lower self-efficacy reported reduced persistence, emotional distress, and difficulty sustaining occupational engagement, despite the presence of support interventions. This suggests that self-efficacy plays a central role in determining how cognitive difficulties are interpreted and managed during work reintegration (Silverberg & Iverson, 2011; Ponsford et al., 2012).

In summary, cognitive awareness significantly influenced self-efficacy development and work adjustment following mTBI. Positive cognitive appraisal, self-affirmation, and workplace support contributed to increased motivation, improved task performance, and enhanced self-efficacy. However, where these elements were limited, cognitive difficulties persisted and hindered occupational adjustment. Overall, self-efficacy emerged as a key psychological mechanism shaping cognitive adaptation and work reintegration following mTBI.

5.5.4 Emotional Impact and Self-Efficacy as Emotional Regulation

Emotional impact refers to how the participants' emotional beliefs influenced their ability to succeed in work adjustment following an mTBI. The participants' experiences revealed a strong relationship between their beliefs in their emotional capacity and their attempts and/or actions to adjust to work.

Most participants experienced emotional vulnerability, including increased low mood, anxiety, irritability, frustration, and reduced self-confidence. Their emotional difficulties were compounded by their physical challenges, as well as related cognitive difficulties that included the fear of losing their jobs. The biopsychological theoretical model provided a comprehensive framework in understanding the participants' emotional difficulties as symptoms following an mTBI and were entrenched by their interpretation of their altered capacity and perceived inability to adjust work (Silverberg and Iverson, 2011 and Langer et al., 2018). Their emotional challenges were further compounded by their physical and cognitive challenges, and their responses to workplace changes in during their effort to adjust to work following the mTBI.

All participants presented with emotional vulnerabilities, albeit at variable levels and degrees of intensity. This description category incorporates the participants' beliefs regarding their emotional and behavioural actions that affected their confidence and motivation in pursuing work adjustment. The participants expressed a depressed mood, anxiety, stress, and a fear of losing their jobs, leading to emotional vulnerabilities. These emotional factors resulted in diminished self-efficacy, and, given their historic data, there was also a moderately strong negative linear relationship between the participants' depression scores at the time of their neuropsychological assessment following the accident, and their self-efficacy scores at the time of the study.

The participants' historic emotional data revealed mild to moderate and moderate to severe levels of emotional difficulty. At the time of this study, the participants' self-efficacy assessment data however revealed normal to high levels of self-efficacy, except for two participants' scores that revealed lower self-efficacy. These two participants, even following data saturation, were the only two individuals that continued to present with some emotional difficulties, where both participants experienced lower self-efficacy.

This suggested that the continued emotional vulnerabilities (one variable) resulted in changes in self-efficacy (another variable). No emotional difficulties prior to their mTBI were reported. The awareness of their emotional vulnerabilities assisted in regulating their capacity to cope with these difficulties, which impacted their self-efficacy. The participants were able to identify emotional difficulties, following suggested interventions and accommodation, they coped better in building their self-confidence. Two participants continued to show emotional vulnerability, and such chronic emotional stress seems to have undermined their self-efficacy.

These participants continuing to feel overwhelmed and believed they were less capable of meeting their job tasks to adjust to work.

Given their higher self-efficacy scores, the participants were able to address their emotional vulnerability (including self-advocacy), which resulted in their ability to openly communicate their difficulties and needs with their employer, specifically the human resources staff, as well as medical and health professionals. These communications played a crucial role in work adjustment. Acknowledgment of their difficulties reduced emotional vulnerability, and the provision of even low or minimal compassionate support in order to navigate the participants recovery more effectively (Kreutzer & Marwitz, 2016; Kreutzer et al., 2016). They were able to regain self confidence in their ability to adjust to work, which resulted in higher self-efficacy (Bandura, 1997).

Interestingly, all the participants also showed resilience, where they continued to take initiative to make their employers aware of their challenges and suggested changes to cope with their emotional difficulties' during work adjustment following their mTBI (Kreutzer et al., 2016). Resilience is greatly impacted by self-efficacy; that a resilient individual will manifest adaptive behaviours; and will be able to recover better from adversity (Losoi et al., 2015; Kreutzer et al., 2016). Losoi et al. (2015) further suggested that resilience result in improved emotional satisfaction (through validation and acknowledgment), while the participants' ability to meet their work demands (task mastery) ensured self-confidence, and increased self-efficacy.

In summary, the awareness of emotional capacity contributed significantly to self-efficacy, as their emotional vulnerabilities were the only disability still prevailing at the time of this assessment. Eight participants seemed to have been able to deal and cope with their emotional challenges following workplace accommodation and support. Two participants continued to express feelings of anxiety, increased levels of stress, fear and sadness, where these feelings continued to impact on their capacity to adjust to work, and seemingly resulted in diminished self-efficacy. These persistent feeling of emotional vulnerability and anxiety resulted in feeling of self-doubt and a belief that they were still emotional challenged, and unable to fully adjust back to work.

Participants noted that even minor support and acknowledgement of their emotional

vulnerability reduced their stress, emotional vulnerability, and fears of losing their jobs (Cohen & Wills, 1985). This contributed to feelings of psychological safety and enhanced self-efficacy, even when such support was only provided following submission of a doctor's letter. Employer support fostered increased self-confidence and resilience, which, in turn, strengthened self-efficacy and enabled participants to adjust more effectively to work. This resilience reduced feelings of emotional vulnerability and enhanced participants' ability to manage and recover from difficulties (Cohen & Wills, 1985; Kreutzer et al., 2016; Masten, 2001). Resilience appeared to play a significant role in strengthening self-efficacy. Participants who were able to cope with their emotional challenges were better able to refocus their goals, resulting in an increased sense of satisfaction and improved work adjustment.

All participants' experiences revealed that they believed their employers to be able to and ought to have acknowledged their difficulties, offered support, and accommodated them much earlier, in order to assist with work adjustment. Most participants' experiences revealed that, following referrals by their managers/employer to either the human resource staff, an EPA programme, or their general practitioners – and with certain psychological interventions strategies – some acknowledgment of their emotional difficulties proved forthcoming. It was noted that most employers did not acknowledge such emotional vulnerability, however, following confirmation from the above-mentioned sources (i.e. human resource staff, medical practitioner), certain action was taken to offer some support and accommodation. Such acknowledgement of their emotional vulnerabilities greatly assisted in their belief in their abilities to maintain emotional stability, where being less emotionally overwhelmed resulted in work adjustment.

Within the BPS theoretical model, the participants' emotional challenges were identified as involving a dynamic interaction between their biological or physical injury, their psychological interpretation of their difficulties, and the social and occupational support they received in the form of accommodation and support from their employers (Engel, 1977; Cohen & Wills, 1985; Kreutzer et al., 2016). Their emotional vulnerability resulted from beliefs that their injuries and challenges were not validated by their employers, as well as their own perceptions of reduced physical and cognitive capacity to meet task demands during work adjustment (Cohen & Wills, 1985).

Bandura's theory of self-efficacy provides supportive explanations of the participants beliefs

in their ability to manage their emotional challenges to adjust to work (Bandura, 1997). Self-efficacy was an important factor in emotional regulation, and specifically when the participants experienced difficulty in coping with their job demands as a result of their emotional challenges (Benight & Bandura, 2004; Luszczynska et al., 2005). Participants with higher self-efficacy were able to cope better with their perceived setbacks alongside mastery experiences, vicarious experiences, and verbal persuasion (Bandura, 1977).

Participants felt that acknowledgement of their emotional challenges, and with support from their employers, they were able to address their emotional vulnerabilities and experienced reduces emotional overwhelm. However the two participants with lower self-efficacy continued to feel emotionally overwhelmed in adjusting to work, and would continue deliberation in all spheres of their lives, which would impact on their overall health and wellbeing.

Furthermore, within the BPS theoretical framework, consideration of mental health and emotional wellbeing is seen as an important factor to facilitate health and wellbeing (Levy-Storm et al., 2018). The integration of the BPS and self-efficacy theoretical frameworks highlighted the importance of emotional well-being in work adjudgment. Enhanced self-efficacy was seen as an important contributor in regulating emotional wellbeing to facilitate emotional resilience, to secure support and accommodations, and to persist through the psychological complexities during work adjustment (Benight & Bandura, 2004; Luszczynska et al., 2005; Schwarzer & Warner, 2013).

5.5.5 Workplace Support as a Determinant of Self-Efficacy

Workplace support emerged as a central determinant in shaping self-efficacy. Consistent with Badura's social persuasion construct, validation and accommodation strengthened participants' beliefs in their capacity whereas the absence of support contributed to withdrawal and reduced engagement. Participants felt that workplace support was of pivotal importance. Participants believed that their physical, cognitive, and emotional challenges negatively impacted and disrupted their capacity to adjust to work, resulting in emotional vulnerability. Their reduced capacity to execute behaviours necessary to produce specific performance tasks and exert control over their behaviour within their work environments negatively impacted on their self-efficacy (Bandura, 1997).

Self-efficacy was not experienced as a global trait, but rather as a differentiated set of beliefs linked to multiple domains of functioning (Lent et al., 1994). From the participants' collective experiences, through validation and self-advocacy, they were able to gain support from their employers which had a positive impact on self-efficacy and success in adjusting to work. Maddux (2013) states that when overcoming a challenge and achieving a goal is viewed as success. Employer support resulted in increased self-esteem and conceptualised as increased self-confidence and self-worth (Bandura, 1997; Neill, 2005).

Validation and the provision of workplace support and accommodation appeared to enhance self-efficacy, whereas their absence was associated with reduced motivation, increased absenteeism, and fears related to job security. Validation influences self-efficacy through multiple sources, including prior personal experiences, social support, and perceived workplace responsiveness (Cohen & Wills, 1985). Participants also reported that input from human resource personnel, external medical professionals, and perceptions of their overall wellbeing contributed to strengthening their belief in their abilities. These combined experiences enhanced motivation to manage occupational demands and facilitated adaptation to work following mTBI.

Participants consistently emphasised the importance of employer understanding and communication regarding their post-injury needs. They reported adopting proactive strategies to ensure that their difficulties were recognised and appropriately accommodated. This process of self-advocacy involved educating employers, including managers, supervisors, and colleagues, about the impact of mTBI on work functioning and adjustment.

From the participants' experiences, their strong desire to engage with their employers reflected behaviours aligned with Bandura's self-efficacy theory, and those participants with higher self-efficacy seem to have been more proactive in taking action and presented with persistent positive behavioural patterns in dealing with their challenges and to effectively reconnect to their work and workplace demands.

Collectively, participants' experiences indicated that self-advocacy, when combined with employer validation, facilitated more effective workplace adjustment. Employer acknowledgement and responsiveness created opportunities for meaningful workplace

dialogue and accommodation, which supported physical, cognitive, and emotional functioning. These interactions were associated with improved workplace relationships, increased confidence, and enhanced self-efficacy. Participants described this process as reinforcing their ability to manage work demands following mTBI, particularly when their efforts were recognised and positively reinforced by employers and colleagues.

Overall, the findings suggest that the interaction between self-advocacy and workplace validation played a central role in shaping adjustment outcomes. Where employer support and validation were present, participants reported stronger self-efficacy and improved reintegration into their occupational roles following mTBI.

The participants' collective experiences indicated that self-validation and self-advocacy enabled them to negotiate workplace needs effectively, resulting in increased access to support and accommodation from their employers. This reciprocal process facilitated improved work connectivity, defined as participants' perceived ability to re-engage with work demands and re-establish functional integration within their work environment. Work connectivity, as described by participants, reflected their capacity to manage physical, cognitive, and emotional challenges while reconstructing a sense of psychological reconnection and individual work fit**.** Dawis & Lofquist (1984) work adjustment is understood as an ongoing interaction between the individual and the work environment.

The findings further highlighted a perceived lack of employer knowledge regarding the impact of mTBI on work adjustment, which influenced workplace responsiveness and support. Within this context, effective employer–employee collaboration emerged as a key determinant of successful work reintegration. Participants reported that insufficient employer understanding and limited accommodation contributed to negative workplace experiences and hindered adjustment. They further emphasised the need for structured feedback mechanisms to address the temporary misalignment between functional capacity and job demands following mTBI.

Participants also identified employer acknowledgement of their difficulties, combined with self-advocacy and effective communication, as central to positive adjustment experiences. Such interactions contributed to psychological safety and align with Bandura, Albert's concept of social persuasion as a source of self-efficacy. Participants reported that recognition of their

challenges enhanced their perceived ability to manage work responsibilities and engage with occupational demands more confidently.

In addition, workplace support and accommodation facilitated the modification of job demands to better align with participants' functional capacities, thereby supporting their adjustment process. Validation and self-advocacy were associated with increased self-confidence, enabling participants to gradually resume pre-injury levels of functioning and achieve more successful work adjustment. These positive feedback experiences reinforced perceptions of mastery, which participants identified as the most significant source of self-efficacy. In contrast, all participants noted that the initial lack of validation had a detrimental effect on their overall wellbeing and work adjustment, where this experience undermined their self-efficacy.

As evidenced through self-validation and self-advocacy, participants reported that requests for support and workplace accommodation were implemented following their engagement with human resource personnel, self-referral to employee assistance programmes (where available), and consultations with general medical practitioners, external psychologists, and neuropsychological assessment services. Participants further noted that accessing these multiple sources of support facilitated the recognition and management of their post-injury challenges and work connectivity.

Despite these efforts, participants reported that, in many instances, managers and supervisors initially failed to provide adequate support or to recognise the emotional impact of mTBI. Consequently, employer responsiveness and meaningful accommodation were often only forthcoming following sustained self-advocacy efforts aimed at protecting and restoring emotional wellbeing.

Within the BPS model, participants' experiences reflected the interaction between biological injury-related symptoms, psychological interpretations of competence and coping, and social influences within the workplace environment. Employer responsiveness, accommodation, and supportive interpersonal interactions appeared to strengthen participants' beliefs in their ability to manage work-related demands, thereby promoting resilience, persistence, and successful work adjustment following mTBI. With reference to Bandura sources of self-efficacy, participants' self-efficacy were shaped by the presence or absence of workplace accommodation and psychosocial support. The implementation of appropriate support enabled participants to re-engage with occupational demands through task modification and

restructuring, while employer encouragement contributed to increased self-confidence through verbal persuasion. These processes supported emotional regulation and facilitated sustained occupational performance during work reintegration. Where employer validation occurred through supportive actions and acknowledgement of difficulties, participants reported increased resilience, motivation, and adaptive behaviour, contributing to enhanced self-efficacy and a strengthened belief in their ability to adjust successfully to work following mTBI.

In summary, the participants' experiences of self-efficacy and its influence on work adjustment, the outcome space indicate a cumulative need for workplace and psychosocial interventions to support recovery following mTBI.

In the initial stages post-injury, all participants reported a strong personal commitment to maintaining their health and general wellbeing in relation to work. However, this wellbeing was perceived to be negatively affected by physical and functional limitations, which in turn exacerbated cognitive difficulties. These interacting challenges contributed to emotional vulnerability, including feelings of anger, reduced self-confidence, frustration, and demotivation, particularly in relation to perceived loss of previous occupational functioning.
Participants with higher levels of self-efficacy demonstrated greater resilience and were better able to manage these limitations. Across the dataset, participants emphasised the importance of employer acknowledgment of mTBI as a legitimate and substantive injury. Most participants reported that their employers had limited awareness or understanding of mTBI and its functional impact.

From this perspective, participants indicated that workplace recognition, particularly through human resource structures and employee assistance programmes, together with external clinical support where necessary, would facilitate acceptance and adjustment. Such acknowledgment was experienced as foundational in enabling self-advocacy and strengthening self-efficacy beliefs.

Participants further described how employer support created opportunities for improved engagement with work tasks and gradual restoration of occupational functioning.
Participants reported that workplace accommodation, including medical referrals, task simplification, modified workloads, flexible working hours, improved time management

strategies, and assistive devices contributed significantly to increased self-efficacy. These adjustments strengthened confidence in both cognitive and emotional capacities, which in turn facilitated improved work engagement and a renewed sense of wellbeing.

Overall, participants' accounts suggest that work adjustment was largely influenced by the extent to which their challenges were acknowledged and supported within the workplace. Where such support was present, participants reported increased self-confidence, motivation, and work connectivity. These improvements were associated with a reduction in emotional vulnerability, including anger, fear, frustration, depressive feelings, and disappointment, thereby further reinforcing self-efficacy beliefs.

Validation emerged as a central construct across all accounts. Participants consistently highlighted the importance of acknowledgment, support, and accommodation in fostering acceptance and adjustment. Ongoing encouragement, particularly through human resource structures, supervisors, or external professionals, was viewed as essential in maintaining adjustment over time. Such support assisted participants in managing emotional vulnerability and strengthening their sense of control, thereby enhancing self-efficacy.

Overall, participants with higher self-efficacy demonstrated greater confidence, motivation, and determination to overcome work-related challenges. These participants showed resilience characterised by self-awareness, persistence, and a strong desire to return to pre-injury levels of functioning. In contrast, participants with lower self-efficacy reported persistent emotional vulnerability, reduced motivation, fatigue, and a stronger focus on perceived failure and limitations, which contributed to ongoing difficulties in work adjustment.

The findings further indicate that work adjustment following mTBI is not an isolated individual process but is embedded within a relational and organisational context. Although participants were responsible for navigating their own recovery, their adjustment goals were closely interdependent with workplace structures, expectations, and interpersonal dynamics. This highlights the central role of the work environment in shaping occupational outcomes following injury.

5.6 CONCLUSION

The above paragraphs present the findings of the phenomenographic analysis exploring participants' experiences of mTBI and the impact on self-efficacy and work adjustment. The data analysis demonstrated that participants experienced varying degrees of physical, cognitive, and emotional challenges following mTBI, which in turn influenced their capacity to adjust to work.

Most participants reported concerns regarding their health and wellbeing, particularly in relation to their physical and cognitive difficulties in relation to fatigue, reduced concentration as well as emotional vulnerability, and perceived changes in functional capacity. These challenges were often accompanied by limited workplace support, which contributed to initial difficulties in adjusting to work following mTBI.

The findings further indicated that workplace experiences played a significant role in shaping work adjustment outcomes. Most participants reported that employers, supervisors, and colleagues demonstrated limited understanding of mTBI and its "invisible" symptoms, including memory difficulties, fatigue, slowed processing, and emotional changes (Mittenberg et al., 1993; Silverberg & Iverson, 2011; Riggio & Wong, 2009). This lack of awareness frequently resulted in delayed recognition of the impact of injury and inconsistent workplace support. Despite these challenges, participants demonstrated varying degrees of self-advocacy by actively communicating their difficulties and requesting workplace accommodations. In many cases, participants initiated discussions with employers and human resources personnel to secure appropriate support. The need to explain and justify their limitations was a common experience, particularly during the early stages of work adjustment,

The findings further suggest that when workplace support was provided, it was associated with improved adjustment outcomes. Participants reported that accommodation strategies such as task modification, reduced workload, adjusted working hours, and informal psychosocial support contributed to improved functioning and work participation. In contrast, the absence or delay of support was associated with prolonged adjustment difficulties, reduced confidence, avoidance behaviours, and, in some cases, absenteeism.

Employer validation emerged as an important contextual factor in the adjustment process.

When participants felt that their experiences were acknowledged and taken seriously, they reported reduced stress and an improved ability to manage work demands. Conversely, the absence of validation was associated with frustration, emotional vulnerability, and reduced confidence in workplace performance.

Overall, the findings demonstrate that work adjustment following mTBI is a dynamic process shaped by the interaction between individual self-efficacy and workplace-related factors, particularly organisational understanding and access to support mechanisms. Participants who experienced supportive and responsive work environments reported greater confidence and more successful reintegration into their occupational roles. In contrast, those with limited support experienced ongoing challenges in maintaining performance and adapting to workplace demands.

In summary, the phenomenographic analysis highlights self-efficacy, self-advocacy, validation, and workplace accommodation as central constructs in understanding work adjustment following mTBI.

CHAPTER 6: CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

This study explored how individuals construct their experiences of self-efficacy and work adjustment following mild traumatic brain injury (mTBI), using a phenomenographic approach. The focus was on how participants perceived their physical, cognitive, and emotional capacities in relation to occupational demands, as well as how workplace support influenced their adjustment process.

The motivation for the study emanated from the researcher's interest in brain injuries following an MVA, specifically an mTBI, as a significant health concern in various countries including South Africa. Literature indicates that 75% to 90% of TBIs fall within the mild to moderate range, and that an mTBI remains a significant public health concern, with evidence indicating that a large proportion of individuals experience persistent functional difficulties beyond the acute phase of recovery (Miller & Donders, 2001; Silverberg & Iverson, 2011; Scheenen et al., 2017; McInnes et al., 2019; Van der Naalt et al., 2017). Consistent with this literature, participants in this study reported ongoing challenges affecting their work functioning, despite the classification of their injuries as an mTBI.

The primary aim of the research was to explore the impact of mTBI on self-efficacy, specifically the participants' beliefs in their physical, cognitive, and emotional capacity to adjust to work following injury. The study was guided by an integrative framework combining the BPS model (Engel, 1977) and Bandura's self-efficacy theory (Bandura 1997) which together provide a comprehensive lens for understanding the interaction between individual beliefs and contextual influences in work adjustment.

Consistent with phenomenographic methodology, the analysis prioritised the collective structure of meaning rather than individual narratives (Marton & Booth, 1997; Åkerlind, 2005, 2012). The outcome space therefore reflects variation in how participants experienced self-efficacy and work adjustment as interconnected processes rather than isolated phenomena. Åkerlind (2012) noted that the hierarchical relationship assumes a part-whole structure to the awareness of phenomena. Fletcher et al. (1992) noted in this regard that self-efficacy in an

organisational context refers to the participants' belief in their capabilities to complete what they consider to be a challenge in the workplace in order to reach a goal. Bandura (1977) stated that self-efficacy in the work environment can be referred to as occupational self-efficacy, and involves individuals' beliefs about their abilities to effectively perform their work tasks, which highly correlates with the participants' beliefs about their competencies to execute those behaviours required to produce behaviours to achieve a goal, i.e. work adjustment. Self-efficacy was recognised as an important contributor to work adjustment following their mTBI. With reference to the outcome space, self-efficacy assisted in building an awareness of physical, cognitive, and emotional challenges with the need for workplace support being paramount in order to cope with their limitations to facilitate work adjustment.

The BPS model provided a holistic framework through which to understand mTBI related difficulties as being a dynamic interaction of biological, psychological, and social factors. In this study, the BPS model facilitated an integrated interpretation of participants' physical limitations, cognitive disruptions, emotional responses, and workplace contextual influences on work adjustment (Buse et al., 2010; Langer et al., 2018). Bandura's self-efficacy theory complemented this by explaining how individuals interpret and respond to these challenges through their beliefs in their capability to organise and execute actions required for adaptation. These beliefs were shaped through mastery experiences, verbal persuasion, vicarious learning, and emotional and physiological states. Work adjustment is conceptualised as a dynamic process involving the ongoing adaptation of physical, cognitive, emotional, and behavioural functioning in response to occupational demands following injury (Dawes & Lofquist, 1984; Dawes, 2005).

The integration of the BPS model and self-efficacy theory enabled a holistic interpretation of work adjustment from a biopsychosocial process and self-efficacy experiences. Findings indicate that successful work adjustment is facilitated by the interaction between self-efficacy and contextual support, including validation and workplace accommodation. The findings are intended to provide a more nuanced understanding and to inform other employees with mTBI, as well as employers and clinicians involved in their care, by providing enhanced insight into how individuals experience and construct their recovery and work adjustment processes.

Importantly, the study also aims to encourage employers to recognise the complex challenges experienced by employees following mTBI, and to underscore the importance of implementing

timely, appropriate, and effective workplace strategies and accommodations to facilitate successful occupational reintegration. It is further anticipated that the findings will assist employers and human resource practitioners, as well as organisations such as the Road Accident Fund (RAF), in deepening their understanding of how individuals' beliefs in their own capabilities influence work adjustment after mTBI. In addition, the study highlights the need for greater employer awareness of the multifaceted challenges faced by affected employees and reinforces the importance of providing timely and effective support strategies to facilitate their adjustment to work.

6.2 SUMMARITIVE INTEGRATED OUTCOME SPACE DISCUSSION

The findings indicate that participants' self-reported experiences of mTBI-related challenges improved over time, although many continued to experience residual symptoms at reduced intensity at the time of the study. While most participants reported substantial recovery of physical symptoms, including headaches, visual disturbances, and hearing difficulties, emotional and psychosocial challenges persisted, particularly in relation to perceived lack of workplace support and recognition. Consistent across the dataset, participants expressed emotional responses such as frustration, reduced self-confidence, and resentment toward organisational responses that were perceived as insufficient. These experiences were closely linked to the degree of perceived validation and support received in the workplace. In a study by Gourdeau et al. (2018) and from the participants' narratives, the following emerged.

Self-advocacy in the absence of workplace recognition and most participants reported that they had to advocate for themselves, as their emotional and cognitive difficulties were not consistently acknowledged by employers. Participants felt that their pre-injury abilities and emotional states were often not taken into account. At the time of the study, all participants highlighted limited employer knowledge of mTBI and insufficient workplace support structures (Dew & Llewellyn, 2007; Goettler et al. 2017; Lindsay & McDougall, 2014).

Self-directed communication of needs and participants frequently described the need to initiate communication regarding their difficulties. This included actively seeking information and articulating their need for emotional and occupational support to supervisors and organisational structures.

Responsibility for work adjustment decision-making and most participants indicated that they were required to take primary responsibility for decisions affecting their work adjustment, often with limited structured guidance from the organisation (Cicerone et al., 2011).

Reliance on external support systems and participants reported independently accessing external resources such as human resource departments, Employee Assistance Programmes (EAPs), and psychological services in order to manage emotional and cognitive challenges associated with work reintegration (Franche et al. 2005; Waddell & Burton, 2006).

Negotiation of workplace accommodations and participants described the need to identify, communicate, and negotiate appropriate workplace accommodations, including workload adjustments and task modifications (Viner et al., 2019; Shultz & Gatchel; 2016).

Emotional self-regulation and adaptation and participants indicated that they were required to actively manage their emotional vulnerability in order to cope with workplace demands and maintain functioning (Goellter et al., 2017; Lindsay & McDougall, 2014) .

Collectively these experiences indicate that participants frequently assumed responsibility for managing their own adjustment process. This included self-initiated communication of difficulties, seeking information, negotiating workplace accommodations, and engaging external support systems such as human resource departments, employee assistance programmes (EAPs), and psychological services. Similar findings have been reported in the literature, which highlights that individuals often adopt self-advocacy strategies and self-directed negotiation of workplace adjustments in the absence of structured organisational support (Dew & Llewellyn, 2007; Braun et al., 2015; McRae & Gaskell, 2018).

Furthermore, research in traumatic brain injury rehabilitation emphasises the central role of compensatory strategies and self-management in work adjustment particularly where workplace understanding of cognitive and emotional sequelae is limited (Cicerone et al., 2011; Goettler et al., 2017). Engagement with external systems such as healthcare providers, human resources departments, and employee assistance programmes further reflects the multi-system nature of successful work adjustment (Franche et al., 2005). This reflects a strong theme of self-advocacy as a compensatory response to limited organisational awareness of mTBI.

Within the phenomenographic outcome space, these categories reflect different ways of experiencing and managing work reintegration following mTBI, rather than discrete or linear stages of adjustment. The variation in experiences highlights the relational nature of adjustment, shaped by the interaction between individual capacity, workplace context, and perceived support. This interpretation is further grounded in the BPS model, which conceptualises functioning as the dynamic interaction between biological factors (residual physical symptoms), psychological processes (cognitive appraisal, emotional regulation, and coping), and social/environmental influences (workplace culture, organisational support, and interpersonal validation) (Engel, 1977; Wade & Halligan, 2017). Given Bandura's self-efficacy theory as an explanatory framework for understanding how the above dimensions influence participants' beliefs in their capacity to successfully adjust to work the following was noted (Bandura, 1997; Cicerone et al., 2011; Franche et al., 2005):

1. Mastery experiences, particularly through completion of simplified or manageable work tasks, were identified as critical in gaining confidence and successful work adjustment.
2. Vicarious experiences emerged through employer and colleague support, facilitating reintegration into work routines and the participants' abilities to cope with the job demands.
3. Verbal persuasion, primarily in the form of workplace validation and accommodation, contributed to strengthening participants' perceived abilities to adjust to work.
4. Physiological and emotional states played a significant role, as anxiety, fatigue, or emotional vulnerabilities undermined or enhanced perceived self-efficacy depending on workplace support levels.
5. Work adjustment therefore emerged as a dynamic process of person–environment alignment. Where workplace accommodations such as workload modification, flexible scheduling, and task simplification were implemented, participants reported improved functioning and increased occupational confidence. In contrast, limited accommodation contributed to prolonged emotional strain and delayed adjustment.

A consistent finding across the outcome space is that validation, recognition and acknowledgment of mTBI-related difficulties were central to strengthening self-efficacy and facilitating work adjustment. Participants who experienced supportive environments

demonstrated greater emotional stability, higher motivation, and improved task engagement over time.

Overall, the integration of the BPS model and self-efficacy theory suggests that work adjustment following mTBI cannot be understood solely in terms of symptom recovery. Rather, it is shaped by the interaction between individual cognitive-emotional processes, perceived self-efficacy, and contextual workplace responses, particularly the presence or absence of validation and structured support.

6.3 IMPLICATIONS FOR PRACTICE AND WORKPLACE SUPPORT

The findings of this study have implications for workplace practice, occupational health systems, and psychosocial support following an mTBI. These implications are grounded in the integrated outcome space and highlight the interaction between self-efficacy, workplace validation, and environmental accommodation in facilitating successful work adjustment following an mTBI.

A key implication of the study is the importance of early recognition and validation of mTBI related difficulties within the work environment. The findings suggest that acknowledgement of both visible and invisible symptoms contributes to the strengthening of self-efficacy and supports adaptive engagement with work demands and successful work adjustment following an mTBI (Brouwer et al., 2009; Brouwer et al., 2015). In contrast, lack of recognition may contribute to emotional distress, reduced confidence, and prolonged adjustment difficulties. The findings also indicate that structured workplace accommodation is central to facilitating successful work adjustment. Adjustments such as workload modification, flexible scheduling, task simplification, and environmental adaptations improved alignment between employees and occupational demands during the adjustment process (Williams et al., 2006; Gourdeau et al., 2017). Such accommodations support mastery experiences, which were identified as a key mechanism in the development of self-efficacy and work adjustment. This highlights the importance of graded return-to-work processes that allow individuals to rebuild confidence progressively rather than being exposed immediately to full occupational demands (Bandura, 1997; Young et al., 2005)

The study also highlights the importance of accessible psychosocial support in facilitating

emotional adjustment following mTBI. Participants' experiences indicated persistent emotional vulnerability, including anxiety, frustration, reduced confidence, and avoidance behaviours during work reintegration. A need for various therapeutic interventions was noted.

Within this context, cognitive behavioural therapy (CBT) emerges as a relevant intervention for addressing maladaptive beliefs, avoidance behaviours, and emotional dysregulation that may negatively influence self-efficacy and return-to-work processes. Evidence indicates that CBT, when adapted for individuals with brain injury, can improve emotional adjustment and functional outcomes by targeting symptom interpretation and enhancing coping strategies (Gallagher et al., 2019; Potter et al., 2016; Cuevas and Slijdes, 2020). In addition, CBT-based interventions following mTBI have been shown to reduce persistent post-concussive symptoms and support adaptive recovery trajectories by modifying illness perceptions and reinforcing structured coping mechanisms (Scheenen et al., 2017).

A need for access to Employee Assistance Programmes (EAP) was noted and the findings further underscore the importance of EAPs as structured workplace-based support systems that facilitate emotional regulation, counselling access, and occupational reintegration. EAPs provide a mechanism through which employees can receive early intervention, referral to mental health professionals, and ongoing psychosocial support within the workplace context. Such programmes are particularly relevant in cases of mTBI, where emotional distress, reduced confidence, and adjustment difficulties may not be immediately visible but significantly affect work functioning. Evidence suggests that EAPs contribute to improved workplace adjustment and occupational functioning by offering structured support pathways that bridge clinical care and organisational reintegration (Watson & Scharf, 2016; Attridge, 2019).

Complementing the above, psychological interventions, such as CBT, can assist, by focusing on breaking the cycle of avoidance and fear that seemed to affect the participants' overall wellbeing and self-efficacy (Gallagher et al., 2019; Potter et al., 2016; Scheenen et al., Cuevas and Slijdes, 2020). Participants in CBT would be encouraged to face their difficulties, and will gradually desensitise their fears, through exposure and coping techniques. In addition, given technological advancement, CBT could be done online in a self-paced manner, on a self-learning basis, with weekly feedback sessions organised to include the human resource or EAPs staff (Gallagher et al., 2019; Potter et al., 2016; Scheenen et al., Cuevas and Slijdes, 2020)

Furthermore, the findings emphasise that effective work adjustment following mTBI can be optimised through tailor-made, biopsychosocial informed vocational rehabilitation interventions. Evidence from the literature suggests that various online interventions and training modules on mTBI are available and can be tailor made for a specific industry in order to provide guidelines to employees to assist in work adjustment (McPherson et al., 2017; Monash University, 2017). Tailor-made vocational rehabilitation interventions, including graded return-to-work planning and workplace accommodation, are recommended following traumatic injury to support functional reintegration and occupational recovery (Monash University, 2017). These modules could include video content relating to mTBI symptoms, treatment, and prevention (McPherson et al., 2017; Monash University, 2017).

The organisation can also provide educational materials, such as brochures or handouts, detailing the symptoms of mTBI (freely available from various internet sources), and make these resources readily accessible in common areas and online for employees who have experienced trauma, specifically individuals with mTBI. Such acknowledgment and valuable support would further assist in work adjustment and enhance self-efficacy. Learning to manage physical cognitive and emotional challenges effectively through the above techniques will enhance self-efficacy as individuals learn and grow from their experiences. Importantly, such interventions facilitate mastery experiences, which are central to the development of occupational self-efficacy, as individuals gradually regain competence through supported task engagement (Bandura, 1997).

From a practical perspective, the study supports a multi-level intervention approach incorporating physical accommodation, cognitive rehabilitation, and emotional support. Workplace modifications such as workload adjustment, reduced sensory overload, flexible scheduling, and assistive strategies may reduce cognitive strain and support sustained functioning. In addition, cognitive rehabilitation and emotional support interventions may foster improved self-perception and occupational confidence.

Given the above-mentioned interventions, several strategies may also be tailored to address the specific needs of both the employee and the organisation in managing challenges associated with work adjustment, thereby maximising rehabilitation outcomes:

- The employer may implement a buddy or mentorship programme to support employees in

managing work-related challenges and enhancing occupational self-efficacy. Workplace-based support systems such as mentors, teammates, or buddies have been shown to strengthen self-efficacy through encouragement, guidance, and shared experiences (Young et al., 2005; Franche et al., 2005). Progress may be monitored through regular check-ins with a mentor, case manager, or human resources liaison.

- The organisation may implement an EAP, supported by human resource staff, to enable employees following mTBI to discuss their challenges upon returning to work and to receive structured support for work adjustment. Within such sessions, together with an appointed mentor, supervisor, or EAP practitioner, specific, achievable, and measurable goals may be established to facilitate work adjustment, which in this study was associated with enhanced self-efficacy. Larger tasks may be broken down into manageable steps to reinforce self-efficacy and strengthen individuals' belief in their capacity to adjust to work. Regular meetings may also be arranged to provide opportunities for employees to share experiences, while case-based discussions on mTBI may support both affected employees and colleagues in achieving team and organisational goals. A lack of empathy-driven communication was identified as a recurring experience; therefore, structured supportive communication forums may help address this gap (Watson & Scharf, 2016; Attridge, 2019).
- The organisation may implement structured feedback sessions (e.g., through the use of digital platforms) to reinforce employees' perceived value within the organisation, which may positively influence and enhance self-efficacy. Participants reported feeling undervalued, which was associated with reduced self-efficacy. In contrast, feedback was perceived as encouraging and supportive of efforts to address challenges and facilitate work adjustment. Such feedback forums (whether delivered digitally or face-to-face) may also contribute to the development of psychological safety through the acknowledgement of employees' challenges. This, in turn, may support employees in managing their difficulties within a work environment that fosters safety, validation, and opportunities to rebuild self-confidence and adjust to work (McPherson et al., 2017; Monash University, 2017).
- The organisation may also implement workplace wellness programmes through mental health and well-being initiatives aimed at assisting employees in managing stress and maintaining psychological well-being. A healthy workforce is more likely to experience greater confidence in their occupational abilities. A supportive work environment that promotes physical activity and well-being (e.g., lunchtime walking initiatives for staff

following mTBI) may further enhance self-efficacy by enabling safe engagement in physical activity. In addition, employers may provide rest breaks, quiet workspaces, and reduced screen exposure where necessary. Task rotation may also be implemented to reduce cognitive overload, alongside assistive tools such as task management systems and work reminders. Implementation frameworks and checklists may be adapted to specific organisational contexts and injury-related needs (Baicker et al., 2010; Monash University, 2017; World Health Organization, 2021).

Overall, employers are encouraged to foster environments that support the development of self-efficacy through training, mentorship, positive reinforcement, and flexible accommodations. Such practices are critical in facilitating successful work adjustment following mTBI. Psychological adaptation refers to an individual's capacity to adjust to environmental demands in order to optimise functioning, while work adjustment refers to the process of aligning individual capabilities with occupational demands through behavioural and cognitive adaptation.

The findings further suggest that mTBI contributes significantly to early challenges in work reintegration, particularly in contexts where workplace understanding and vocational rehabilitation resources are limited. Participants frequently reported needing to self-manage their recovery and actively advocate for workplace support, highlighting gaps in employer awareness and structured rehabilitation pathways.

Finally, the psychological and social dimensions of the findings underscore the importance of validation and recognition in the recovery process. Participants consistently expressed a need for affirmation, which aligns with Bandura's concept of verbal persuasion as a key source of self-efficacy development. Emotional vulnerabilities such as anxiety, frustration, and fear were closely linked to workplace responses, while self-advocacy emerged as a central mechanism for successful adjustment. Collectively, these findings highlight the importance of employer engagement in fostering supportive environments that facilitate recovery, resilience, and sustainable work reintegration.

6.4 LIMITATIONS OF THE STUDY

This study adopted a phenomenographic research approach to explore variations in how individuals with mild traumatic brain injury (mTBI) experience self-efficacy in the context of

work adjustment. While phenomenography prioritises depth and variation of meaning rather than large sample sizes, several limitations are acknowledged.

Through this phenomenographic approach, the researcher aimed to capture a range of different ways in which people experience a given phenomenon. The sample size of ten participants, drawn from a limited database, may not fully capture the breadth of experiences present within the broader mTBI population. Although phenomenographic studies typically focus on a relatively small number of participants, a more diverse or extensive sample might have revealed additional categories of description. Mack et al. (2005) noted that the number of participants in a phenomenographic study typically ranges between 10 and 30 people. In addition, the sample needed to ensure sufficient variation, but it is also noted that too much data is likely to make it impossible to manage, due to the thoroughness of the method of analysis used during the application of phenomenography (Stenfors-Hayes et al., 2013).

Data saturation was reached following the re-reading of 17 transcripts. Saturation is commonly used as a criterion for determining when sufficient conceptual depth has been achieved (Glaser & Strauss, 2017; Hennink & Kaiser, 2021). At this point, no new conceptual categories emerged, and the researcher judged that the outcome space adequately represented the variation present within the data (Mack et al., 2005).

Phenomenographic research is not meant to be statistically generalisable, but rather seeks to describe the qualitatively different ways in which a phenomenon is experienced within a specific group (Marton & Booth, 1997; Åkerlind, 2005, 2012, 2024; Bowden, 2005). The findings are intended to be analytically generalisable in terms of their descriptive categories of experience, rather than statistically representative of a broader population. The small sample used may further limit the transferability of the identified categories of description to other mTBI populations (e.g. different ages, occupations, severity levels, or cultural contexts).

Furthermore, there is a risk that the study did not capture the full variation in how people experience self-efficacy post-mTBI, and may have resulted in narrower outcome spaces that do not reflect the broader population. Consequently, while the outcome space provides a structured representation of the variation present within this sample, it should be interpreted as a contextual and interpretive framework rather than a comprehensive or exhaustive account of all possible experiences.

In addition, the inclusion criteria restricted participation to individuals who had returned to work following mTBI. As a result, the study may not reflect the experiences of individuals who were unable to return to work, who disengaged from employment, or who lacked access to rehabilitation services. These groups may present with different or more severe challenges that are not captured within the current outcome space. Furthermore, variation in injury severity, time elapsed since injury, and access to rehabilitation services may have influenced participants' experiences and shaped the outcome space. Consequently, certain experiences particularly those of individuals with persistent impairments or limited social support, may have been underrepresented.

Throughout the study, the researcher wanted to gain rich information, along with explanatory and in-depth data regarding the participants' collective experiences. While the study focused on the collective ways and variations of the experiences, rather than an in-depth analysis of each participant, the small number of participants may have limited the opportunity for nuanced comparison across different experiences. Notably, only a limited number of participants reported ongoing significant difficulties, which may have restricted the representation of more complex or prolonged adjustment trajectories.

In addition, the reliance on retrospective self-reported data also introduces the possibility of recall bias. Participants' accounts of self-efficacy and work adjustment may have been influenced by the time elapsed since injury, as well as by ongoing cognitive or emotional symptoms, potentially shaping how experiences were reconstructed and interpreted.

Despite the above limitations, the study provides valuable insights into the qualitatively different ways individuals with mTBI experience self-efficacy and work adjustment. The findings contribute to an improved understanding of work reintegration processes and may inform the development of tailored workplace interventions, rehabilitation strategies, and organisational support systems that are responsive to the diverse needs of individuals following an mTBI.

6.5 FINAL CONCLUSION

Shongwe (2025) noted that, historically, South Africa's road infrastructure was regarded as sound and well maintained. However, in recent years, the country's infrastructure has

deteriorated significantly, with much of the national infrastructure, including roads, either collapsing or showing severe signs of deterioration (Shongwe, 2025). Van Essche (2019) further noted that the lifespan of a road is generally between 15 and 20 years and that, apart from resurfacing, extensive maintenance is typically unnecessary before this period expires. Nevertheless, over the past three decades, many South African roads have not been consistently monitored or adequately maintained. Consequently, South African roads are increasingly characterised by potholes and an overall decline in condition, resulting in a substantial road maintenance backlog.

In October 2022, the former president of the South African Roads Federation (SARF), Mutshutshu Nxumalo, claimed that there were more than 25 million potholes on South Africa's roads and that many roads were cracking and crumbling, resulting in potholes and sinkholes. It was further reported that road pavements were not adequately maintained. These issues, together with a lack of roadworthy vehicles, unlicensed drivers, and widespread lawlessness on the roads, have contributed significantly to the increase in road accidents.

According to The World's Safest Roads Report (2024), South Africa was ranked as the world's most dangerous country in which to drive for the second consecutive year (Hippo Insurance Article, 2024). Lilleike (2025) further noted that, during the period from 1 December 2024 to 20 January 2025, 1,502 fatalities were recorded from 1,234 crashes, representing a year-on-year increase in fatalities of 5.3%. Notably, 41% of all fatalities were pedestrians, while 87% of crashes were directly related to human behaviour, including hit-and-runs, jaywalking, fatigue, loss of vehicle control, excessive speeding, drunk driving, and reckless overtaking.

More specifically, and relevant to the present study, mTBI resulting from MVAs constitutes a substantial proportion of all TBI cases in South Africa. Approximately 87.5% of the overall TBI incidence rate of 316 per 100,000 individuals per year is classified as mTBI. Although the precise number of MVA-related mTBI cases is not explicitly stated, MVAs clearly contribute significantly to the overall burden of mTBI in South Africa (Lilleike, 2025).

The literature review explored and defined TBI, with particular reference to mTBI following an MVA. For the purposes of this study, mTBI was described as an acute brain injury caused by external mechanical forces to the head and characterised by confusion, disorientation, or loss of consciousness for 30 minutes or less (Carroll et al., 2004). Carroll et al. (2004) further

indicated that mTBI is characterised by post-traumatic amnesia lasting less than 24 hours and that the symptoms should not be attributable to drugs, alcohol, medication, or other injuries and treatments. In essence, the injured individual experiences confusion and disorientation following the accident and may be unable to recall events occurring within a 24-hour period after the injury. Scheenen et al. (2017) further reported that more than 80% of all TBIs are classified as mild, making mTBI one of the most common neurological disorders worldwide.

The researcher adopted the BPS theoretical model as the conceptual framework. The BPS model provided an integrated approach to exploring the interaction between the biological, psychological, and work-related factors affecting participants following mTBI, particularly in relation to self-efficacy and work adjustment. Within the biological domain, the researcher explored participants' experiences of physical health, functional limitations, and overall wellbeing. Bandura's theory of self-efficacy was further utilised to provide an explanatory framework for understanding participants' varying experiences of mastery, vicarious learning, verbal and social persuasion, outcome expectations, aspirations, emotional responses, and perceptions of barriers and opportunities within the workplace (Bandura, 1995, 1997).

Work adjustment was regarded as central to retaining or regaining work performance following mTBI (Bull & Schaefer, 2012). Workplace adjustment was described as the process through which barriers or obstacles affecting participants' ability to perform their job duties were reduced or removed. Scott and Kowalski (2011) observed that successful work adjustment is influenced by employee wellbeing, motivation, self-confidence, and perceived competence, all of which are closely linked to self-efficacy (Gallagher et al., 2019; Potter et al., 2016; Scheenen et al., 2017; Cuevas & Slijdes, 2020).

A significant challenge identified in the literature is that many existing studies primarily focus on employers' perspectives and intervention strategies relating to workplace adjustment following injury, including mTBI. In contrast, the present study focused specifically on the experiences of employees and, more particularly, on their self-efficacy beliefs regarding their ability to overcome physical, cognitive, and emotional difficulties in adjusting to work following mTBI. Gourdeau (2018) noted that few studies have investigated work-related mTBI from the perspective of injured employees and that workplace accommodations have seldom been examined in detail. The implementation of workplace accommodations may significantly reduce workplace disability and improve adjustment outcomes (Gourdeau, 2018; Gallagher et

al., 2019; Potter et al., 2016; Scheenen et al., 2020; Cuevas and Slijdes, 2020; McPherson et al., 2017; Monash University, 2017).

Phenomenography was selected as the qualitative research approach because it focuses on the different ways individuals experience and understand a phenomenon. The approach acknowledges that reality exists independently of individual perception while emphasising the collective experience and interpretation of that reality. The researcher therefore adhered to an ontological position aligned with phenomenography, where the focus is relational and centred on the interaction between individuals and aspects of reality (Marton, 1986; Åkerlind, 2005). This approach further aligned with the epistemological aspects of practice theory highlighted by Gherardi (2015). Phenomenography is grounded in a non-dualist ontology in which phenomena are understood through human interaction and experience (Åkerlind, 2005).

In accordance with the Basic Conditions of Employment Act (BCEA) in South Africa, employers are required, where reasonably possible, to accommodate employees with disabilities by adapting job duties or the work environment to address their difficulties. It is regarded as unlawful to require employees to perform tasks that they are unable to undertake because of their impairments (Letlonkane, 2023). Workplace accommodations may include flexible working hours, modified shift patterns, remote working arrangements, time off for medical appointments without loss of income, assistive technologies such as speech-to-text software, ergonomic equipment, fixed workstations, and modifications to the work environment.

Bandura's concept of mastery experiences refers to an individual's belief in their ability to perform behaviours necessary to achieve desired outcomes (Bandura, 1997). Collectively, participants in this study drew on past experiences and previous successes to manage the challenges associated with mTBI and to successfully adjust to work. Bandura (1997) described successful mastery experiences as performance accomplishments that strengthen confidence and self-efficacy. Richardson (2019) further noted that past successes are among the strongest contributors to an individual's confidence and perceived competence. Similar findings have been reported in the rehabilitation and occupational adjustment literature, where mastery experiences have been associated with improved coping, resilience, and successful adaptation following injury or disability (Levack et al., 2015; Schonfeld et al., 2017; Van Velzen et al., 2011).

The second most influential source of self-efficacy is vicarious learning or modelling. Vicarious experiences involve observing others or identifying role models whose behaviours individuals attempt to emulate. Bandura (1977) argued that individuals who believe they are capable of succeeding at a comparable level are more likely to display positive self-efficacy and adaptive behavioural outcomes. Most participants in the present study continued to believe in their ability to perform their work responsibilities and meet job expectations. Once support and accommodations were implemented, participants reported being better able to reconnect with and adjust to their work environment following mTBI. Participants also demonstrated resilience, increased confidence, and improved interpersonal relationships at work following support and accommodation (Bandura, 1997; Schönberger et al., 2011; Franche et al., 2005; Gallagher et al., 2019).

Verbal and social persuasion constituted the third mechanism influencing self-efficacy beliefs. Bandura (1982) described verbal persuasion as the positive influence that encouragement and supportive communication may have on self-efficacy. The literature suggests that encouragement and affirmation from others increase individuals' persistence and effort in accomplishing tasks (Stajkovic & Luthans, 1998; Maddux, 2002; Usher & Pajares, 2008). In the present study, continuous self-advocacy and engagement with employers contributed to stronger self-efficacy beliefs, enabling participants to manage workplace challenges more effectively following mTBI and to adjust successfully in the workplace (Stajkovic & Luthans, 1998; Maddux, 2002; Usher & Pajares, 2008).

At the time of the study, support and accommodations were generally not offered proactively by employers and were only implemented after participants specifically requested assistance. The Business Disability Forum (2023) reported that, although the implementation of workplace adjustments has improved, employees frequently still wait extended periods, sometimes longer than a year, before adjustments are made. Eggert (2008) further suggested that individuals with low self-efficacy may struggle to exert control over their behaviour and adapt to workplace changes, thereby requiring more immediate support, accommodation, and psychological intervention following mTBI. Conversely, individuals with higher self-efficacy are generally more resilient, better able to embrace challenges, and more successful in adjusting to work following mTBI. This was evident in most participants within the present study. However, two participants continued to experience low self-efficacy and persistent difficulties with work

adjustment despite having opportunities to discuss their challenges and required accommodations with their employers.

The study further revealed that participants developed learning experiences and insights from the challenges associated with mTBI. Irrespective of differences in self-efficacy levels, all participants demonstrated some degree of personal learning and adaptation during the adjustment process.

Furthermore, Bandura's self-efficacy theory provided a valuable framework for understanding how clinicians and rehabilitation professionals may develop more effective interventions, particularly psychological interventions, for individuals experiencing difficulties adjusting to work following mTBI. Limited research has examined the role of self-efficacy in work adjustment after mTBI. The findings of this study demonstrated that self-efficacy played a significant role in participants' ability to manage challenges, utilise workplace support, and successfully adjust to work following mTBI (Maddux, 2002; Schwarzer & Warner, 2013); . Self-efficacy further contributed to improved well-being and perceptions of general health, as individuals with stronger self-efficacy beliefs are more likely to demonstrate adaptive coping, resilience, and positive health-related functioning (Bandura, 1997, 2004; Cicerone et al., 2011).

In conclusion, self-efficacy appeared to have a profound influence on participants despite their differing experiences, work environments, and individual circumstances. Bandura (1977) argued that individuals with strong self-efficacy beliefs are more likely to recover from setbacks and approach challenges as manageable rather than overwhelming. Consistent with the literature, most participants in the present study demonstrated high levels of self-efficacy and, through self-advocacy and the implementation of workplace accommodations, were able to overcome significant challenges and successfully adjust to work following mTBI.

APPENDICES

Appendix A: Ethics Approval

COLLEGE OF HUMAN SCIENCES RESEARCH ETHICS REVIEW COMMITTEE

13 November 2023

Dear Ms Sonia Hill

NHREC Registration # : Rec-240816-052
CREC Reference # : 6284442_CREC_CHS_2023

Decision:
Ethics Approval from 13 November 2023 to 13 November 2024

Researcher(s): Name: Ms. S. Hill
Contact details: 6284442@mylife.unisa.ac.za
Supervisor(s): Name: Dr. F. N. van Zyl
Contact details: fnvz@live.co.za

Title: The impact of a mild traumatic brain injury on the individual's self-efficacy and work adjustment.
Degree Purpose: PhD

Thank you for the application for research ethics clearance by the Unisa College of Human Science Ethics Committee. Ethics approval is granted for one year.

The ***low-risk application*** *was reviewed by* College of Human Sciences Research Ethics Committee, in compliance with the Unisa Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment.

The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.
2. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the College Ethics Review Committee.
3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the

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Appendix B: Request to Participate in the Study

Research title:

The impact of a mild traumatic brain injury on the individual's self-efficacy and work adjustment.

Researcher:

Sonia Hill

Ethics clearance reference number: Rec-240816-052
Research permission reference number (if applicable): 6284442_CREC_CHS_2023

00 July 2023

Dear Prospective Participant

My name is Sonia Hill, and I am doing research with Dr Van Zyl in the Department of Psychology towards a PhD degree in Consulting Psychology at the University of South Africa. We are inviting you to participate in a study entitled, the impact of a mild traumatic brain injury on the individual's self-efficacy and work adjustment.

WHAT IS THE PURPOSE OF THE STUDY?

I am conducting this research to find out extent to which an individual's perceived self-efficacy mediates cognitive functioning and behavioural processes in work adjustment following a mTBI?

WHY AM I BEING INVITED TO PARTICIPATE?

All participants who were previously involved in a MVA and who had suffered a mild head injury. All participants have been assessed at Hardy and Associates - Neuropsychologists in Durban and will be invited to participate in the research.

Your name was selected as you suffered a mild traumatic brain injury and you meet all the criteria set out for the research, i.e. you had worked in a stable job prior to you suffering the mild traumatic brain injury and you have returned to your previous position.

WHAT IS THE NATURE OF MY PARTICIPATION IN THIS STUDY?

This research study involves interviews and the administration of the general self-efficacy questionnaire. The two instruments will be used to gain in depth understand of your beliefs in your ability to mediate your cognitive, behavioural and emotional processes to meet the challenges and experiences to succeed in adjusting to work following a mTBI. Semi-structured interview questions will be asked and will focus on your beliefs about your abilities to execute behaviour relating to cognitive and behavioural process as well as emotional issues to adjust to work following a mild traumatic brain injury. The interview would take between 30 to 60 minutes, and the self-efficacy questionnaire will take about 10 minutes to complete.

CAN I WITHDRAW FROM THIS STUDY EVEN AFTER HAVING AGREED TO PARTICIPATE?

Participating in the study is voluntary and you are under no obligation to consent to participate. If you do decide to take part, you will be given an information sheet to keep and you will be asked to sign a written consent form. You are free to withdraw at any time and without giving reason(s).

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

Each individual's belief and experience relating to work adjustment, following a mTBI, is unique and valuable but the collective experiences of all the participants will be considered to fully understand the impact on self-efficacy as a moderator in work adjustment. The purposes of the study is to build on the interconnectedness of individuals' experiences and to explore the extent to which self-efficacy mediates cognitive processes, behavioural processes and emotional processes. The descriptive collection of all the participants' data will provide information to describe, compare and contrast the significant aspects and categories to provide rich and new insight regarding the individual's self-efficacy in his/her ability to executive behaviour and work adjustment. All information will be used collectively, and privacy of information will be maintained at all times.

ARE THERE ANY NEGATIVE CONSEQUENCES FOR ME IF I PARTICIPATE IN THE RESEARCH PROJECT?

The study will be beneficial to the participants as well as future sufferers of traumatic brain injuries in work adjustment. The study will further be beneficial to organisational psychologists,

human resource practitioners and departmental managers in the workplace in understanding and assisting individual in work adjustment following a mTBI. In light of the above, the study does not present any serious potential level of inconvenience and/or discomfort to the participants. However should any discomfort and/or stress arise from the study, the researcher has the expertise, skills and knowledge to deal with any reasonable issues and/or side-effects and/or if such psychological issues are identified as more serious, further intervention will be implemented.

WILL THE INFORMATION THAT I CONVEY TO THE RESEARCHER AND MY IDENTITY BE KEPT CONFIDENTIAL?

Any data that is recorded, for means of the research, associated with your name, will only be seen by the researcher, Sonia Hill, and, with consent from you, my supervisor.

Your name will not be presented anywhere, and your information will be treated as confidential at all times. Although individual interviews will be conducted, data will be analysed collectively and even, at the time of the interview although your name will connect you to the answers you give, complete confidentiality will be maintained throughout the research. Your answers together with all similar answers from all other participant answers, will be assigned to a category and no names will be attached at any time.

Any publications, or other research reporting methods such as conference proceedings will only refer to the collective experiences within the categories. As earlier noted, your answers may be reviewed by my supervisor, responsible for making sure that research is done properly.

HOW WILL THE RESEARCHER(S) PROTECT THE SECURITY OF DATA?

Hard copies of your answers will be stored by the researcher for a minimum period of five years in a locked cupboard/filing cabinet at the researcher's private practice in Durban. Electronic information will be stored on a password protected computer. Should the researcher require further studies the stored data will be subject to Research Ethics Review (Committee) approval. After five years your information will be destroyed e.g. hard copies will be shredded and electronic copies will be permanently deleted from the hard drive of the computer.

WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICIPATING IN THIS STUDY?

No payment, reward or financial benefits will be derived from this research.

HAS THE STUDY RECEIVED ETHICS APPROVAL

This study has received written approval from the Research Ethics Review Committee of the Unisa. A copy of the approval letter can be obtained from the researcher if you so wish.

HOW WILL I BE INFORMED OF THE FINDINGS/RESULTS OF THE RESEARCH?

Should you require any further information or want to contact the researcher about any aspect of this study, please contact Sonia Hill at sonia@halocom.co.za or 0837951683. *Should you have any other concerns regarding the research you may contact Dr N van Zyl at fnvz@live.co.za.*

If you would like to be informed of the final research findings, please forward your requests to Sonia Hill at sonia@halocom.co.za.

Thank you for taking time to read this information sheet and for participating in this study.

Sonia Hill
Researcher

Appendix C: Consent To Participate in This Study

Research title:

The impact of a mild traumatic brain injury on the individual's self-efficacy and work adjustment.

Researcher: Sonia Hill

Ethics clearance reference number: Rec-240816-052

Research permission reference number (if applicable): 6284442_CREC_CHS_2023

I, --------- (participant name), confirm that Ms Sonia Hill (Researcher) asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

- I have read (and explained to me) and I understand the purposes of the study as noted in the information sheet.
- I have had sufficient opportunity to ask questions and am prepared to participate in the study.
- I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).
- I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings.
- I understand that my personal details, be kept confidential and that the ethical principle of autonomy will be adhere to at all times, unless otherwise specified.
- I agree to the written recording of my answers through the use of semi structured questions during an interview process and that the data analysis process, i.e. phenomengraphy have been explain and has been understood by me.
- I have received a signed copy of the informed consent agreement.

Participant Name & Surname ....(please print)

Participant Signature .... Date.....................

Researcher's Name & Surname: Sonia Hill

Researcher's signature. Date

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Appendix D: Semi Structured Interview Questions

1. By the way of context, can you tell me about your job (your job title) and briefly describe your position, job duties and your work environment.

2. Based on your experience, can you share your symptoms or the onset of the symptoms following your mTBI? Prompts, if not addressed:
   2.1 Can you provided details regarding your physical symptoms.
   2.2 Can you provide details regarding your psychological symptoms.
   2.3 Can you provide details regarding your work performance symptoms.

3. Based on your experience, can you share your beliefs (self-efficacy perceptions) regarding your capacity to cope with your symptoms following the mTBI and work adjustment?

4. Based on your experience, can you share your work adjustments experiences and how do you belief you had the necessary capacity to adjust following mTBI. Prompts, if needed
   4.1To what extent do you belief you were physically capable of adjusting to your job?
   4.2 To what extent do you belief you were cognitive capable to adjust to work?
   4.3 To what extent do you belief you were emotional or behavioural capable to adjust to work?

5. What remedial actions do you belief assisted you in adjusting to work you or did your company offered or implemented?
   5.1 If prompt needed, what did you specifically do to remedy the situation?
   5.2 If needed, where there any interventions and accommodation provided by the company?

6. Do you belief that there are support developmental or learning interventions that can be considered and implemented to assist in work adjustment following a mTBI?

We have now completed the interview, is there anything you would like to add that haven't been covered before the administration of the self-efficacy questionnaire?

Appendix E: Self Efficacy Questionnaire

General Self-Efficacy Scale (GSE)

	Not at all true	Hardly true	Moderately true	Exactly true
1. I can always manage to solve difficult problems if I try hard enough	☐	☐	☐	☐
2. If someone opposes me, I can find the means and ways to get what I want.	☐	☐	☐	☐
3. It is easy for me to stick to my aims and accomplish my goals.	☐	☐	☐	☐
4. I am confident that I could deal efficiently with unexpected events.	☐	☐	☐	☐
5. Thanks to my resourcefulness, I know how to handle unforeseen situations.	☐	☐	☐	☐
6. I can solve most problems if I invest the necessary effort.	☐	☐	☐	☐
7. I can remain calm when facing difficulties because I can rely on my coping abilities.	☐	☐	☐	☐
8. When I am confronted with a problem, I can usually find several solutions.	☐	☐	☐	☐
9. If I am in trouble, I can usually think of a solution	☐	☐	☐	☐
10. I can usually handle whatever comes my way.	☐	☐	☐	☐

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