AN INVESTIGATION INTO WHETHER LEARNING ABOUT SOCIAL COGNITIVE NEUROSCIENCE IN A LEADER DEVELOPMENT INTERVENTION HELPS TO FACILITATE BEHAVIOURAL CHANGE IN LEADERS

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by

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DECLARATION

I, Estelle Lydia Coetzer, student number **55409350**, declare that **AN INVESTIGATION INTO WHETHER LEARNING ABOUT SOCIAL COGNITIVE NEUROSCIENCE IN A LEADER DEVELOPMENT INTERVENTION HELPS TO FACILITATE BEHAVIOUR CHANGE IN LEADERS** 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 have not previously submitted this work, or part of it, for examination at UNISA for another qualification or at any other higher education institution.

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SIGNATURE   DATE

ACKNOWLEDGEMENTS

SUMMARY

The field of neuroscience is increasingly gaining exposure in the leadership domain, where it is now beginning to contribute to research and development. In this study an exploratory investigation of leadership development was undertaken with four primary aims. Firstly, to find out whether exposing participants in managerial positions to cognitive neuroscience knowledge contributes to their development as leaders. Secondly, to explore and illuminate the underlying processes that support such behavioural change. Thirdly, to investigate how behaviour changes in leaders exposed to social cognitive neuroscience knowledge are manifested within an organisational setting. Fourthly, to determine what the perceived impact on the leaders and others are regarding such behaviour changes in a specific organisational context, namely a retail environment.

In the study, leaders were exposed to a social cognitive neuroscience workshop over a 5-month period. They were provided with foundational knowledge of social cognitive neuroscience in workshops with two objectives. Firstly, the workshops were intended to enhance their understanding of the brain and cognitive systems underlying thinking and behaviour of the self and others. Secondly, in the workshops the complex interaction between brain systems and subsystems such as the executive and emotional systems were shown to mirror, in a metaphorical way, some of the complex interactions between structures in business organisations. Semi-structured interviews were conducted with a purposive sample of 16 participants, as well as with some their line managers and direct reports. Data were qualitatively analysed by means of content analysis.

Findings support the view that gaining social cognitive neuroscience knowledge led to increased self-awareness and an understanding of others. Implicit behavioural change resulted from cognitive and affective changes. Explicit behaviour changes were the result of

conscious choice and were supported by both personal and organisational motivational drives. Leaders made behaviour changes at both personal and interactive levels based on their understanding of social cognitive neuroscience. Behaviour changes related to increased emotional regulation, a change in leadership style, an inclusive communication style, cultivating relationships, recognition strategies and strengthening trust. The implemented behaviour changes had a positive impact on participants and their direct reports and related mostly to positive affective changes, growth and development, improved relationships, personal effectiveness and team dynamics.

KEY TERMS

Leader development, social cognitive neuroscience, leadership, behaviour change, self-awareness and understanding, neuroleadership, emotional regulation, leadership behaviour, learning, leadership style.

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CHAPTER 1:   SCIENTIFIC ORIENTATION OF THE RESEARCH

This chapter provides structure for the research by clarifying the background to and motivation for the research, the research problem, the literature and empirical aims of the research, the research paradigms adopted, the research design and method used. Lastly, the chapter layout is provided.

1.1   BACKGROUND AND MOTIVATION FOR THE RESEARCH

The working environment is an ever-changing landscape, which bring with it challenges for leaders (Collins 2001; Handy 1996; Nicholson 2000). Some elements that contribute to the changing landscape are globalisation, technology, and the growth of knowledge and information. The "psychological contract" has changed from one of permanent employment to being employed for as long as one adds value. These changes impact on the role of leaders, which has changed from a mechanistic approach to the ability to drive emotions in the right direction (Goleman, Boyatzis, & McKee, 2002). The need to understand the role of emotions is also evident in research which is highlighting the role emotions play in making decisions. For leaders there appears to be an increasing need to understand and guide the behaviour of others. This is also highlighted in a recent study conducted by the Centre for Creative Leadership. In an attempt to clarify specific challenges leaders face, the Centre gathered data from leaders in seven different countries (China/Hong Kong, Egypt, India, Singapore, Spain, United Kingdom, and the United States). They concluded that leaders consistently face the same six challenges: developing managerial effectiveness, inspiring others, developing employees, leading a team, guiding change, managing internal stakeholders and politics (Gentry, Ekhert, Stawiski, & Zhao, 2014).

There appears to be some overlap in Goleman and others' (2002) thinking as they referred to the need in leaders to execute vision by motivating, guiding, inspiring listening and persuading, and most crucially by creating resonance with others.

To meet workplace challenges, requires the ability of leaders to have a level of self-awareness as well as the ability to manage their emotions. An increased level of self-awareness could lead to a better understanding of others' emotions, and the ability to respond appropriately in order to channel energy in the right direction. Owen, Hodgson, and Gazzard (2004), also referred to "conscious leaders" who require knowledge and understanding of the inner self and an understanding of their leadership brain. In summary, there is an increasing need to understand the behaviour of the self as well as others, within the complexity and ambiguity of the current work context.

Theories focused on addressing and providing guidance to individuals in leadership roles have been evolving over the past years. The concept of leadership reminds one of the sea: the existence and need for leadership is equally constant. How it is viewed, can be compared with the waves with new waves continuously forming and rolling out. Various schools of thought illustrate the various waves: situational leadership (Blanchard, Zigarmi, & Zigarmi, 1982), servant leadership (Blanchard & Hodges, 2003), primal leadership (Goleman et al., 2002), transformational and transactional leadership (Bass & Riggio, 2006), and the latest theoretical development, neuroleadership (Rock, 2009).

The utilisation of neuroscience knowledge within the leadership domain is relatively new. Should one Google the word "leadership" the results delivered 2,630 million hits. The term "neuroleadership" provided only 390,000 hits. That represents less than 1% (in fact 0.01%). An Amazon search on leadership books resulted in a total of 117,914 books. The phrase "neuroleadership" delivered 63 results. Research that demonstrates the value of neuroscience within the field of leadership is therefore arguably limited. The behavioural

sciences have, in the past, been criticised for being 'soft', 'fuzzy' and unscientific. Findings from the field of neuroscience could provide some hard evidence for principles in understanding human behaviour.

The South African context provides a wonderful and unique platform for exploring and gaining an improved understanding of diverse human behaviour. As a developing country with a diversity that is reflected in its 11 official languages, the role of leadership is an expanding one. In addition to working within a diverse workforce, many changes have been implemented in South Africa over the past number of years that relate to legislation, politics and employment equity to name a few.

The South Africa Department of Labour commissioned research that focused on scarce and critical skills (2008). Some references in this study highlight the need for an increased focus on management and leadership skills. "Business leadership" is listed in the second highest category (referring to the scarcity of business leadership within the country), which is prioritised for investments in skills development and implementing of the Immigration Act of 2002. Changes in employment per occupation group indicates an increase in management roles from 500,000 in 1995 to 857,000 in 2005. This represents an increase of 58%.

The challenges facing leaders globally are present within the South African context, most likely leading to increased levels of stress. In his study, Van Zyl (2002) found that the South African manager experiences higher levels of stress than managers in other countries. It is within this framework that the value of principles gained from the field of neuroscience, may provide leaders with an additional tool within their toolbox, to understand and manage both their own behaviour and that of those they lead.

1.2   THE RESEARCH PROBLEM

The field of neuroscience allows for a deeper understanding for human behaviour by exploring neural structures and processes. Although the term 'neuroleadership' was coined by David Rock (2009), as early as 2000 an article was published with the title "The new neuroscience of leadership" (Cooper, 2000). The focus of this article, though, differed with the key concepts of neuroleadership as it is understood today, as it also focused on the brain in the gut and heart.

The dilemma with neuroscience as a field within the behavioural science is that the research is often done by neuroscientists, while the interpretation thereof is done by behavioural scientists. Researchers that explore the contribution of social cognitive neuroscience to the field of leadership are limited. The Neuroleadership Institute (NLI), headed up by David Rock appears to be the frontrunner in this field. The institute provides various certificate programmes and also focuses on research priorities that are shared through their quarterly journal. The institute also organises annual conferences.

The NLI defines neuroleadership as an emerging field of study connecting neuroscientific knowledge with the fields of leadership development, management training, change management, consulting and coaching. They categorise the field of neuroleadership in four key domains, namely making decisions and solving problems, regulating emotions, collaborating with others and facilitating change.

Various models have emerged, attempting to organise emerging neuroscience knowledge into frameworks: SCARF (Rock, 2009), Integrative neuroscience (Gordon, Barnett, Tran & Williams, 2008), Frame storm (Prehn, 2012) and CORE (Hills, 2014).

As a new field, empirical research is increasing as is evident in the number of journals. There is little evidence though of research that demonstrates how the field of neuroscience has contributed to change in leadership behaviour. The field of neuroleadership

has also received its fair share of criticism. Whether it is 'anything new' is being questioned by academics and thought leaders in the field of leadership like Howard Gardner and Warren Bennis (van der Walt, 2012).

Although there are various articles that contemplate and debate the value of social cognitive neuroscience within the field of leadership, what is sorely lacking is empirical research that provides supportive evidence by means of observation and experimentation. This exploratory study aims to contribute empirical evidence of how gaining knowledge of social cognitive neurosciences is interpreted by leaders and applied within their leadership roles.

1.3   AIMS OF THIS RESEARCH

The general aim of this research is to investigate the value of an increased understanding of social cognitive neuroscience in facilitating leadership behaviour change and ultimately to contribute knowledge within this field.

The specific literature aims are:

- To explore the evolvement of leadership theories.

- To review research findings in social cognitive neuroscience, specifically related to the field of leadership.

- To review trends in leadership development programmes.

The specific empirical aims are to determine:

- How gaining social cognitive neuroscience knowledge contributes to the development of leaders within an organisational setting.

- Why leaders change and what is the underlying process that leads to behavioural change.

- How leader behaviour changes manifest within the organisational setting based on participants understanding of social cognitive neuroscience knowledge gained.

- What the perceived impact of behavioural changes on the leader and others is.

1.4   THE PARADIGM PERSPECTIVE

Social cognitive neuroscience forms the theoretical paradigm for this study. Although the term neuroleadership was coined by David Rock, the foundations of the neuroscience of leadership stems from the field of social cognitive neuroscience. Social cognitive neuroscience uses the tools of neuroscience to study the mental mechanisms that create, frame, regulate, and respond to our experience of the social world, (Lieberman, 2010). Lee, Senior, and Butler (2012) summarised social cognitive neuroscience as the study of the relationship between mind and brain. Social cognitive neuroscience examines social phenomena and processes using cognitive neuroscience research tools such as neuro-imaging technology, namely fMRI, PET, ERP and lesion studies. There is some overlap in how the social cognitive neuroscience research and the Neuroleadership Institute, NLI (Ringleb & Rock, 2008) categorise the research domains as illustrated by the researcher in Table 1.1.

Table 1.1. *A Comparison Between the Social Cognitive Neuroscience Framework and the Neuroleadership Institute's Framework*

Social cognitive neuroscience	NLI
Self-awareness and understanding	Decision Making and Problem solving
Emotional regulation	Emotional regulation
Understanding others	Collaborating with others
Processes at the interface of self and others	Facilitating Change

Much of the literature in neuroscience is based on the premise that the overarching organising principle of the brain is that of maximising reward and minimising danger (Gordon, 2000). When faced with potential reward, we tend to adapt an approach response and, where a potential threat exists, we will tend to avoid it. With the progress of civilisation, what is experienced as a reward or a threat could be very subtle and is often not at a conscious level.

Organisations provide a social structure where leaders influence the behaviours of others by either creating a rewarding or painful experience. Without in any way trying to simplify the complexity of neuroscience, for purposes of this research, a social cognitive framework will be utilised to gain some understanding of the relevant neural networks and the relevance thereof within an organisational setting.

1.5   RESEARCH / EMPIRICAL PARADIGM

As the experience and interpretation of participants' experiences form the foundation of this research, a constructivist ontological paradigm is utilised. This paradigm implies that outcomes are influenced by the interactions between participant and researcher (Bryant & Charmaz, 2007). Knowledge and insight are therefore constructed by the researcher as well as the researched within a certain context. Reality is relative and based on social interactions and experiential experiences within a defined context (Klenke, 2008).

Both a pragmatic as well as interpretivist epistemological paradigm underlies the researcher's perspective. Klenke (2008, p. 23) referred to Golfashani's view of interpretivism, which is that "knowledge and therefore meaningful reality as such, is contingent upon human practices, being constructed in and out of interactions between human being and their world and developed and transmitted within a social context". Understanding social cognitive neuroscience within the context of leadership is largely

dependent on the examination of the interpretation of the participants and the researcher (Bryman, 2008). The interpretation of social cognitive neuroscience principles does not constitute objective knowledge, as the researcher guides the process of inquiry and engages with the participants (Klenke, 2008), resulting in descriptive co-creation of meaning.

As the research focus is both on understanding of neuroscience principles as well as the application thereof, it supports the use of a pragmatic epistemological paradigm where theory and practice unite. Pragmatism supports action and the importance of deriving knowledge from experience (Klenke, 2008). This research is focussed on both the interpretation of social cognitive neuroscience knowledge as well as application thereof within a leadership context.

1.6   LITERATURE REVIEW (THEORETICAL CONSTRUCTS)

1.6.1   Neuroscience

Neuroscience refers to the scientific study of the nervous system (Pillay, 2011), which consists of the central nervous system (brain and spinal cord) and the peripheral nervous system (consisting of nerves that consist of bundles of axons – also called fibres). Traditionally neuroscience has been part of biology, but is rapidly expanding and becoming an interdisciplinary science that links with various other fields such as chemistry, engineering, psychology and the behavioural sciences. In the behavioural sciences, the brain is of special interest as research findings refer to the plasticity of the human brain, which refers to the ability to change. The brains' plasticity is of particular value in learning new skills and behaviours.

1.6.2 Neuroleadership

Neuroleadership, an abbreviation for "the neuroscience of leadership" refers to an approach where insights from the fields of social, cognitive and affective neuroscience is applied to the field of leadership (Siegel & Pearce-McCall, 2009), and in particular within the world of work and business. The focus of neuroleadership is on assisting leaders to gain insight and practical strategies for emotional regulation as well as the ability to relate with others. Brown and colleagues (Brown, Swart, & Meyler, 2009, p. 1) aptly referred to neuroleadership in their article as "a paradigm shift – from varieties of guessing to the possibilities of knowing". Knowing more about the brain, could assist in better managing and directing one's behaviours and becoming more effective as a leader.

1.6.3 Leadership behaviour

Research on leadership delivers a multifaceted picture, providing varying models and perspectives on leadership: trait theories, behavioural theories, situational and contingency approaches, path-goal models, transformational leadership (Storey, 2004).

Kouzes and Posner (2010) identified four practices that are associated with being a leader: "modelling the way", "inspiring a shared vision", "challenging the process", "enabling others to act" and "encouraging the heart". John Kotter (1998) differentiated between leadership and management. He associates management with dealing with complexity and leadership as coping with or leading change. He further expanded on the role of leadership as one of providing direction, aligning, motivating and inspiring people.

Authentic leadership adopts a social cognitive view (Gardner, Avolio, & Walumbwa, 2005). Contributing to theory development of authentic leadership, Bill George identified five qualities of authentic leadership: Understanding purpose, practice solid values, lead with the heart, establish enduring relationships, and demonstrate self-discipline. Although many

leadership theories exist, they do not appear to present a range of effective behaviours (Lee et al., 2012).

For the purposes of this study, a social cognitive approach will be used. Leadership behaviour will relate to the following categories: understanding of the self, emotional regulation, understanding others, processes at the interface of self and others.

1.7   RESEARCH APPROACH

As there is limited research in this domain, this study was inductive, exploratory and qualitative of nature (Terre Blanche, Durrheim, & Painter, 2012). The focus was on exploring experiences, insights, thought processes and resulting behavioural changes at an individual level. Participants may also not always know what played a role in their behavioural changes, which would need skilful exploration by the researcher (Allan & Skinner, 1991). A qualitative approach provided the researcher with the ability to gain an in-depth understanding of research participants' perspectives and experiences.

1.8   RESEARCH STRATEGY

Klenke (2008) discussed the advantages of a case study approach where the approach is exploratory of nature and little previous research has been done on a particular phenomenon. Yin (2014) advocated case study as the favoured approach when the focus is on exploration and description and "how" and "why" questions are being asked. Research questions in this study focused on how social cognitive neuroscience is interpreted and applied by leaders as well as why leader behaviour changes are made and how the changes impact on others. As the focus on this study was on exploring the insights, applications and processes leading to behavioural change for leaders working for an organisation in the retail industry, it can be defined as an interpretive case study.

1.9 RESEARCH METHOD

The research method is shared by providing information on, as well as access of, the researcher to the research setting, the design process of the leader development intervention, the sample and the data collection methods as well as the process followed in analysing the data. Strategies that are employed to ensure the quality of the data are also shared.

1.9.1 Research setting

The organisation in this case study is in the retail industry. The organisational culture is described as supportive and approachable, allowing for individualism and freedom of choice. Although fast-paced, work-life balance is encouraged. Fairly flat in structure, the word 'pioneering' is used with pride by employees. Challenge and change are encouraged in order to deliver service excellence. Employees are encouraged to take ownership for their own development, with the company providing the necessary learning and development platforms.

1.9.2 Entry and establishing researcher roles

Entry was gained within the organisation, by an agreement to run a pilot leader development intervention which was focussed on sharing social cognitive neuroscience principles related to leadership. Following the pilot roll-out, the group talent manager and group learning and development manager agreed on further interventions. Group size was kept relatively small (maximum 12 delegates) to encourage discussions and provide a safe environment for self-exploration and sharing. The leader development intervention was aimed at employees within a management role. The role of the researcher in the different phases of the research will be shared in more detail:

1.9.2.1 *Phases in the research process*

The research had a number of stages that are summarised in Figure 1.1.

Prior to the research	• Gain knowledge within the field of neuroscience • Design the leader development intervention • Pilot roll-out of the leader development intervention • Refinement and finalisation of the intervention
Leader development intervention	• Continuous literature review • Conduct leader development interventions over a period of 2 years
Data collection	• Design the interview • Conduct interviews 2 months after completion of each intervention over a period of 2 years
Final findings & report writing	• Analysis of data • Summarising findings • Report writing

Figure 1.1. Prior to the Research

1.9.2.1.1 *Prior to the research*

Because the researcher was interested in the field of neuroscience, she completed a 2-year post graduate certificate through the University of Middlesex, England, which was focussed on providing an understanding of neuroleadership. The post graduate certificate entailed weekly on-line classes and homework assignments, as well as modular critical commentaries over a year period. In the second year a research project resulted in successful completion of this certificate programme. This provided the researcher with foundational knowledge of neuroscience within the field of leadership. Continuous reading of publications provided further expansion of this knowledge.

Attempting to make the knowledge pragmatic and useful to leaders resulted in the design of a leader development intervention which was piloted by the organisation where this

research took place. During the initial pilot roll-out of the intervention a total of 15 delegates attended. Participants were from diverse management roles and divisions, amongst others, human resources, corporate communications and legal. After each module, a feedback session was conducted to determine the effectiveness of the programme design. This feedback resulted in ongoing changes and refinement to the intervention.

1.9.2.1.2   *Design of the leader development intervention*

The design of the leader development intervention required continuous review of neuroscience literature, as new research was being published on a monthly basis. The design of the leader development intervention took place over a period of two years (2014 & 2015). The final leader development intervention consisted of five morning sessions that were held at monthly intervals. Various groups attended the leader development intervention over a period of two years, in 2016 and 2017 resulting in an attendance of 49 individuals during this period.

1.9.3   **Data collection methods**

1.9.3.1   *Sampling*

As the focus is on in-depth analysis, smaller samples are acceptable (Silverman, 2005). For this purpose non-probability purposive sampling was utilised. Delegates participated in the research on a voluntary basis. Consent was contracted and formalised with the organisation prior to gaining consent from the research participants.

1.9.3.2   *Data collection process*

As the focus is on participants' experiences and thought processes, a qualitative approach requiring semi-structured interviews (Kvale, 1983) and participant observations (Marshall & Rossman, 2011) was deemed to provide the best vehicle for gaining information.

Kvale (1983, p. 174) defined the qualitative research interview as; "an interview, whose purpose is to gather descriptions of the life-world of the interviewee with respect to interpretation of the meaning of the described phenomena". The value of interviewing lies in the freedom of participants to portray what is of value and significant to them, without confining restrictions. Kahn and Cannell (in Marshall & Rossman, 2011, p. 80) described the interview as "a conversation with purpose". This allows for high credibility and face validity as well as flexibility for the researcher to further explore thought-provoking or unforeseen themes raised by participants (Klenke, 2008). Interviewing requires openness and listening skills to "give voice" to research participants (Strauss & Corbin, 1998). The researcher therefore remained the primary data collection tool (Klenke, 2008).

To avoid the pitfalls of an impressionistic approach (Allan & Skinner, 1991), structure was given to the interviews by predetermined questions, ensuring that all interviews covered the research questions. This aided in ensuring that analysis was also done in a systematic manner. To ensure depth as well as detail, there were a number of main questions as well as probing and follow-up questions (Klenke, 2008). Main questions ensured that the main research topic was the focus of the discussion. Probing questions elicited additional information to ensure clarity, depth and further detail.

The level of motivation of participants is a variable that could influence the data collection. Mouton and Marais (1996) mentioned two particular considerations: the level of interest and the level of threat. Various leadership interventions are available within the research organisation. As participants are nominated to attend the leader development intervention without consultation, this could influence the interest and motivations levels negatively.

A key principle within the domain of neuroscience is that of minimising threat. During the information sharing session with participants, potential threats were clarified, and

addressed within the formal contracting consent. Interviews were conducted at the venue of the participants' choice and were mostly within the work environment, during working hours at a time that was convenient for the participant.

The active participative role the researcher played in facilitating the leader development interventions also provided an invaluable opportunity for observation of classroom behaviour. During the research process, field notes were made. Bernard (2013) referred to descriptive notes based on two sources, namely watching and listening. These formed the basis for field note taking.

The researcher took cognisance of the fact that a qualitative approach requires flexibility in design. As concepts and relationships emerge in the process of data collection and analysis, it may be required to collect further data. However, this proved not to be necessary.

1.9.4 Data analysis

The interviews produced a great volume of data which needed to be reduced, understood and interpreted in a meaningful manner that addresses the empirical research aims (Klenke, 2008). The data were firstly transcribed to written text. Data were then analysed by means of a content analysis process as defined by Ritchie and Lewis (2003). Content analysis aims to reduce text in the form of words, sentences and paragraphs into manageable themes that allow concepts, patterns and relationships to emerge. Content analysis requires a clear and systematic process to support the findings. In this particular case study, the content analysis followed the four steps as proposed by Ritchie and Lewis (2003). This entailed a process of initial coding and categorisation of initial themes, linking the data to the identified themes, sorting the data according to the themes. The last step was to summarise and synthesise the data. Adapting a reflexive approach and being aware of the possible role of bias, the services of a co-coder was recruited during the process of initial coding. The

concepts as identified by the researcher and the co-coder were compared, looking for similarities, differences and frequency of occurrence.

The process of content analysis allowed for the volume of data to be reduced with a focus on understanding and relevance. Although described in four steps, the process can be viewed as an iterative one, which requires constant reflection of the data, and continuous refinement of the themes. Each phase of coding is focussed on both reducing the data and also on interpretation. This makes the data manageable and allows for meaningful interpretation (Marshall & Rossman, 2011).

1.9.5   Strategies employed to ensure quality data

Qualitative research is, to some extent, a paradox as it requires and objective interpretation of a subjective human experience (Klenke, 2016). In this case inter-interviewer reliability was not feasible, as it was not practical to let participants undergo a second interview with another person. Reliability of interpretation of data that were generated may be increased. For this reason, a sample of interviews was coded by a co-coder in order to compare the resulting codes and themes. In addition, potential influences in the interpretation of data were made known.

To increase the trustworthiness of the research, criteria as defined by Marshall and Rossman (2011) were adhered to and data collection methods were made explicit. Analytic constructs were based on data. Deviant findings were actively sought (Silverman, 2005) and negative findings were accounted for. Potential biases and assumptions were discussed. As research progressed and there were possible changes in the research strategy, these were documented.

Flick (2009) referred to various codes of ethics as formulated within Britain, USA and Germany. He also noted the work of Murphy and Dingwall who use the term "ethical

theory". The following guiding principles applied to research participants to ensure ethical conduct:

Informed consent: Research participants were given information about the nature of the research both in written and verbal format. This provided opportunity for clarification of possible concerns. Consent were formalised in writing. Consent were free from "any element of fraud, deceit, duress or similar unfair inducement or manipulation" (David & Sutton, 2011, p.43).

Autonomy: Although delegates were nominated for the leader development intervention, they had the freedom to participate or decline in the research process. Participation in the research was voluntarily.

Non-maleficence: To ensure that information gained from the interview process did not, in any way, harm participants, confidentiality agreements were signed with all role-players involved in the research process.

Beneficence: As this study focussed strongly on sharing of knowledge and gaining of skills and insights, it was to the benefit of participants.

Justice: Within the research process and analysing and writing of data, all participants were treated with respect. Personal judgements were excluded and interpretations were grounded in data.

1.9.6   Reporting

Reporting was done in a narrative style.

1.10 FINDINGS

In-depth descriptions were provided of the findings as well as possible relationships. Should changes be made in the research design based on an increased understanding as research progresses, these would have been reported. Findings were summarised according to the identified themes, categories and proposed theoretical model.

1.11 DISCUSSION, LIMITATIONS, RECOMMENDATIONS AND CONCLUSION

Based on the results and findings, a further literature study were conducted aimed at confirmation of findings. Maintaining an open mind, the researcher acknowledges that a further literature study allows for further possible extension, validation and/or refinement of the results, and not only to corroborate or contradict findings (Strauss & Corbin, 1998).

The final chapter provides opportunity for reflection on the research process, which includes insights as well as limitations. Recommendations were made on possible research that could flow from the findings.

1.12 CHAPTER LAYOUT

Chapter 1: Scientific orientation. This chapter addresses the motivation for the research, the research problem, the literature and empirical aims of the research, the research paradigms adopted, the research design and method used.

Chapter 2: Literature review - Exploring leadership – a myth or an ever-changing goalpost? Various models and theories attempt to depict leadership and are explored in this chapter. The contribution of leadership within an organisational setting is also addressed.

Chapter 3: Literature review: Social cognitive neuroscience – a new frontier? Neuroscience findings are explored within a social cognitive neuroscience framework.

Chapter 4: Literature review: Leader development - a life-long journey. The focus is on gaining an understanding of leader development, current trends, success measures and the learning process.

Chapter 5: Research design. The research approach and methodology are shared.

Chapter 6: Findings: Findings are reported in a narrative style.

Chapter 7: Discussion, limitations, recommendations and conclusions. Findings are further discussed and compared with research findings in the literature, limitations of this empirical research are addressed, suggestions are made for future research, and concluding remarks are presented.

Chapter 8: Addendums. Addendums that were referred to are provided.

CHAPTER 2:EXPLORING LEADERSHIP – A MYTH OR AN EVER CHANGING GOALPOST?

This chapter focuses on exploring the relevance of leadership in the modern day and how leadership is defined. Leadership theories have evolved over time and a short summary is provided of the various leadership theories and those theories most prevalent currently. The value of leadership is examined as well as elements that could play a role in leadership.

2.1   THE CONTEXT FOR LEADERSHIP

Reflecting on history, the question can be asked: who were the greatest leaders ever? With the accessibility to information and a host of opinions, the internet provides a variety of answers to this question, ranging from Mahatma Ghandi to Julius Caesar, and invariably includes Adolf Hitler. Depending on the source of information, different answers are provided; but three names seem to appear consistently: Mahatma Gandhi, Martin Luther King Jr. and Nelson Mandela. All three leaders stood for a higher purpose than themselves, focussing on the good of humanity, truth and equality. Yet many other names also make the list, for example Napoleon Bonaparte, Julius Caesar, Alexander the Great—great military men who were known for their strategy and ability to grow their empires. This list can be further refined by being more specific: great business leaders, great world leaders, best political leaders, etc. With further exploration it is clear that leadership cannot be viewed as a simplistic framework, as it is dependent on a number of variables. It is this complexity, as well as the various lenses through which it is viewed, that have placed limitations on the advancement of leadership as a science. Within the current literature there is no one single definition for this term.

This lack of a clear definition and common understanding of its' true value has been a key criticism of leadership (Bennis, 2007; Pfeffer, 1977; Podolny, Khuruna, & Besharov,

2004). Research in the field of leadership has been extensive and ongoing, yet Burns (1978) commented that, although "leadership is one of the most observed phenomena", it is still the least understood! A possible reason for this could be the constant changes we are confronted with, which necessitates continuous changes in leadership.

Without exploring historical differences in depth, but rather focusing on what we may have experienced in our lifetime, the vast generational differences that exist within the workplace from the 1950's to modern day, cannot be denied. Considered as a period of relative stability, the 1950s to 1980s were indicative of relatively stable careers with employees being rewarded for their loyalty and long years of service. Focussed on maintaining this stability within their national or local environment, organisational approaches provided clear hierarchies and fairly autocratic leadership styles (De Vries, 2001). The 1980s saw a number of changes in amongst others; demographics, globalised competition and increased market maturity, regulatory and statutory changes, technological changes in information and communication which resulted in new business models (Kotter, 1988; De Vries, 2001). Published in 1988, Kotter referred in his book to what he termed an increased "competitive intensity", which largely contributed to destabilising organisations and markets. With increased uncertainty and unpredictability, a different style of leadership became critical. The turbulence of uncertainty and scarcity could also amplify the relevance of leadership. It was in these times of increased competition and limited opportunity that greater accountability has been placed on leaders to optimise available opportunities and resources (human or financial capital) to guarantee return on investments (Wasserman, Anand, & Nohria, 2010). In the previous era, positional authority was respected and accepted. Within the current organisational environment, a different form of leadership is required—leadership that is authoritative or respect-based rather than authoritarian (or position based) (De Vries, 2001).

With an ever evolving and changing work environment, leaders need to adapt their leadership styles. In the early centuries, leaders were required to divide and conquer. Leaders like Napoleon Bonaparte, Alexander the Great and Julius Caesar were renowned for their success in expanding their empires. Although not much is known of their leadership styles, given that it was a military environment that required orders to be honoured in the face of death, it can be assumed that the style of leadership would have been very different to the ones adopted in modern day society, where employees may not respond well to a militaristic or authoritarian approach.

The changes in the work environment created a volatile environment with no clear guarantees. This led to significant changes in the underlying psychological contract, moving from paternal dependence to more interdependence (organisations view) and individualism (employees view) (De Vries, 2001). Changes are impacting at every level, both employees in their personal and professional capacity, as well as at organisational level. Employees increasingly need to deal with a lack of security and the unknown and manage their own careers. These different skills imposed at both personal and professional levels, require a shift in responsibility and authority, as well as the need to form new coalitions.

At an organisational level approaches need to be customer focussed and globally oriented; they need to promote change, networking and collaboration. Whereas leadership was previously often linked to a role and therefore limited to the higher echelons, the complexity of the current work environment and the need for collaboration, amplified the need within lower level managerial, professional and technical roles.

Kotter (1988) described this as a radical shift from the stable and prosperous 1950s and 1960s that seldom required leadership as this would more likely be disruptive to current practices. It is acknowledged that external influences played a significant role in what is

required of leaders and therefore how leadership is defined. Despite this lack of one clear definition, there does appear to be some elements of consensus, for the moment.

2.2 WHAT IS LEADERSHIP?

Barling (2014) suggested a possible reason for the lack of a clear definition was that writers and researchers were partial to their own interpretation and definitions, resulting in a lack of consensus. This has led to a multitude of models and theories on the subject of leadership.

Recognising the need for a general theory of leadership (GTOL) MacGregor Burns with the assistance of Sorenson and Goethals took the lead and convened researchers from various disciplines in an attempt to "provide people studying or practicing leadership with a general guide or orientation, a set of principles that are universal which can then be adapted to different situations" (Goethals & Sorenson, 2006, p.48). Researchers included political scientists, anthropologists, historians, philosophers, psychologists, and public administration and later also members of the International Leadership Association (ILA). A collaboration of interdisciplinary scientists was thought to be the best approach, which was also supported by other thought leaders in leadership (Bennis, 2007; Sorenson, Goethals, & Haber 2011). Over the period 2002 and 2003 a number of plenaries were held. Although a book was published in 2006, a common theory remained elusive. This was mostly attributed to the wide and varying viewpoints on what constituted theory, as well as different perspectives on assumptions, focus and methodology resulting from the multi-disciplinary approach. In their definition, this research group defined leadership as "phenomenon focussed on vision, challenge, collaboration, process and product" (Sorenson et al., 2011, p.33).

Various other definitions encapsulate these different elements: Kouzes and Posner (1995, p. 30) defined leadership as "the art of mobilizing others to want to struggle for shared aspirations." Their focus appeared to support the thinking of action, vision and collaboration.

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Another definition stated, "Leaders are individuals who establish direction for a working group of individuals who gain commitment from this group of members to this direction and who then motivate these members to achieve the direction's outcomes" (Conger, 1992, p. 18)

Day and Antonakis (2012) referred to the work of Bass, who suggested that most definitions included the following four elements: the leader and his / her characteristics as well as behaviours (properties), the impact of the leader, relational process between the leader and follower(s), and the situational framework. Within the realm of leadership, there were often references to both the properties as well as the process of leadership. Manfred Kets de Vries (2001) highlighted these two different departure points in defining leadership, where leadership can be viewed as both property and process.

Where leadership is viewed as property, the focus is on particular characteristics or personality traits of the leader to ensure effectiveness. A concern with this approach is its one-sidedness where the primary focus is on the leader, without recognising the dynamic nature of the relationship (Stogdill, 1981). On the other hand, when viewed as a process, the focus is on the activities of the leader to influence group members and direct their actions toward a common goal.

This approach tends to link with most definitions, which address three core elements to which Warren Bennis (2007) refers to as a tripod: a leader or leaders, followers and a common goal to achieve. The three elements can be viewed as inter-dependent and leadership is grounded in a relationship.

The activities of the leader could relate to directing and coordinating the work of group members by providing direction, creating alignment and increasing commitment (Alvesson & Spicer, 2014; Stogdill, 1981). Attempting to expand on this definition of viewing leadership as a particular process (leaders influencing followers towards a shared

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goal), Van Velsore, McCauley, and Ruderman (2010) stated that leadership is any process that produces direction, alignment and commitment in a collective.

Early approaches in attempting to understand leadership were fairly one-sided and did not acknowledge the reciprocal nature of leadership, often viewing the leader as the centre of activity (Stogdill, 1981). Increasingly, there is acknowledgement of the potential impact one individual can have on the behaviour or activities of others (Stogdill, 1981). Some research therefore focused on the relationship between the leader and follower. Stogdill (1981, p.14) referred to Merton who placed emphasis on the interaction process itself and stated that leadership is "an interpersonal relation in which others comply because they want to, not because they have to". Leadership only exists when acknowledged and granted by other members of the group. Increasingly the importance of leadership being founded in a relationship is gaining prominence (Bennis, 2007; Kouzes & Posner, 2007).

The leadership process is mostly linked to goal achievement (Stogdill, 1981) or as Kotter (1988, p.14) referred to it, "moving a group of people in some direction through (mostly) non-coercive means". Strongly linked with goal achievement, the underlying supposition is that leadership can be measured in terms of its effects on group performances—an assumption which will be furthered explored.

Scholars further differentiate between leadership and management, with the distinguishing factor being the distinctive power bases. Dependent on formal authority, management activities would be planning, budgeting, organising, controlling. Relying on personal power, leadership focuses on influencing individuals to collaborate and achieve a vision. Day (2014) questioned this rigid distinction between leadership, and managing, seeing them as highly interactive and interdependent.

Given that the work environment is recognised as a constantly changing and evolving one, it would be understandable to assume that what is required of those leading others, and

how we therefore define leadership, could also change and could be different for each relationship and organisational context.

The value of coming to agreement on a clear-cut definition for leadership has also been questioned. Kort (2008) discussed the views of Joanne Ciulla who was of the opinion that leadership has been defined as that of a leader that ensures that followers achieve a goal. Given the ever changing context within which leadership plays out, the uniqueness of each organisational context and the individuality of every leader or follower, common agreement on one definition may be a lofty ideal. Nevertheless, a short summary follows of the main theoretical trends on leadership that have evolved since the 1940s to the present day.

2.3   A WALK THROUGH THE HISTORY OF LEADERSHIP THEORY

Guided by their professional judgement as well as a literature review of the Leadership Quarterly journals, Day and Antonakis (2012) provided a valuable diagram (Figure 2.1), which depicts a timeline of how the focus of leadership has evolved over time.

Biological												2010
Information process								1980	1990	2000	2010
New leadership							1970	1980	1990	2000	2010
Relational							1970	1980	1990	2000	2010
Skeptics							1970	1980	1990	2000	2010
Contextual						1960	1970	1980	1990	2000	2010
Contingency						1960	1970	1980	1990	2000	2010
Behavioural				1940	1950	1960	1970	1980	1990	2000	2010
Trait	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010

Legend: Very active   Moderately active   Generally inactive

Figure 2.1. Timeline of the Evolvement of Leadership Theory

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Theories about leadership prior to the 1980s were largely transactional, emphasising the importance of goals, performance feedback and the application of appropriate consequences to employee behaviour (Barling, 2014). Managers had formal power, based on their position, and therefore the authority to transact. Since the 1980s, the focus of research has shifted to new-genre theories. Transformational leadership was the most studied theory between 1970 and 2012 (Day & Antonakis, 2012). Figure 2.2 depicts how the leading questions researchers posed, guided leadership theory.

Figure 2.2. Guiding Questions to Understanding Leadership

2.3.1 Who are leaders: the era of traits and personality theories

Early research followed a psychological approach and focussed on identifying the unique skills or traits of a leader. The thought process was that leaders could be distinguished by their unique skills or traits. Referred to as 'great man' theory, where exceptional individuals were the benchmark (Day & Antonakis, 2012), various researchers identified lists of traits, with the list of traits escalating indefinitely.

Attempting to refine the qualities required of a leader, the researcher, Bird (in Stogdill, 1981) analysed 20 psychologically oriented studies. Bird compiled a list of 79 traits following his research. Following a similar approach, Stogdill analysed 15 studies. He narrowed the list down to five traits in which leaders surpassed their piers: intelligence, scholarship, dependability in exercising responsibilities, activity and social participation and socioeconomic status.

Conducting further research in 1970, Stogdill expanded on his first list to include a further eight traits; namely "a strong drive for responsibility and task completion, drive to exercise initiative in social situations, self-confidence and sense of personal identity, willingness to accept consequences of decisions and actions, readiness to absorb interpersonal stress, willingness to tolerate frustration and delay, ability to influence other persons' behaviours, and capacity to structure social interaction systems to the purpose at hand".

Renowned author and scholar in the field of leadership, Warren Bennis, suggested leaders have six competencies: "They create a sense of mission, they motivate others to join them on that mission, they create an adaptive social architecture for their followers, they generate trust and optimism, they develop other leaders, and they get results" (Bennis, 2007, p.5). Reflecting on the above two scholars' lists, there appears to be little consensus as the first list focused more on property and the second being more process driven.

More recent thinking presupposed that people who are emotionally intelligent are more likely to be effective leaders. Emotional intelligence is about understanding the motivational forces of self and others and the ability to manage them (de Vries, 2001). This constituted yet another perspective of leadership traits.

A more recent study was conducted over a five year period with 1,435 Fortune 500 companies. This study was aimed at clarifying the contributing elements to sustaining outstanding companies, the role of leadership as driving factor was highlighted (Collins, 2001). Following the trait theory approach, leaders in these companies were described as humble, taking responsibility when things go wrong, attributing success to others, hardworking, focused on achieving sustainable results for both the company and their successors.

There are a number of criticisms of the trait theory approach, one being the lack of consensus on the specific traits or personality required of leaders. Overall, there is no consensus on a single list of traits that define a leader (Avolio, 2011). In fact, the lists are fairly divergent. Given the diverse nature of the work environment, organisational cultures and industries, it may be unrealistic to limit leadership traits to a single list.

Another criticism is that individuals that have the required skills or traits are not necessarily always the leaders (Nohria & Khuruna, 2010). Personality traits therefore do not guarantee leadership. The focus of leadership theory therefore shifted from "who" leaders were, to "what" they did, identifying key behaviours.

2.3.2   What do leaders do: a focus on Behavioural theories

The focus of researchers moved to gaining an understanding of the actions or behaviours that leaders displayed to create an environment that was constructive for employees. Most behavioural theories classify leadership styles as focussed on either task achievement or people oriented (Glynn & de Jordy, 2010) or democratic versus autocratic

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(Day & Antonakis, 2012). Ensuring task achievement, requires a focus on ensuring that enabling structures or processes are in place (initiating structure), while a people orientation places the emphasis on building and maintaining interpersonal relationships (consideration). The behavioural approach generated a number of theories:

X and Y theory. *Mc Gregor's theory X and Y* proposed that leaders have underlying beliefs that influence their behaviour and resulting leadership style. Theory X supports the view that people do not want to work or accept responsibility and therefore need to be supervised, disciplined and incentivised. The opposing view, theory Y, supports the view that people do want to work and make a difference, responding to autonomy and responsibility and therefore require a different style of leadership .

Leadership grid. Also linked to behavioural theory is the *leadership grid*, suggested by Blake and Mouton (Stogdill, 1981), which provides insight into a leaders' style by identifying orientation towards production versus people. By determining the leaders' task or person centeredness, the grid provides five possible leadership styles which can be utilised as a framework for leadership insight and development.

Research findings continue to be contradictory and do not prove preference for any one preferred general leadership style (Day & Antonakis, 2012). Another key criticism against the behavioural approach is that little thought is given to the potential impact of the internal organisational context or the external environment. Stogdill (1981) further objected to the simplicity and linearity with which behaviour is described. The model presupposes follower behaviour based on the leadership style, without considering the complexity of relationships.

2.3.3   When do leaders do what: situational theories

As much of the critique against the previous theories was based on them not taking the organisational context or situation into consideration, researchers attempted to address

this deficit with contingency theories. Following a more humanistic approach, situational

theories acknowledge the human nature of employees and the resulting need for leaders to

create an environment where individuals can realise their potential as well as contribute

towards the accomplishment of organisational goals (Stogdill, 1981).

Focused on gaining a better understanding of the context in which leadership takes

place, contingency theories suggest that different styles of leadership may be applicable in

differing situations. In addition, not one style is preferable to another. This thinking

corresponds with what Stogdill found in his analyses, suggesting that the demands of the

situation plays a key role in determining which skills and characteristics are required by a

leader (Stogdill, 1981).

Contingency theories. Contingency theories focussed on various elements, ranging

from the leader-follower relationship, expertise of the follower as well as receptivity of

followers to the leadership style. A short summary of several contingency models follows:

Vroom and Yetten (Hackman, 2010) suggested a model for *decision-making*. By

answering seven key questions related to the current situation (quality of the decision,

information available, level of structure, acceptance of decision, goal congruence conflict and

team acceptance), leaders are guided on the extent to which their team should be included in

the decision-making process. Decision-making possibilities range from an autocratic,

democratic to a consultative process.

Following on the work of Vroom and Yetton, was the development of the *path goal*

theory, which is based on expectancy theory. Expectancy theory presumes that an individual

will act in a certain way based on the expectation that their action will be followed by a

certain outcome, as well as the attractiveness of that outcome to the individual (if I do this, I

will gain that). In order to ensure goal achievement, path goal theory suggests five leadership

styles (Directive, Supportive, Participative, Achievement oriented), based on the leaders'
understanding of the follower.

Further expanding on situational elements, Fiedler's (1964) *contingency theory*
explored the fit between the leader's preferred style and the situation, by providing more
guidelines on the situation. The situation was influenced by a number of elements: leader-
member relations, the degree of task structure as well as the positional power of the leader
(Day & Antonakis, 2012).

Generating *situational leadership theory*, Hersey and Blanchard (1993) suggested that
the leadership style should be adapted according to the maturity of the follower. The
maturity of the follower is defined by both psychological and job maturity. The leadership
style would range from task focussed to relationship focussed with the following suggested
styles: delegating, participating, selling and telling.

Contingency theories provide more flexibility than trait and behavioural theories and
take situational elements into consideration. Although attempting to gain a better
understanding of the context, the contextual scope is limited and tends to focus on the work
situation or the follower. As research continued, it became increasingly apparent that a
multitude of elements influence leadership, for example organisational culture, demographic
differences.

Should every factor be taken into consideration though, the models could become
very complex. Based on the industry, organisational culture and demographics, to name a
few, influencing elements could differ vastly. The more complex the model becomes, the
less palatable and user-friendly it is for a leader to apply when needed the most—at times of
highest pressure.

2.3.4   Who is being led – a relationship focus

Most of the actions taken by a leader are focussed on the follower within the context of achieving a goal, this then became the focus of researchers. Focusing on the quality of the relationship between leader and follower, exchange theories highlight the uniqueness of each relationship, where each party can satisfy the expectations of the other on an equitable basis.

Exchange theory. As each relationship is unique, the leadership style is likely to vary. A variable that could influence the leadership style is the extent to which the leader and follower are similar or dissimilar. *Exchange theory* proposes that where leader and follower are similar, the leader is likely to provide the follower with more responsibility, attention and rewards. Should the leader and follower be dissimilar, a more formal management style is likely to be applied (Glynn & de Jordy, 2010). Depending on the quality of the relationship cooperation would be either based on trust and mutual respect or on the fulfilment of contractual obligations (Day & Antonakis, 2012).

Expanding on exchange theory, George Graen and colleagues (in Barling, 2014) clarified which features would be present in high quality leader-member-exchange (LMX) relationships as well as in poor relationships. High quality relationships would be characterised by trust, understanding, support, provision of information, opportunity for involvement in decision-making, role latitude and autonomy. Poor quality relationships typically have one-way communication and downward influence, social distance, role distinctions, contractual obligations, and formal transactions that are based on distrust (Barling, 2014).

Whereas previous research did not consider the complexity of the relationship, there is increasing recognition of the reciprocity within the leader follower relationship. Oftentimes it was seen as one-directional, exploring the impact of the leader on the follower, but research demonstrated that followers also have the ability to influence the leader. Where leaders have followers that demonstrated positive mood states, their performance was found

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to exceed that of leaders that have followers that demonstrated negative mood states (Tee, Ashkanasy, & Paulsen, 2013). The mood of followers can influence the mood and resulting performance of the leader, which challenges one-directional thinking.

Acknowledging that leadership is based on a reciprocal relationship where both parties have the possibility to exert influence elicited different reactions. A key criticism was that the focus of research was only on one party, either the leader or the follower, and not on their interaction as well. In addition, the qualities that constitute a high- or low-quality relationship have evolved over time. Researchers therefore have not consistently measured the same characteristics within relationships (Barling, 2014). As with the previous theories, the focus is specific, and excludes the possible contributing role of personal, contextual and organisational elements.

2.3.5 Post heroic leadership: a collaboration

Most of the above theories place the leader at the centre and can be described as transactional. The focus is on setting clear goals, supervising performance, either actively or passively, and providing reward or punishment contingent on the performance of the follower. Leaders rely on their knowledge, formal hierarchical position and the power that goes with the formal position.

Given the complexity of the current work environment, no one person is likely to have all the answers and solutions to the challenges that the work environment is faced with. Whereas the previous era required control, compliance, compartmentalisation, the current era necessitates encouragement of ideas, information and interaction (De Vries, 2001). The ability to encourage idea generation and interaction shifts the focus from the leader being the star actor, to one of enabling others to play this role, as well as creating collaboration within the organisation.

New genre theories tend to emphasise this relational, inspirational and ethical nature of leadership. A strong focus of current research focuses is on what is termed transformational leadership. James McGregor Burns and Bernie Bass did extensive research and largely influenced the emergence of transformational theory.

2.3.5.1 *Transformational leadership*

With a long-term future focus, transformational leadership aims to develop followers into future leaders. As opposed to transactional leadership, transformational leaders rely on their informal powers to influence followers. This power is largely dependent on the quality of the relationships. Burns and Bass identified four key behaviours that illustrate transformational leadership (Barling, 2014; Avolio, 2011).

Idealised influence: With a strong ethical component, the leader is focussed on achieving positive outcomes for the collective or organisation without any self-gain.

Inspirational motivation: Guided by a clear vision, leaders build confidence in their followers to overcome any potential challenges.

Intellectual stimulation: Leaders stimulate independent, innovative and creative thinking.

Individualised consideration: Leaders give attention to the growth and development of individuals as well as emotional support for personal needs.

Although dominating the research landscape at the moment, transformational leadership is not without criticism as the independence of the above constructs were questioned (Rowold & Borgmann, 2013). Further validation may be required. Irrespective of this, research on transformational leadership is diverse and ongoing, exploring various avenues from determining influencing elements to predicting transformational leadership.

One such a study expanded on trait theory, and explored emotion-laden constructs within the context of transformational leadership. Gaining increasing attention is the role that

positive mood or positive affect plays. Positive affect was found to play a significant role in predicting transformational leadership as well as impacting on the effectiveness of transformational leadership (Jin, Seo, & Shapiro, 2016; Joseph, Dhanani, Shen, McHugh, & McCord, 2015).

In another study the role of emotional intelligence as a predictor for transformational leadership was explored. Using the Mayor-Salovey-Caruso emotional intelligence test (MSCEIT), the researchers found neither the total scores nor the branch scores predicted transformational leadership (Føllesdal & Hagtvet, 2013).

It would appear that although widely researched, further research would be beneficial. Although some theories have been touched on, the number of theories on leadership is extensive. It would be an injustice to not mention other theories on leadership that extensive research is being done on namely charismatic, authentic and servant leadership theories.

2.3.5.2   Charismatic leadership

Charismatic leadership can most likely be characterised under the trait theory category as it relates with the personality of the leader. Behaviour associated with charismatic leaders is their ability to express a collective vision that is moral and optimistic, as well as building employee confidence (Barling, 2014). The behaviour of the leader is central to this definition. An alternative interpretation is one that is more follower-centric, using what followers attribute to the leaders behaviour, as a departure point—it is about what followers prefer to see and how the vision resonates with them.

Being visionary, charismatic leadership is often confused with transformational leadership, but lacks the components of intellectual stimulation and individualised consideration, which form part of transformational leadership (Barling, 2014).

2.3.5.3 *Authentic leadership*

Another widely researched approach to leadership is that of authentic leadership. Authentic leadership is based on four key components: self-awareness, objectivity, transparency and an internalised moral perspective.

Self-awareness requires an understanding of personal strengths and weaknesses. Self-awareness as core to leadership is also highlighted by other researchers, amongst others by Warren Bennis (2009, p. 49) who stated that "people become leaders at the moment when they decide for themselves how to be".

Objectivity requires the ability for balanced processing of external information in an unbiased and impartial manner, which also relates to integrity. Transparency is linked with trust within relationships, and the last component to strong moral standards. The above components need not be seen as independent of each other. Authentic leadership relates strongly to displaying behaviour that is consistent with self-perception.

2.3.5.4 *Servant leadership*

Servant leadership is not a new concept, but is referred to in Christian literature as well as ancient Chinese philosophy (Adair, 2002). Within the business leadership context, it was first described by Robert Greenleaf in the 1970s when he published two books. Since it has become an increasingly prevalent phrase supported by various authors and experts, amongst others, Ken Blanchard. Characteristics of servant leadership have evolved over time with Larry Spears (CEO of the Robert K Greenleaf foundation) identifying the following 10: "listening, empathy, healing, awareness, persuasion, conceptualisation, foresight, stewardship, commitment to growth of people" (Barling, 2014).

Servant leadership as a theory relates to of the other leadership theories, in particular, transformational leadership, authentic leadership and LMX. What differentiates servant

leadership from other theories is the emphasis not only on organisational wellbeing, but also on the development of both the individual and communities.

2.3.6   The biology of leadership

An emerging field of research on the topic of leadership is that of gaining a better understanding of the biological aspect of leadership, or also often referred to as the neuroscience. Following a hard science approach by utilising technology, neuroscience attempts to obtain an understanding of the human brain and resulting behaviour. This approach has evoked many views, both positive and negative. One supportive view asserted that a better understanding of humans' biological make up could contribute to the field of leadership by gaining a better understanding of individuals, their environment and the interplay between the two (Arvey, Wang, Song & Li, 2014). On the negative continuum of the scale, the reductionist approach followed in the field of neuroscience and the quality of inferences drawn, have been questioned (Lindebaum & Zundel, 2013).

Because biology is the foundation, neuroscience draws information from multiple disciplines, ranging from biochemistry and endocrinology to psychology. An experiment conducted by Waldman, Balthazard and Peterson (2011) explored the possible correlation between neural activations in leaders and perceived charismatic leadership. Electroencephalography (EEG) technology records brainwaves or electrical activity in the outer layers of the cortex by placing electrodes on the skull. Leaders were assessed by their followers to gage their level of charismatic leadership, and a qEEG was conducted on the leaders to measure neural activity. The focus of the qEEG was on exploring activity in the right frontal lobe as this lobe is associated with emotional control, strategic thinking and insight. In the study they conducted a qEEG on 50 senior leaders and tried to correlate charisma (as perceived by followers) with brain activity in the right frontal lobe, which is associated with emotional control, strategic thinking and insight. The researchers found that

right frontal brain coherence predicted the leaders' behavioural charisma, as perceived by followers. Waldman et al. argued that such right frontal coherence is relevant to emotional control and that it may assist individuals when dealing with stressful situations and uncertainty. However, they acknowledged that their results were only tentative and that additional research was required.

The value of neuroscience as a contributor to leadership as a field is not established and requires significant more research. Although numerous articles are being published, providing insightful information about brain processes and structure, the relevance and application of this research to an organisation is not always clear. A chapter in this thesis is therefore devoted to exploring neuroscience as a research area in the study of leadership.

2.3.7   In summary

Glynn and de Jordy (2010) researched empirical studies that were published in various journals from 1957 to 2007. They found that between 1974 and 1980 the number of publications on the topic of leadership increased significantly, after which it tapered off. Momentum in research picked up again in 2006. Although research based on behavioural theories and contingency theories tended to be most prevalent. They found that after the 1980s there was no single dominant theoretical perspective.

Alvesson and Spicer (2014), mentioned that most of the research was based on functionalist assumptions—assuming that leadership is a constant entity that can be measured analytically. This assumption diminishes the dynamism and richness of leadership. Researchers often make use of questionnaires to generate information. Questionnaires, by nature, limit responses and the diversity and depth of meanings and interpretations. Behaviour is dynamic, and can be influenced by a multitude of elements ranging from the leadership style, follower behaviour, industry trends, economic conditions as well as organisational culture. The impact of contextual elements in advancing or inhibiting certain

leadership behaviours is increasingly becoming the topic of research (Day & Antonakis, 2012).

De Vries (2001) also highlighted the need for an interactionist approach in leadership models where the personality, values and beliefs of both the leader and followers are considered, as well as the contextual elements relating to the task, organisational life stage, organisational variables, culture, industry, socioeconomic / political environment. Despite, or perhaps as a result of, the multitude of models and theoretical frameworks, the question regarding the true value of leadership remains.

2.4   WHY LEADERSHIP: THE VALUE OF LEADERSHIP

Given the lack of consensus of leadership as a construct, measurement of the true value of leadership remains a contentious issue. Podolny et al. (2010), raised the question whether individuals (leaders) truly have the capacity to impact significantly on organisational performance. They went even further and stated that "if leadership does not directly impact organisational performance, then leadership does not matter to organisational life" (Podolny et al., 2010, p.4). Although a hard statement, if the value of leadership is not clear, the focus on it becomes debatable.

Hackman (2010) went further, maintaining it is not enough to justify the value of leadership, but that research is required to achieve an understanding of what it takes for a leader to make a real difference, and what the underlying values of leadership are. Literature appears to advocate two lines of thinking—one that links leadership with a profit motive, and the other that promotes leadership as a vehicle for creating purpose.

Should leadership be linked with organisational profit and system viability, anyone that supports or enhances the organisational system, in whatever way they deem fit, could surely then be viewed as a leader? This approach moves away from the sociological and psychological approach of leadership (Hackman, 2010). Given the number of elements that

play a role in organisational performance and profitability, research ascribing increased profit directly to leadership, proves difficult.

One such a longitudinal study (Lieberson & O'Connor, 1972) attempted to determine to which extent organisational performance, indicated by sales, earnings and profit, can be attributed to leadership, industry or company influences. The findings sparked controversy as they found that organisational performance could mostly be attributed to industry and company influences, with leadership having less significance. This study elicited a number of criticisms concerning their methodology on entry order, sample design, internal consistency and control variables (Thomans, 1988).

Although various studies that focussed on the link between leadership and organisational or employee performance found a positive correlation (Smith, Carson, & Alexander, 1984), it is becoming increasingly clear that it is not a clear-cut process and that a number of elements play role.

One possible factor is the level of experience of the employee. Research conducted within a sales environment showed that employees with low levels of product/industry knowledge and who are inexperienced benefit the most from empowering leadership behaviours, whereas knowledgeable and experienced employees did not reap any clear benefit from empowering leadership (Ahearne, Mathieu, & Rapp, 2005).

Another factor which influences whether leadership is valued as contributor to bottom line results is environmental stability. Researchers found that during times of environmental uncertainty there is a stronger link with charismatic leadership and performance, while in times of stability the role of transactional or charismatic leadership correlates insignificantly or marginally significantly with performance (Waldman, Ramirez, House & Purunam, 2011). It seems that when times are tough, leadership is valued more.

Different leadership behaviours also appear to impact directly or indirectly on performance results. In a study conducted in China, Wang, Tsui and Xin (2011) found a positive correlation between organisational performance and task-focussed behaviours, while relationship-focussed behaviours tended to have an indirect impact on organisational performance. Relationship-focussed behaviours correlated with employees' attitudes and engagement, which then influenced performance.

Another factor that impacts on organisational performance is that of staff turnover. Given the competitiveness of the work environment, a strategic goal within many organisations is that of attracting and retaining their talent. An often-heard colloquial statement is that "employees do not resign from their organisations, but from the boss". This statement highlights the potential influence of the leader in the workplace. The ideal leadership style in order to retain employees would seem to differ based on the need of the employee. Differentiating between what they term promotion-focussed followers and prevention-focussed followers, different leadership styles impact differently on turnover intentions of employees (Hamstra, Yperen, Wisse, & Sassenberg, 2011). Promotion-focussed followers are defined as employees directed at an ideal self, optimistic with positive expectations, a longer term orientation, and a preference for working in changing situations and experimenting with new things. Prevention-focussed followers are defined as focussed on meeting goals, obligations and responsibilities, with a preference for stability and a focus on shorter term details and avoiding mistakes. Hamstra et al. found that a transformational leadership style reduced turnover intentions for promotion-focused followers, whereas transactional leadership reduced turnover intentions for prevention-focused followers. Research to explore the value of leadership in enhancing performance continues to provide provocative results that are contradictory and often contextual. The alternative view is that leadership is about creating purpose.

Sorenson et al. (2011) referred to the work done by the research group, under the guidance of MacGregor Burns, that focussed on gaining a common leadership theory. They were convinced that leadership fundamentally involves meaning making and the ability to influence an individual's perception or world view, which creates the greatest possibility for behavioural action or change. The same authors also highlighted the work of other scholars like Weber, Barnard, and Selznick, who promoted leadership as a vehicle for purpose- and meaning-making, rather than one of generating profit.

Purpose is strongly linked with motivation and energy. Researchers extensively focussed on leadership and found positive correlations with motivation, psychological wellbeing, and engagement (Barling, 2014; Kelloway, Weigand, McKee, & Das, 2013; Park, Kim, & Yoon, 2017; Tims, Bakker, & Xanthopoulou, 2011) and learning (Waddel & Pio, 2015).

The impact of leadership on employee engagement elicited numerous studies. Empowering leadership was found to have a significant and direct impact on job engagement, (Park, Kim, Yoon, 2017). Within the South Korean work environment, Park et al. found that engagement contributes to a positive state of mind towards personal work and life. In their research, Breevaart, Bakker, Demerouti, Sleebos & Maduro (2014) also supported the finding that transformational leadership contributes to engagement and enhances performance. However research support for this effect of leadership on job engagement is not consistent and the effect appears to occur mostly where followers have a high need for leadership. Independent employees with a low need for leadership are unaffected by such transformational leadership behaviours.

Arnold (2017) reviewed the empirical research published over a period of 35 years and found that transformational leadership functions best as a predictor of employee wellbeing when positive transformational leadership is used as a measure to predict positive

employee wellbeing. He concluded that the current research highlights that leadership should not be viewed in a simplistic manner, as a number of variables could impact on employee wellbeing indirectly.

In an alternative line of research, researchers found that the lack of leadership has a greater leverage on performance than the presence thereof. In their study, McColl-Kennedy and Anderson (2002) found that optimism increases where transformational leadership is seen to be present. The increased level of optimism indirectly enhances performance. They found the greater direct impact on performance was the perceived absence of transformational leadership. The absence thereof increased frustration levels and negatively impacted on performance. Elements that contribute to this emotional scale are also employees' perceived relationships with their manager as well as employees' own view regarding their ability to perform.

Reviewing various researches, it may indeed be difficult to isolate profit motive from purpose- or meaning-making. Bennis (2007) was inclined to combine the two thought processes and saw leaders as playing a role in ensuring the organisation is effective, as well as providing guidance and hope to employees, in an ethical manner. What is also increasingly clear is the complexity and interconnectedness of a multitude of elements, of which not all are under the control of the leader, and therefore cannot be attributed to leadership.

2.5   ELEMENTS THAT INFLUENCE LEADERSHIP

Reviewing the literature from 1990–2005 in twenty-one major journals, the lack of research regarding the complexity and interconnectedness of contextual elements on leadership within the organisational context is clear (Porter & McLaughlin, 2006). Elements that influence how leadership is enacted within the organisational context relate to both the internal and external environment.

2.5.1 Internal environment

Being appointed as a leader within a role as opposed to being the business owner, could have a significant impact on decision-making powers and commitment. Business owners would typically have more authority to make decisions and have a strong allegiance to longer term organisational performance and profitability (Barling, 2014). There is a stronger relationship between charismatic business owners and profitability as opposed to being a charismatic managing director (de Hoogh et al., 2004). Business owners have a long term vested interest in ensuring the organisation is sustainable and profitable.

Another contributing factor that influences the control and possible contribution a leader can make is the size of the organisation. Research shows that, as the organisation increases in size, so the leaders' levels of optimism and confidence decrease (Barling, 2014). Organisations are increasingly global, with the result that a leader may have to manage teams that are geographically spread. Findings on whether physical distance impacts on the leadership role appear to be conflicting. Some research finds that the use of contingent reward to increase performance delivery and physical, has a negative impact, and other research finds it has no impact. Barling (2014) referred to research done by Ann Majchrzak and colleagues who found that the potential negative impact of physical distance can be avoided by the effective use of technology, and regular quality engagement. Other studies reinforced the need for quality communication as recipients were able to correctly recognise whether they had received a leadership vs. non-leadership message, which impacted significantly on task motivation and performance.

2.5.2 External environment

A key adjustment for everyone in the labour market deals with environmental uncertainty and ambiguity. As mentioned, the need for leadership is heightened in times of instability, as teams are quite capable of self-management in times of abundance and

predictability. It is in these uncertain times that some researchers believe the opportunity lies for leaders to prove their worth.

Exploring the impact of leadership on financial performance during times of environmental uncertainty as well as certainty, the stability of the environment appears to play a pivotal role in how leadership is perceived. In their research Waldman and colleagues (Waldman et al., 2001) analysed data from 48 Fortune 500 firms with the hypothesis that environmental uncertainty would result in a higher need for direction and assurance, making employees amenable to a charismatic leadership style. Their findings supported this hypothesis as they found a strong correlation between charismatic leadership style and net profit margins during times of environmental uncertainty. They also found that in times of low perceived environmental uncertainty, this correlation is negative, which they ascribed to the possibility that in times of stability, charismatic leadership could lead to unwelcome changes. Studying small and medium enterprises in Netherlands, Annabel de Hoogh et al. (2004), supported this finding in their research. They also found that the correlation between charismatic leadership and profitability, as well as positive employee attitudes was higher during times of environmental uncertainty as opposed to conditions of certainty.

2.6   EXPLORING THE SHADOW SIDE OF LEADERSHIP

It would be an injustice to summarise different perspectives on leadership with a pro-leadership philosophy and not consider the possible negative aspects as highlighted by Alvesson and Spicer (2014). Often referred to as the shadow or dark side of leadership, various terms were used to typify the negative style of leadership: insincere leadership, exploitative leadership, despotic leadership, restrictive leadership, failed leadership, avoiding leadership (active and passive), laissez-faire leadership, abusive leadership and destructive leadership (Schilling, 2009). Bennet Tepper (Tepper, 2000, p. 178) defined abusive leadership as "the sustained display of hostile and nonverbal behaviours, excluding physical

contact". With the emphasis on "sustained", the understanding is that the negative behaviour with little concern for followers, forms part of a cycle that repeats itself.

Krasikova, Green and LeBreton (2013, p.1310) defined destructive leadership (DL) as "volitional behaviour by a leader that can harm or intends to harm a leader's organisation and/or followers by (a) encouraging followers to pursue goals that contravene the legitimate interests of the organisation and/or (b) employing a leadership style that involves the use of harmful methods of influence with followers, regardless of justifications for such behaviour". Their definition touched on a number of points that are likely to evoke debate and differing views. There is, for them, a clear distinction between harmful leadership and ineffective leadership. In addition to their definition, the harmful leadership style is one of conscious choice.

Another definition states that destructive leadership behaviour is "as the systematic and repeated behaviour by a leader, supervisor or manager that violates the legitimate interest of the organisation by undermining and/or sabotaging the organisation's goals, tasks, resources, and effectiveness and/or the motivation, well-being or job satisfaction of his/her subordinates" (Einarsen, Aasland, & Skogstad, 2007, p. 208). In this definition there is a differentiation between behaviours directed toward subordinates and those directed at the organisation. In this definition the focus is on repeated and systematic behaviours, which does not infer intent or conscious choice, but rather highlights the outcomes of the leaders' behaviour.

As with constructive leadership, destructive leadership faces many of the same challenges as there is no clear definition that clarifies the boundaries and constructs of what this phenomenon constitutes. A possible differentiating factor could be the driving force for the behaviour. Transformational and charismatic leadership is typically focussed on selflessness and doing well for the collective and others. The dark and negative side of

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leadership is primarily motivated by self-interest, control and dominance of others (Barling, 2014; Naseer, Raja, Syed, Donia, & Darr, 2016). The negative impact thereof on employees cannot though be refuted. There appears to be agreement on what behaviours constitute destructive leadership, in both Western and non-Western cultures (Shaw, Erickson, & Ferdowsi, 2015) as measured by the Destructive Leadership Questionnaire (DLQ).

As with constructive leadership, it appears that the impact of destructive leadership is influenced by the context. In a study (Naseer et al., 2016) researchers found that highly politicised organisational cultures, inclusive of high leader-manager relationships, led to group members reflecting the same exploitive and destructive behaviours. Individuals within this environment will sacrifice performance and ethical behaviour for personal gain and career advancement. When destructive leadership is experienced, it may become the acceptable manner of operating. Which raises the question: where does destructive leader behaviour originate from?

Leading much of the thinking in this domain, de Vries (2001) asserted that all human behaviour, even behaviour that appears to be irrational, has an explanation and motive. Behaviour is often linked to past relationships or emotional states that are subconsciously confused with present relationships (De Vries & Balazs, 2011). A possible reason for abusive leadership could be where an individual was exposed to an abusive parent, or an abusive leader. Should an individual experience abuse at the hands of a leader, this may become the preferred role model with the behaviour being re-enacted by this person with their subordinates. This negative experience can also be used as constructive motivation to ensure that the destructive behaviour is not replicated. The negative impact of destructive leadership cannot be denied, not only on those experiencing it, but also those that observe the behaviour.

2.7 IN CLOSING

There were numerous attempts at clearly defining and creating models for leadership. Increasingly apparent is the complexity of the subject which is influenced by numerous elements. Thus, various aspects such as the diversity of people, the increasing complexity and ambiguity of external and internal environments, the influence individuals have on one another linked with the fact that not all behaviour is rational, (Karp & Helgø, 2008) may explain the lack of a uniform theory of leadership. Many studies reflect a functionalist approach, and view leadership as a constant and independent construct without considering possible divergent meanings, the dynamism of the interactional process as well as the complexity of both internal and external environments (Alvesson & Spicer, 2014).

Karp and Helgo (2008) stated that leadership needs to be viewed as a dynamic process that only emerges when there is interpersonal interaction. Gaining a solid understanding of any given individual is, in itself, an art in lieu of the layers of complexity that makes up any one individual. This view is supported by other scholars highlighting that leadership can only exist within a relationship (Bennis, 2007). Role players in this relationship cannot be seen as static and predictable.

Something that challenges many of the current thinking on leadership is the emergence of the millennial in the workplace. Some researchers have focused on gaining empirical rather than anecdotal evidence and explored the generational differences and more specifically the characteristics of the millennial generation, who were born between 1982 and 1999 (Twenge, Campbell, Hoffman, & Lance, 2010). Their research findings indicated some important differences between this generation and the other three generations: the Silent Generation (born 1925-1945), the Baby Boomers (Boomers; born 1946-1964), and the Generation X (GenX; born 1965-1981).

The research highlighted the millennials' need for work-life balance and extrinsic rewards—they do not want to work hard, but want compensation and status. There are also indications that the importance of intrinsic values declined slightly over the generations, and that social rewards are also valued less by millennials, because they value the individual more than the group. This young generation do not rely on the work environment for social engagement as this is fulfilled by technological advances (Twenge et al., 2010). These findings have some valuable implications from a leadership perspective.

Highlighting just some of these generational differences Anderson, Baurb, Griffith, and Buckley (2017) explored the possible impact on leadership. Reflecting on millennials' need for work-life balance may limit the transformational leaders' ability to influence them as their career is not a dominant factor. For this reason, millennials may also not focus on high-quality leader member exchange relationships or emulate leaders with a strong work ethic. With their need for extrinsic rewards, leadership is more likely to be perceived as a function of the rewards, with less value being placed on idealized influence and inspirational motivation. Intrinsic outcomes provided by authentic leaders may not be valued.

In light of their appreciation for individuality, leaders may not always be successful in motivating millennials to put the organisation's needs before their own needs, and their own individualism, their cognition and the specific attributions of leadership may separate them from their less individualistic employees. The requirements of leadership may reinforce these individualistic needs and could manifest in aspects such as millennials' communication patterns, which tend to be computer-mediated, or text-based communications, and not high-quality leader-member exchanges.

As Karp and Helgø (2008) highlighted, we do know that leadership is a dynamic social process, where leaders do not always have control, and the frontiers thereof are

definitely not static, requiring an open mind and an interdisciplinary collaboration (Bennis, 2007).

CHAPTER 3:   SOCIAL COGNITIVE NEUROSCIENCE: A NEW FRONTIER?

Since neuroscience focuses on the analysis of the structure and function of the nervous system, it has traditionally been viewed as the domain of the medical field. Over the past 20 years, technology evolved significantly, leading to an improved understanding of the nervous system. These findings are increasingly being found useful and applicable in a variety of domains ranging from economics to organisational behaviour.

In this chapter the emphasis is on highlighting the relevance of neuroscience findings to the field of social sciences. To truly explore the field of neuroscience is beyond the scope of this research project, as well as the competence of the researcher, and therefore the focus is to define neural structures which may assist in developing a better understanding of human behaviour, and specifically the behaviour of a leader. An understanding of the key neural concepts and processes is required to understand the possible contribution of neuroscience findings within the field of social sciences. The social cognitive framework provides structure to this chapter, and neuroscience findings are summarized according to this framework.

3.1   SOCIAL COGNITIVE NEUROSCIENCE

The field of social cognitive neuroscience is relatively new with differing views on when it was initiated as a science. Miller (2003) referred to a symposium of the Massachusetts Institute for Technology which was held in 1956, during which cognitive science was conceived. It is during this symposium that there was, amongst others, a focus on the speed of perceptual recognition and the limited short term memory. In 1960 Harvard University set up the Centre for Cognitive studies advancing research in this domain. This is not necessarily the accepted view, since Lieberman (2010) referred to a conference held in 2001 as the starting point for social cognitive neuroscience. The term "social cognitive

neuroscience" was first used in 2000 during a study, and the first review of social cognitive neuroscience was published in 2001 (Lieberman, 2010). It is in this article that the field was defined by Ochsman and Lieberman (2001) as follows:

"Social cognitive neuroscience is an emerging interdisciplinary field of research that seeks to understand phenomena in terms of interactions between 3 levels of analysis: the social level, which is concerned with the motivational and social elements that influence behaviour and experience; the cognitive level, which is concerned with the information processing mechanisms that give rise to social-level phenomena; and the neural level, which is concerned with the brain mechanisms that instantiate cognitive-level processes" (p. 717).

More recently, Lieberman (2010, p. 143) further defined social cognitive neuroscience as a domain that "uses the tools of neuroscience to study the mental mechanisms that create, frame, regulate and respond to our experience of the social world". The focus of studies and the scope of research in the field social cognitive neuroscience have been broad and includes research on aspects such as perceiving and recognising emotions, actions and intentions of others, interpersonal interactions and self-processing.

There are different views on how neuroscience research contributes to the field of psychology. Susan Blakemore and her colleagues questioned the value of data provided by brain mapping in understanding the human mind (Blakemore, Winston, & Frith, 2004). Lieberman (2010) also raised this issue, stating that understanding the brain map does not necessarily contribute to psychological theory, and may be confirming what we already know.

Yet, findings within neuroscience could build on the validity of the social sciences. One of the key challenges within the psychological field is the lack of empirical evidence. Often referred to as a "soft science", social sciences may not always be viewed with the same

credibility as the so-called "hard sciences". Linking psychological principles to their underlying neural processes could increase the level of validity and expand on existing theory.

Lieberman (2007) referred to the broad themes within the field of social cognitive neuroscience as one of gaining a sense of self awareness and understanding, emotionally regulating or controlling oneself, understanding others, as well as the interaction between self and others. There is a strong overlap with this framework, and emotional intelligence as defined by Salovey (Goleman, 1995; Lieberman, 2007), which is illustrated by Table 4.1.

Table 3.1. *Comparison of the Social Cognitive Neuroscience Framework with Emotional Intelligence*

Social cognitive framework	Emotional intelligence
Self-awareness & understanding The ability to recognize and understand oneself as well as the ability to do self-reflection.	**Know one's emotions** A self-awareness to recognize feelings as they happen.
Emotional regulation The ability to apply impulse control and reappraise emotional events.	**Managing one's emotions** Managing the appropriateness of feelings and emotions.
	Motivating oneself Manage emotions to ensure goal achievement.
Understanding others The ability to represent the minds of others by recognising that people have minds with thoughts and feelings, understanding how people's minds respond to situations; the ability to experience the mental states of others (empathy).	**Recognizing emotions in others** Understanding the value of empathy and being socially attuned to others.
Interaction between self and others Understanding attitudes and prejudices, understanding role of connection and rejection as well as social decision-making.	**Handling relationships** Manage emotions in others.

As will be discussed in the next chapter, this framework strongly corresponds with the focus of leadership development that tends to focus on three levels; leading one-self, leading others, and leading the organisation.

The social cognitive framework provides the foundation for this study and neuroscience findings are summarised accordingly. The complexity of neuroscience as a field cannot be over-emphasised. The focus of this research will therefore be on those processes and structures that are deemed relevant within the context of the social cognitive neuroscience framework.

3.2   NEURAL STRUCTURES AND PROCESSES

Within neuroscience research, there is an abundance of anatomical references and terms that may not be known in the behavioural domain. Addendum A provides a summary of the specific brain structures and their functions referred to in this research. A brief overview follows of the principles, structures and systems related to social cognitive neuroscience.

3.2.1   The principle of neuroplasticity

A significant finding from neuroscience research is what is termed neuroplasticity. Neuroplasticity refers to the brain's ability to form new neural networks and to form new connections (Brann, 2015; Franks, 2010). This is contrary to earlier beliefs, which supported the view that the brain was "static" (Eichhinger, 2018, p. 90). Many researchers objected to the older view of a static and immutable brain. Researches that disproved the constancy of the brain are numerous. In one study, Schwartz and Begley (2002) referred to patients with obsessive compulsive disorder that systematically changed their brain chemistry by undergoing cognitive-behavioural therapy. Positron Emission Topography (PET) technology monitors brain activity by injecting a small amount of a radioactive marker into the bloodstream, which measures the blood flow, oxygen and the use of glucose (Carter, 2009). Positron Emission Tomography scans showed changes in the brain when patients actively applied themselves.

In another experiment conducted by Sagi and colleagues (Sagi et al., 2012) the focus was on exploring the possible structural changes in the brain after learning. Participants were given a two-hour training session that was focused on a spatial learning and memory task. Structural changes were measured at a micro level, both before and after the training. In this short time span they could identify significant micro structural changes in the hippocampus, amygdala as well as some of the frontal regions. The hippocampus is largely responsible for one's memory, the amygdala is viewed as our emotional centre and the frontal regions are associated with higher order cognitive functions (see addendum A for a more comprehensive explanation).

Neuroplasticity is in many ways revolutionary as it ensures the infinite potential for leaders to learn and change their thinking patterns, behaviours and reactions. The plasticity of the brain is strongly linked with the change, growth and development of leaders.

3.2.2   Principle of social connectedness

Further research also highlights the social nature of the brain. Franks referred to a comment made by Leslie Brothers (Franks, 2010, p. 39): "While our individual brains are singular and self-contained, the processes on which they depend for functioning are social ones. We have seen that there is no fully working human brain without the presences of other brains." The need for social interaction and connection is evident from birth where infants will follow the movement of their caregivers and at a later age also smile and mimic the behaviour of others (Franks, 2010). Where there is a lack of social interaction at a young age, the resulting impact demonstrates how the brain is essentially socially wired and dependent on social interaction to form neural connections. Various studies focussed on research where infants (often orphans) received the basic needs to ensure survival (shelter, food, water), but conditions did not provide social support and nurturing. Researchers

consistently found that the lack of social support impacted negatively on physical healthy, psychological development and emotional responsiveness (Adolphs, 2009; Franks, 2010).

Lieberman (2003) went as far as to challenge Maslow's hierarchy of needs stating that the most primal need of human beings relates to social needs. He supported his view by referring to infants' need for food, shelter and water and their dependence on social support to access this. For this reason, he believes, social needs need to move to the bottom of the hierarchy as it defines the most primal need of being human; a need to feel understood and have a social connection with others (Lieberman, 2013).

As the brain is socially wired, there is a natural need to connect with others and also to learn from others. Social interaction also plays a key role in neuroplasticity. There is no single brain circuitry devoted to social behaviour, but rather multiple streams that connect (Cozolino & Sprokay, 2006). The social nature of how the brain is wired, is also reflected by activities the brain engages in, which is illustrated by the default network.

Default network: When the mind is relaxed and not focused on a particular task or activity, researchers find a particular neural pathway is activated, which has been termed the default network (DFN) (Brann, 2015). The DFN tends to focus on thinking about other people, oneself or both, and the relationships one has with other people (Lieberman, 2013). Various researchers attribute different reasons for the activation of the DFN, one being that this network plays a role in consolidating and making sense of experiences, allowing for more effective reactions. Another possible explanation is that this relaxed state of thinking about the self and others provides the opportunity to understand social dynamics, leading to improved understanding, empathy and cooperation (Lieberman, 2013). What is evident is that our natural thought process gravitates to that which is of social value and appears to influence our ability to function effectively in a social society.

3.2.3　　　The principle of avoidance behaviour: the threat network

Much of the modern day neuroscience literature on leadership is based on the premise that the overarching organising principle of the brain is that of maximising reward and minimising danger, ultimately ensuring self-survival (Carter, 2009; Gordon, 2000). When faced with a potential reward, we tend to adapt an approach response and where a potential threat exists, an avoidance response will be adapted. Depending on whether a stimulus is perceived to be a reward or a threat, different neural pathways will be recruited.

It is in particular those stimuli that are perceived as a threat, that have the ability to evoke strong emotions and defensive behaviour that received considerable attention in social cognitive neuroscience. When confronted with a person, situation or event that evokes a negative emotional response, the instinctive reaction is that of avoidance. This instinct activates a neural pathway termed the reflexive system. It is often the activation of this pathway that leads to instinctive responses that are aimed at survival, but may not necessarily be the best choice of action at the given time. At times, the social situation may call for a greater level of control in one's response. It is then that there is a need to rely on what has been termed the reflective system.

The reflective and reflexive systems: The reflective and reflexive systems were termed by Lieberman and colleagues as the X- and C-systems (Cited by Lieberman, 2010). Various terms have been used to refer to the same system. Brann (2015, p. 99) referred to the "hot and cool systems", while Kahneman (2011) referred to the respective neural pathways as System 1, that is automatic, effortless and uncontrolled, and System 2, that requires effortful cognitive performance and concentration mental activities. For purposes of this study reference will be made to the X- and C-systems.

The *reflexive system* (X-system) can be described as an automatic system that is spontaneous and relates to involuntary perceptions and feelings. The X-system system

usually functions from an unconscious level and operates from an instinctive survival perspective. It is influenced by an individuals' past experience and present goals (Lieberman, Gaunt, Gilbert, & Trope, 2002) and involves structures within limbic system—the amygdala, basal ganglia, and lateral temporal cortex (please refer to Addendum A for description of the brain structures).

Both the amygdala and basal ganglia learn and respond instinctively to both negative and positive signals, while the lateral temporal cortex, plays a key role in identifying behaviour and the intent of others. Should a potential threat be identified implicitly, this leads to an automatic behavioural response (Lieberman, 2013; Lieberman et al., 2002), which is often referred to as fight, flight or submit. This is also referred to as a bottom-up response (Tabibnia & Radecki, 2018).

The *reflective system* (C-system) is effortful and requires deliberate focus, attention and reasoning (Adolphs, 2009). The C-system is a conscious response, which relies on rational thought and analysis (Brann, 2015; Lieberman, 2013). The C-system involves elements of the executive function—the anterior cingulate cortex (ACC), prefrontal cortex (PFC), and the medial temporal lobe. The ACC responds to conflicting or error messages, alerting the PFC to the need for a controlled response which is explicit, conscious and rational (Lieberman, 2013). This is also often referred to as a top-down response (Tabibnia & Radecki, 2018). Although various neural structures play a role in the X- and C-systems, central to the two systems is the amygdala, which is viewed as the emotional centre of the brain, and the PFC which is seen as the executive function and linked with higher order cognitive functions.

Focused on ensuring survival, the amygdala scans the environment continuously, attributing emotional meaning to information and stimuli, be they positive or negative (Ochsner & Gross, 2005). This processing is most often done at a subconscious level and

relies on implicit memory of past experiences (Ratey, 2001). Direct or indirect threats, irrespective of whether they are physical or psychological, result in a strong response from the amygdala (Kverega et al., 2015). When aroused, the amygdala tends to err on the side of pessimism, leading to possible inaccurate assessments and generalizations (Rock & Page 2009).

The PFC is often referred to as the executive function, because of the particular role it plays in guiding our attention; inhibiting behaviours, thoughts and emotions; conceptual thinking; goal directed behaviour; memory; decision making; planning; insight; learning and understanding another's thinking (Carter, 2010; Cozolino, 2010; Fuster, 2001; Ratey, 2001).

Whereas the amygdala is instinctive, the effectiveness of the PFC can be negatively influenced by a number of elements, such as lack of sleep, cognitive load, and chronic stress (McEwen, 2000; McEwen, 2007; Rock, Siegel, Poelmans, & Payne, 2012). It is highly interconnected with the other brain regions (Fuster, 2001).

It is the interface of these two systems that is of particular interest. When confronted by a person, event or situation that evokes strong negative emotions, the X-system is instinctively activated. This is likely to result in behaviour that is instinctive and focussed on self-protection, but lacking in rational thinking. For leaders within the workplace, this may result in a response that is inappropriate and socially unacceptable. It therefore takes effort and deliberate focus to reroute and respond in a rational and controlled manner via the C-system.

3.2.4   The principle of approach behaviour: the reward network

As mentioned, the overarching principle of the brain is viewed as ensuring survival by avoiding threats and approaching rewards. Activation of the reward network leads to feelings of happiness and pleasure (Ghadiri, Habermacher, & Peters, 2012). Activating the reward network within the brain is strongly linked to increased access to the executive function,

which allows for creativity, problem-solving, emotional regulation, goal directed behaviour, decision-making and learning—all processes that are critical within organisations to advance their competitive edge.

The reward network is associated with the ventral striatum, amygdala, orbitofrontal cortex (OFC) and medial prefrontal cortex (mPFC). The amygdala codes the intensity of the reward and the OFC the valence (Tabibnia & Lieberman, 2007). The ventral striatum is central to learning which stimuli predicts reward and therefore which actions to repeat (Bossons, Riddel, & Sartain, 2015; Lieberman, 2013), increasing our motivation to act (Bossons et al., 2015). Activation of the reward network is associated with activation of higher levels of the neurotransmitter dopamine. Known as the chemical of "pleasure" and the "learning neurotransmitter" (Ratey, 2001, p. 122), the release of dopamine leads to feel-good feelings.

Whereas a threat (situation, person or event) is likely to lead to an instinctive response with limited access to our higher order cognitive abilities, experiencing a person, situation or event as a reward, will most likely increase access to our higher order cognitive abilities. As the reward system is highly personalized, various elements have been suggested that are likely to evoke the reward network. Rock referred to five needs that are likely to activate the reward network: an increase in perceived status, a sense of certainty, autonomy, relatedness and perceived fairness. Ghadiri and colleagues (Ghadiri et al., 2012) cited tthe work of Grawe and Epstein who defined four basic needs: attachment (relationships), orientation and control, self-esteem and pleasure (and the avoidance of pain). Based on the two models there are some similarities of what could possibly activate the reward system: a sense of being interpersonally connected (relationships), a sense of autonomy and control and a heightened experience of self- worth or value. Research in this domain is ongoing.

3.3 NEURO-SCIENTIFIC FINDINGS IN THE CONTEXT OF A SOCIAL COGNITIVE FRAMEWORK

Neuroscience findings are often the domain of neuroscientists whose focus is on gaining a better understanding of the workings of the brain. The value of the findings needs to be further explored to understand their relevance within the field of behavioural sciences though. It is within the context of social cognitive framework as discussed in section 4.1 that neuroscience findings will be further explored. It should be noted that, as the field is emerging and burgeoning, all the studies cannot be covered in this discussion. The focus of the next section is therefore to highlight some of the key research studies, and to discuss their relevance to leadership behaviour.

3.3.1 Self-awareness and understanding

A unique aspect of being human is the ability to be self-aware, an ability which is not present in any other living creature (Ramachandran, 2011). It is this unique ability that allows for reflection, exploration and insight of our unconscious mental processes that increases self-awareness and provides the platform for personal development and behavioural change.

As already stated, the overarching principle of the brain is to ensure survival by avoiding perceived threats, and gravitating towards perceived rewards. Depending on whether an individual is in a threat or a reward state will have a significant impact on the brain circuitry that is recruited and the resulting behaviour. As leaders fulfil their roles in environments over which they have limited control and which are volatile and unpredictable, it becomes important to have insight and a level of control into their personal reactions to situations, people or events. This infers a need for self-awareness of which situations are likely to be experienced as either rewarding or threatening.

Numerous examples of situations or persons that can be experienced as threatening—high workload, pressurised deadlines, an autocratic manager, rudeness of colleagues, restructuring of the organisation, lack of communication—can be cited. In a situation where two employees experience conflict and animosity towards one another and feel threatened, the X-system is likely to be activated resulting in intense emotion, leading to instinctive behaviour which is unlikely to be rationally thought through (Fishbane, 2007). Activation in the hypothalamus enables the release of cortisol, leading to a fight or flight response. This threat response is the result of increased activation in the amygdala, the ACC and less accessibility to the PFC, resulting in little consideration being given to the immediate consequences of the behaviour (Brann, 2015). The consequences of a lack of control impacts negatively on various elements in the workplace, for example relationships, trust and the quality of decisions.

In contrast, the reflective system relies on access to the PFC and has the ability to reduce arousal in the amygdala and the resulting emotions, enabling a person to think before acting impulsively (Fishbane, 2007) and respond in a rational manner considering the potential consequences. However responses to negative stimuli are triggered more easily, it can be intense and tend to last longer than responses to positive stimuli. It therefore takes considerable effort and intention to activate the reflective system in times of threat.

The level of emotional arousal has a direct impact on our ability to access our cognitive resources (Wessa, Heissler, Schönfelder, & Kanske, 2013) and apply the C-system as the amygdala and the PFC share an inverse relationship. Increased emotional arousal (increased amygdala activity), leads to reduced accessibility of rational thought and control (reduced PFC activity). This makes it difficult when emotions are running high to maintain a level of rationality and access the PFC and the required problem-solving cognitive abilities and emotional control (Brann, 2015). Responses to situations or individuals that are

perceived to be a threat are then reflexive and automatic and focused on ensuring survival (Siegel, 2011).

The ability to demonstrate self-awareness is a prerequisite for leaders to ensure emotional regulation and is especially needed when negative emotions are aroused. Our responses correlate with our interpretation of a situation or information, and this interpretation is often at an unconscious level. Increased levels of self-awareness provide the opportunity to actively choose responses, enabling the use of different neural pathways.

Research has shown that the unique ability to reflect and gain personal insight consistently activates a particular region of the brain, the medial prefrontal cortex (mPFC). The mPFC is a structure unique to human beings and is associated with self-referencing activities as well as when an individual thinks about others, their traits and internal states (Adolphs, 2009; Ma et al., 2014; Zaki & Ochsner, 2011). The reason why it is activated for both self and others, is that we rely on information from others to gain a better understanding of ourselves, but also use ourselves as a reference to better understand others. The mPFC is therefore central to both self-knowledge and to being influenced by others (Lieberman, 2013).

It is often during times when leaders are exposed to a negative situation or information that the need to control one's responses becomes most necessary. This requires insight into one's potential reaction to a stimulus or situation—a level of self-awareness and insight. As James Gross referred (2002), emotions do not dictate our behavioural responses, but rather increase our likelihood of responding in a certain manner. This fact ensures a level of pliability that leaders can use to regulate their emotions and choose an appropriate response. The ability to control not only the initial response, but also the prolonged emotional response becomes critical in emotional regulation. Leaders need increased levels of self-awareness, not only of their own triggers and responses, but also the potential impact

their response is likely to have on followers. Cozolino (2010, p. 3) referred to Freud who advanced the thinking that, "to understand ourselves, we need to have an understanding of the primal unconscious elements of experience."

3.3.2   Emotional regulation

Our instinctive behavioural responses, or what we may prefer to say and do, may at times not be socially acceptable or conducive to meeting our goals. When functioning within an organisational or team context, certain dynamics are likely to evoke emotional responses, and require of individuals to override the X-system and respond in a socially acceptable manner that promotes the achievement of goals.

Hofmann, Schmeichel and Baddeley (2012) differentiated between self-regulation and self-control, where regulation refers to goal-directed behaviour, while control is focussed on oppressing unwanted impulses. Within the field of social cognitive neuroscience emotional regulation refers to the regulation of those processes which play a role in the emotions we experience, the timing of emotions and how we experience and express them (Carver & Scheier 1998; Gross, 1998). At the broadest level, self-regulation refers to intentional or purposeful acts that are directed from within.

In the field of social cognitive neuroscience, much research was done on emotional regulation and the possible strategies that could be applied. Strategies are described as either antecedent or response-focussed. Antecedent strategies refer to actions that are taken before the activation of the emotional response and response focussed strategies are applied as the response is unfolding. The following five strategies are most commonly referred to (Gross, 1998):

1. *Situation selection* involves individuals choosing to pro-actively approach or avoid certain people, places or situations. Their choice is informed by self-awareness and insight into their own possible positive or negative emotional responses.

2. *Situation modification* refers to the capability to adapt or change a situation in order to influence the potential emotional impact. This strategy also relies on insight into personal responses to certain situations or people. This knowledge allows for individuals to pro-actively make choices that could reduce possible negative responses. This could relate to timing, venue choice, support, amongst others.

3. *Attention deployment* is when individuals choose where they place the focus of their attention. This entails a deliberate choice to minimise the focus on emotion-eliciting stimuli and redirect attention to that which is beneficial to goal achievement.

4. *Cognitive change* enables one to review how a situation is interpreted, as it is often the interpretations that evoke an emotional response. This process is also referred to as reappraisal and involves interpreting an emotion evoking situation in a manner that is non-emotional.

5. *Response modulation* entails not giving expression to an emotion once it arises, but possibly suppressing the emotion.

All the emotional regulation strategies hinge strongly on the need for self-awareness and insight. Situation selection and situation modification strategies both require time to reflect and prepare best for an envisaged interaction. The time span though for attention deployment and cognitive change, may require greater cognitive flexibility to redirect attention or reappraise a given situation in a very short time span.

Researchers tended to focus extensively on two emotional regulation strategies, namely reappraisal and suppression and tended to consistently present similar findings. In one study, Gross (1998) explored the impact of participants using reappraisal and suppression strategies while watching a 'disgusting' film. The 120 participants were divided into three groups with different instructions, namely to (i) think about the video in a way that that made them not feel anything (reappraisal group), or (ii) hide their emotions (suppression group), or

(iii) to simply watch the video (control group). Responses of the reappraisal and suppression groups were correlated with the control group using three categories of measurement; behavioural, subjective and physiological. The reappraisal group showed less behavioural signs of disgust and rated their subjective experience of the video as less disgusting than the control group. Their physiological responses were comparable with the control group. The suppression group were able to decrease their expressive behaviour as requested, and had increased levels of physiological activation. Results indicated that reappraisal decreased the emotional experience and behavioural expression. Suppression also led to decreased emotional expression, but did not decrease the emotional experience, in fact, it led to heightened physiological responses.

This heightened level of physiological response also potentially impacts on others. Research findings showed that engaging with an individual that does not express emotion and does not respond to emotional cues tends to activate a stronger physiological response than engaging with someone who demonstrates positive emotional responsiveness. Inhibiting or suppressing a response in order benefit a situation, may achieve the exact opposite as it is likely to impact negatively on the relationship as well as personal health. In a follow-up study, Richards and Gross (2006) found that suppressing the expression of emotion impacted on individuals' ability to remember visual details as well as verbal conversation. This suggests that memory is impaired by suppression as a strategy.

Gross (1998) also found that suppression as a strategy to regulate emotions regularly, may impact on a sense of wellbeing. Individuals who suppress the expression of their emotions regularly experience less positive and more negative emotions. Individuals who apply reappraisal as a strategy, experience greater positive emotion and expression and less negative emotion experience and expression. Overall the scales weigh in favour of reappraisal as a strategy as opposed to suppression. Reappraisal though requires an

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understanding and awareness of one's personal emotional response and openness to the intention and beliefs of others (Zaki & Ochsner, 2011). It requires of leaders to not respond instinctively, but to delay their responses and make use of higher order cognitive thinking via the C-system.

The findings in the research are noteworthy within an organisational context, which is essentially a social system with implied rules of conduct. Leaders are consistently under the spotlight and, as emotions are easily aroused, responses to particular situations may at times not promote the goals. Instinctive expression of thoughts and feelings may not always be conducive to goal attainment or personal advancement. Yet the research on suppression implies a possible impact on effectiveness as memory is compromised, without reducing the internal emotional response for both the suppressor and the other party. The ability to regulate emotions becomes critical as this ability impacts on the quality of decisions that are made, creates a sense of trust in others, creates cooperative and positive relationships within the work environment, and the ability to cope and handle stress within the work environment.

As already suggested in the previous section, active emotional regulation requires access to various regions within the PFC that are responsible for the generation of emotions, memory and understanding others (Heatherton, 2011; Ochsner & Gross, 2005; Waugh, Lemus & Gotlib, 2014). Greater access to the executive function, therefore, implies a greater ability to regulate emotions, while lower access to the executive function would more likely be recognisable by higher levels of impulsive actions (Cozolino, 2010). In their study Chester and colleagues (Chester et al., 2014) found that participants with low executive functioning had a higher activation of aggression (dorsal anterior cingulate cortex [dACC] and insula) when they experienced social rejection. Individuals with higher executive functioning had lower activation of aggression when they experienced social rejection. Cognitive control appears to provide the mechanism to deal with social pain, while the

absence of cognitive control leads to social pain being experienced more strongly, resulting in this research in aggressive behaviour. It is the executive function, however, that is influenced by a number of elements to function effectively.

One influencing factor is that of personality. In their research Shuyler and colleagues (Schuyler et al., 2014) found those individuals who scored higher on the trait neuroticism, displayed higher amygdala activity and the amygdala remained active for a longer period before quieting down. Emotions are therefore experienced at a greater intensity and for longer periods.

Contextual elements also play a role, such as cognitive elements, work load and stress (Hofmann et al., 2012) also reduce accessibility to the PFC. The impact of stress has been researched extensively, findings indicate that it significantly impacts on the effectiveness of the PFC. Mild to moderate levels of stress tend to be beneficial, as this stimulates neural pathways which support learning (Cozolino, 2010). A lack of stress means there is too little stimulation, which is likely to result in lethargy and boredom. Extremely high levels of stress over the long term result in less accessibility to the PFC and are also known to harm the hippocampus, which is responsible for memory and learning (Siegel, 2011).

Research further indicated that the need to regulate emotions is also dependent on the amount of interaction a worker has with others, as well as their status relative to those with whom they interact (Sloan, 2008). Individuals who interact and engage with other people a great deal will need to regulate emotions the most. Leaders interact with others continuously, whether at an intentional level or not, and need to have insight into their thoughts, feelings and emotions and the impact of their behaviour on those they are leading.

On the positive side, research showed that the PFC can be developed, and individuals can actively acquire the skill to maintain or regulate emotions. As mentioned, the

neuroplasticity of the brain enables leaders to change their neural pathways or create new pathways, but this requires intent, deliberate effort and directed awareness (Siegel, 2011).

In an experiment that was conducted by Yeow and Martin (2013) an intervention was designed to increase leaders' ability to regulate emotions in order to support the development of leadership competencies. This field experiment was run over 24 weeks within a manufacturing environment. Data was collected from both leaders and followers, prior to, and after the intervention. In addition, the financial performance of the teams was taken into account. Results indicated that the leaders' ability to demonstrate improved emotional regulation resulted in their followers rating them higher on effectiveness and also led to improved financial performance (Yeow & Martin, 2013). Leaders therefore do have the ability to develop greater regulation to their emotions.

The ability to regulate emotions enables leaders to become more aware of their automatic instinctive responses, and allows for the opportunity to activate and respond in a controlled manner. In their study on the relationship between transformational leadership and emotional intelligence, Gardner and Stough, (2001) maintained that emotional management may be the foundation for leaders to be inspirationally motivated and intellectually stimulated. Self-awareness and emotional regulation appear to be central to the next step, which is moving beyond the self, and understanding and enabling others.

3.3.3 Insight into others

Central to leadership is the capability to understand the feeling and thinking of followers. Having a conceptual understanding of the workings of the brain, may provide a foundation for better understanding others, but does not account for the uniqueness of each person. Personal experiences and interpretations influence what is interpreted as a threat or a reward and differ from person to person, leading to highly individualised responses. Where a leader adapts a forthright and direct style of communication, one person may value the clear

and direct communication, while another may feel disrespected or possibly intimidated by what he/she perceives to be a forceful approach. Leaders therefore require the ability to view the world from the perspective of another.

Empathy. The need to be understood is central to our need to be socially connected. Within the field of neuroscience, empathy refers to "how the brain represents, understands and reacts to the internal mental states of others" (Rameson & Lieberman, 2008, p. 95). Decety and Jackson stated that "empathy helps create and maintain social bonds by enabling people to understand, share and react suitably to others' emotional states" (cited by Morelli, Rameson, & Lieberman, 2014, p.39). The ability to 'read' others' emotional radar is unique to humans, and is often perceived to happen naturally. Much research was done in an attempt to understand the neural pathway of empathy. With the increased volume of knowledge being generated, a more comprehensive model of empathy is emerging.

Many studies in the field of neuroscience have explored empathy, using pain as the focus. There appears to be consistency in the findings that indicate the same neural pathways are activated when an individual experiences pain (ACC and anterior insula [AI]) as well as when one observes someone else experiencing physical pain. This would imply empathy for pain (Zaki & Ochsner, 2011). The fact that the personal experience of pain as well as the observation of pain in others activates the same neural pathway implies a level of empathy for pain—I feel your pain as if it were my own pain. Yet empathy could relate to a variety of emotions and is not limited to pain.

Functional magnetic resonance imaging (fMRI) is neuro-imaging technology that enables researchers to measure where the highest flow of oxygenated blood (BOLD = blood oxygen level-dependent), is in a brain. As increased brain activity requires increased levels of glucose and oxygen, neural activity is closely linked to blood flow, and in particular to oxygenated blood. A high BOLD measure indicates brain structures that are active during a

task (Carter, 2009). In their study, Morelli and colleagues (Morelli et al., 2014) directed their focus on researching both positive and negative emotions by exploring the neural pathways of pain, anxiety and happiness. While being scanned in an fMRI scanner, the 32 participants were shown images of individuals in both positive and negative social contexts.

During this experiment, some images provided context (this person just got engaged or is being laid off), but others were independent of context (a hand being slammed in the door). Participants also had to report their helping behaviours for 14 consecutive days. Based on their findings, Morelli et al. (2014) proposed that dual neural pathways exist for empathy. Pain and anxiety activated those brain regions that are linked with negative affect (dACC and AI). For painful events that did not require an understanding of the context, mirror neurons (see addendum A for a more comprehensive explanation) were also activated. Mirror neurons play a pivotal role in the ability to demonstrate empathy and understand other's thinking (Lieberman, 2013). With happy emotions, brain regions that are linked with positive affect were activated (ventral medial PFC). For events that required an understanding of the context, for both anxious and happy events, the mentalizing system was activated. The mentalizing system is a cognitive process where one attempts to understand what another is likely to be feeling or thinking. The researchers suggested that an empathic response that does not require an understanding of the context activates the mirror system. Where an understanding of the context is required, the mentalizing (dorsal medial PFC and medial PFC) system is activated. Thus empathy may be represented by two different neural pathways.

The research by Morelli and colleagues (2014) supports the thinking that empathy relates to two fundamental elements—a cognitive as well as affective component. The cognitive component requires an understanding of another's experience, while the affective component is an ability to share the emotional experience of another person (Decety &

Jackson, 2006). The mentalizing route (cognitive) allows one to think logically about the situation and how anyone would respond, while the affective route allows an individual to imagine themselves in the situation and explore what their reaction would be (Lieberman, 2013). Although the ability to demonstrate empathy is viewed as a unique human ability, in contrast to what would be the socially acceptable norm, it would appear that it may not always come naturally to us.

The nature of the relationship. Research findings appear to support the thinking that the nature of our relationship could influence the extent of empathy that is experienced.

Exploring the possible differences in empathic responses, participants (n = 22) in a study by Beckes, Coan, and Hasselmo (2013) were requested to bring a friend with to participate in their experiment. While being scanned using fMRI technology, mild electric shocks were administered to the participant, the friend or a stranger. The participant held the hand of the friend or stranger while they were being shocked. They found that when shocks were administered to the participant and the friend, the same neural pathway was activated. This was not the case for the stranger. The researchers suggested that where there is a connection between individuals, this leads to a merging of the neural pathways which represent the self and familiar others. In essence, if you hurt my friend, you hurt me. Where there is no existing relationship, this could impact negatively on the level of empathy that is experienced.

This study supports other findings that showed that reflecting on oneself and others activate the same region of the brain, namely the mPFC. Individuals are likely to use the self as a reference when attempting to understand others. It also suggests that where other individuals are viewed as similar to oneself, the distinction between the self and the other individual becomes less. Individuals operate from the premises that the way we think and

feel must be similar. This then leads to increased levels of empathy (Ames, Jenkins, Banaji, & Mitchell, 2008).

This overlap in neural patterns may be limited to those that we view as similar to us, or who form part of our in-group. Where there is an adversarial / competitive relationship, individuals have the ability to 'turn off their automatic reactions to the pain of others". The autonomic neural activity evoked by watching others in pain is then reduced or reversed (Zaki & Ochsner, 2012). The relationship an individual has with another will therefore influence the level of emotional activity and the affective empathic response. This ability to 'turn off' to the pain others feel is supported in other research.

Being part of the in- or the out-group. Empathy could also be influenced by whether others are viewed as part of the in-group or the out-group.

Gutsell and Inzlicht (2012) explored the empathic differences between in- and out-group members, by using electroencephalography (EEG) technology to measure activation of the PFC. When using EEG technology, electrodes are placed on the skull, and the brainwaves or electrical activity in the outer layers of the cortex, are recorded. Gutsell and Inzlicht found that activation of the PFC was proportionally the same for the self and in-group members when participants (n = 26) were thinking about a certain emotion personally and when they were observing in-group members experience the same emotion. This was not the case when observing out-group members in distress. This suggests that observing an in-group member experiencing sadness, is likely to result in experiencing the same amount of sadness in oneself. Observing a sad out-group member will not illicit the same level of sadness. The deduction is that individuals do not feel the emotional and motivation states of those they view as out group members, but are more likely to do so for those that are similar to them.

In their study, Cikara and Fiske (2011) explored the neural response evoked when out-group members experienced adversity. Their findings suggested that when individuals that were envied experienced adversity, participants felt the best, and they felt the worst when these envied individuals experienced positive events (signified by insula and superior parietal lobe [SPL] activation).

In summary, individuals often use their own thoughts and feelings to gain an understanding of the minds of others. This process is influenced by whether the other person is viewed as similar or dissimilar, part of the in- or out-group. Researchers established that thinking about others activates the mPFC, and that this structure is also linked to self-referencing; where another is perceived to be similar to oneself, the assumption is that their thinking is also similar to one's own thinking.

Neuroscience researchers also found that thinking of dissimilar others, activates a different neural network, the dmPFC, which is associated with task-focussed or cognitive-based functions. In addition, there is a drop in neural activity of the PFC in cases where individuals do not relate to another individual (Mitchell, Macrae, & Banaji, 2006). Where individuals are viewed as being dissimilar, the underlying assumption is that they also think and feel differently to oneself. As the self is not seen as the base of reference, stereotypes become the foundation for assumptions (Mitchell et al., 2006). Prejudices and stereotypes could play a central role in the inability to empathise and understand out group members and also impacts on the willingness to help others (Gutsell & Inzlicht, 2012).

The impact of feeling understood. Another research perspective in understanding the neural pathways of empathy, focused on the recipient of empathic responses, and explored whether there were distinctive neural responses to feeling understood as opposed to experiencing a lack of understanding from others.

An experiment conducted by Morelli et al. (2014), the researchers asked participants (n = 19) to share both positive and negative experiences which were then recorded. While in the scanner using fMRI technology, participants read how others had responded to their videos, by portraying either a sense of understanding ("I understand why you are feeling that way; I would have reacted the same") or a lack thereof ("I had trouble connecting with your story; I don't understand why you were feeling that way"). They found that distinctive neural patterns were activated by the responses. When reading responses that conveyed a sense of being understood, brain regions that are associated with reward and social connection (ventral striatum [VS] and middle insula) were activated. Responses that conveyed a lack of understanding activated regions that are associated with negative affect and social pain (AI). Both responses activated the mentalizing system, but different parts thereof. Responses that conveyed a sense of understanding activated cognitive processes involved with social cognitive information, while responses that conveyed a sense of misunderstanding activated cognitive processes that are linked to thinking about dissimilar others (dorsal medial PFC [dMPFC]). Morelli and colleagues concluded that, when feeling understood is experienced as rewarding this maybe, led to individuals seeking out others that make them feel understood. A lack of being understood leads to social pain and those that do not exhibit the ability to understand others, are more likely to be avoided. It is the ability to recognise other's emotions and to verbally express an understanding of the other's emotions that was found to be fundamental in predicting transformational leader (Rubin, Munz, & Bommer, 2005).

Based on the above findings, it is likely that where conflicting relationships exist in the organisation and the individuals have little in common, they are less likely to attempt to understand one another's perspective or to seek another's perspective. Where a person does not identify with someone, one may be able to think how they feel, but are unlikely to feel

what they feel. This highlights the need for leaders to focus on what is similar. How one is viewed could influence willingness to cooperate (Fehr & Fischbacher, 2003).

Where leaders are attempting to develop their empathy, engaging in a top-down process by actively considering how key decisions may impact on employees, could possibly influence the decisions that are made. A key component of leader development is the ability to have increased self-awareness, as well as an understanding of others. The same neural processes are associated with self-awareness and understanding (Mitchell et al., 2006). Developing increased levels of self-awareness could also lead to a better understanding of others.

3.3.4 Interaction between self and others

Irrespective of rank and role, interacting with others is inevitable within the work environment, and a key role of leaders. Leaders strive to build collaborative relationships at various levels within the organisation, but also create an environment that is conducive for team members as well as cross-functions to interact and collaborate.

The concept of emotional contagion. The common saying, "No man is an island unto himself" best illustrates the connectedness of the human mind. Evidence suggests that another's emotions and mood have the ability to affect our state of mind, a term that is commonly referred to as emotional contagion (Siegel, 2011). It is this ability that provides us with valuable information and that allows us to empathise with others, and it also provides us with self-knowledge and a responsibility in terms of how we infect others with our emotions. The impact of leadership is significant within the workplace, impacting on job satisfaction, organisational commitment turnover, learning and development. Just as leaders need access to cognitive resources, so too do they need to create an environment that is favourable to employees and increase their ability to access higher order functions.

The potential impact leaders have on the neural circuitry of their followers was explored by Boyatzis et al. (2012). In their study, participants were asked to recall memories of previous leaders where they experienced a resonant and a dissonant relationship. A resonant relationship is distinguishable by reciprocal positive emotions and sense of synergy, while dissonant relationships lead to negative emotions and a sense of disharmony. While exploring their experiences, participants were scanned using fMRI technology. The results showed significant differences in the neural activation. While recalling memories of a resonant leader, much of the mirror neuron system and the social network were activated. Thinking about a resonant leader allowed for a broader attention span, enabling out of the box thinking. The regions in the brain which are associated with an openness to novel experiences, namely the putamen, (part of the reward system) were activated. Recalling memories with a dissonant leader activate certain regions of the mirror neuron system that are linked with avoidance, narrowed attention span, and decreased compassion and negative emotions. The regions that are associated with impaired reaction times as well as a higher sensitivity to negative cues were also activated. The fact that the neural responses were based purely on recalling memories without real time interaction, is significant. Leaders can have a lasting impact on others.

The role of facial expression. During interaction with others people often rely on facial expressions to determine whether we are dealing with a friend or foe. Our non-verbal language is highly visible to others, but may not be as visible to ourselves. Increasingly, researchers demonstrate that leaders' emotional expressions influence followers' attitudes, cognitions, affective states and behaviour. Koning and van Kleef (2015) investigated the impact of happy and angry expressions of leaders on organisational citizenship behaviour of followers. Organisational citizenship behaviour relates to behaviours that are beneficial to the organisation but which are not contracted within the job requirements. Behaviours could

relate to working overtime or even assisting or mentoring a colleague informally. Koning and van Kleef found in their first study that when a leader expressed anger rather than happiness, it impacted negatively on the follower's willingness to walk the proverbial extra mile. In the second study Koning and van Kleef found that participants were less likely to work overtime when faced with an angry leader.

In another study by Carter and Pelphrey (2008), participants viewed a video clip of a stranger approaching them with either a happy or angry facial expression, while in an fMRI scanner. Participants demonstrated much stronger activation to the angry facial expression than the happy facial expression. It was in particular the amygdala and superior temporal sulcus that responded to the angry facial expression. Responses to negative facial expression appeared to be stronger. Consistent with these findings, further exploration of neural responses to three facial expressions (disapproval, anger, disgust), also demonstrated significant amygdala activity. The disapproving facial expressions activated significantly more amygdala activity than anger, possibly being seen as more threatening. In addition, when viewing disapproving facial expressions, individuals high in rejection sensitivity displayed more activity in the pain centre (dACC) than individuals low in rejection sensitivity (Burklund, Eisenberger, & Lieberman, 2007).

The hurt of social pain. Researchers found that social pain has the ability to affect our brain in a similar way as physical pain (Lieberman & Eisenberger, 2008), and as the memory of social pain appears to last longer, it could have a greater impact (Chen, Williams, Fitness, & Newton, 2008). Experiencing social pain has a direct impact on our ability to be productive and maintain relationships within the workplace. This is also highlighted with the finding that the brains' reward region reacts positively to social rewards. Where social pain or pleasure is experienced it influences fluid intelligence, problem solving abilities, memory function, innovation and creativity (Mc Ewen, Eiland, Hunter & Miller, 2012; Ratey, 2001).

It would appear people respond more strongly to negative emotion than to positive or happy emotions, and are more sensitive to possible social rejection. This, again, highlights the need for leaders to have a level of self-awareness as well as the ability to regulate emotions when interacting with others. Unwittingly, should leaders not have this awareness and capability, they have the ability to, without deliberate intention, have a significant negative impact on others' neural activations and resulting emotional state and behaviour.

It appears sensitivity to rejection, in particular, evokes social pain. As physical pain is overt, we respond instinctively and also, accommodate those that need time off to recuperate within the work environment. Social pain, though, may be covert, and is less likely to be accommodated within the workplace, yet may have a much greater impact on individuals. Exploring the neural basis of pain, it has been proven that social pain shares the same neural structure as physical pain (Eisenberger, Jarcho, Lieberman, & Naliboff , 2006; Lieberman & Eisenberger, 2008). As the memory of social pain appears to last longer, it could have a greater impact. Individuals relive and re-experience social pain more easily than physical pain. Individuals also report higher levels of pain after reliving a past painful social event than a past painful physical event.

Social pain also impacts negatively on the performance of cognitively demanding tasks (Chen et al., 2008). It also impacts negatively on the ability to pay focussed attention and store information, which reduces working memory, (Xu et al., 2018). Experiencing social pain has a direct impact on one's ability to be productive and maintain relationships within the workplace. As with all research and findings, the individual differences and context need to be emphasised. Researchers found that there are individual differences in how people respond to pain. Individuals with a higher tolerance for physical pain also have a higher tolerance for social pain and social rejection (Eisenberger et al., 2006). The impact of not being recognised, receiving poor feedback, or the rudeness of colleagues, are just some

examples that are prevalent in the workplace, and have the ability to inflict social pain. Pain that has the ability to detract from focussed performance and cooperation, requiring sensitivity from leaders.

As much as leaders need to be aware of the neural principles relating to the threat and reward circuitry, the X- and C-systems, at a personal level, so the principles need to be applied and understood when engaging and interacting with others. Leaders could have the ability to activate different neural networks in others by constituting a threat or reward, and could evoke responses linked with either the X- or C-systems.

Goal motivation. Humans are wired to want to repeat those experiences that they find rewarding. Hence, rewarding experiences play a key role in motivation and goal direction. As there are likely to be differences to what is perceived as threats and rewards, this places the impetus on leaders to be sensitive to individual differences to potential threats and reward needs. The reality of the workplace is the increasingly limited access to monetary rewards as well as promotional opportunities. The traditional carrot and stick mentality has limitations and with our increased understanding of human behaviour, comes increased opportunity for alternative leader behaviour. Although various motivational theories exist, studies within the field of neuroscience are also exploring what activates the reward centres of the brain.

A study by Izuma, Saito and Sadato (2008) explored the difference in how social rewards and monetary rewards are neurally processed, and compared neural patterns of a good reputation with monetary reward. Their results showed that social approval shares the same neural basis as monetary rewards, and activated the reward related brain regions (striatum, insula, midbrain, and OFC). In this experiment, the social approval came from strangers whom they had never met before, yet the striatum was still activated. In a follow-

up study, evidence supported the finding that social and monetary rewards share the same neural base (Wake & Izuma, 2017).

The sensitivity to social pain and the pleasure of positive affirmation, illustrates the 'power of the tongue' to either inflict pain or generate avoidance behaviour or to bestow pleasure and activate an approach response in others.

A need for consistency and accurate prediction. Another domain that was researched recently in neuroscience is that of fairness. Fairness is viewed as either the experience of fair behaviour or the response when those that are perceived to be unfair, get punished (Tabibnia & Lieberman, 2007). Both behaviours tend to activate the reward circuitry (ventral medial PFC [VMPC] and ventral striatum) of the brain irrespective of whether it leads to high personal gain (Lieberman 2013). Within the workplace, subjective views are likely to exist on aspects such as the fairness of workload, promotion and recognition.

Another contributing element to a sense of reward is predictability and meeting of expectations, and these processes have also been shown to activate the reward circuitry (VS). Ambiguity correlates positively with amygdala and OFC activation and negatively with the ventral striatum (Hsu, Bhatt, Adolphs, Tranel, & Camerer, 2005). Ambiguity is experienced as a threat. The implication of these findings emphasizes the need for leaders to be transparent and communicate to increase understanding and ensure a sense of fairness and certainty with their followers.

Dynamics of being part of the in-or out-group. An aspect that has already been discussed to some extent, but that deserves further elaboration, is the impact of being part of the in-or out-group. A basic need of humans is that of being socially connected or to be included. Within teams, natural coalitions are often created that influence group and team

dynamics. How then do team members respond when others are excluded? It is in this sphere that interesting neuroscience findings are emerging.

In a study, making use of fMRI technology researchers (Meyer et al., 2013), explored the impact on participants (n = 16) when a friend or a stranger is excluded, while playing the well-known 'cyber-ball game'. The cyber-ball game is often used in neuroscience research. In the cyber-ball game, participants believe they are playing against other participants, while in fact they are playing against the computer. In the game they pass a ball to each other. At some stage the computer excludes the participant, leaving them to think that the other players are deliberately excluding them from the game. As already mentioned, when we think about ourselves and when we think about those similar to us, the same neural pattern is activated (Meyer et al., 2013). Thus, when participants observed a friend being excluded from the game, the same pain network was activated that was activated when the participants themselves had been excluded, that is the dACC and insula as well as the self-referencing system (mPFC). Observing a stranger appears to activate the mentalizing pathway, which allows one to think about other's traits and intentions (dMPFC). Interestingly, the pain centres were not activated. In layman's terms this implies if you are my friend, I feel your pain, if you are not, I can think how you are possibly feeling, but I do not feel your pain. The results confirm what has already been discussed regarding empathy.

Cooperation versus competition. It would appear we find cooperation more rewarding than competition—a principle that is greatly beneficial within the organisational context. Exploring the neural activation in the brain, Decety and colleagues, (Decety, Jackson, Sommerville, Chaminade, & Meeltzoff, 2004) scanned participants while playing a computer game that requires both cooperation and competition. Interestingly, both competition and cooperation activated the executive function as well as the anterior insula, but with unique pathways, with cooperation activating the OFC and competition the mPFC.

The possible reason as deducted by the researchers is that cooperation is socially incentivising, while competition requires activation of the mentalizing process.

These research results about the neural basis of social behaviours may bring insight into the existence of organisational silos, especially highlighting the inability of the employees in one department to feel the 'pain' of those in other departments and the lack of action to amend practices that do not benefit both parties and departments. Individuals are more likely to feel the 'pain' of those in their team, or those that they are familiar with, illustrating the need for increased interaction and engagement within teams as well as across departments. Where employees have a better understanding of each other, there is a greater likelihood of identifying similarities and commonalities. A greater sense of similarity supports insight into difficulties or obstacles similar others may be experiencing, which is more likely to lead to helpful behaviour and actions.

Research findings that illustrate distinctive neural pathways for threat and reward responses provide a foundation for better understanding the human mind. Various situations could impact positively or negatively on our ability to function more effectively and access our higher order cognitive abilities (executive function). Despite the advancement of neuroscience findings, few models exist that encapsulate findings in the field of neuroscience into an agreed framework or model. David Rock provided a model to interpret findings, which he named SCARF. The acronym refers to *status, certainty, autonomy, relatedness* and *fairness* (Rock, 2009). He proposed that these five domains have the ability to either activate the reward or threat circuitry.

Based on the findings discussed in this section, it appears that elements that influence the neural circuitry are the moods of others, facial expressions, the nature of relationships, the perception of being similar, the experience of social pain, how we are viewed by others, acceptance (or not) within a group, fairness and a sense of consistency and predictability.

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3.4   A CRITICAL LOOK AT SOCIAL COGNITIVE RESEARCH FINDINGS

Findings in the field of social cognitive neuroscience evoke both support and criticism. Some of the criticism that was raised related to the reliability and validity of the research, the value of findings and their general applicability. Reliability and validity of findings are the hallmarks of quality research. Reliability refers to the need for any research to produce the same results consistently and validity to ensure that what it set out to measure reflects the reality.

As seen with many of the studies that were referred to in this chapter, fMRI technology was used extensively to gain knowledge of the brain regions that are active during specific cognitive processes. As the use of fMRI technology requires several trials, Lieberman (2010) acknowledged that this may lead to contamination and habituation (Lieberman, 2010). Habituation refers to a decrease in response after repeated exposure to the same stimulus.

Another critique is the association of certain brain regions with specific tasks. To clearly link a brain region with a specific task requires consistent activation of a specific task, without any overlap of other tasks. As research is focussed on cognitive processes, it is difficult to emulate and control high level cognitive processes, while participants are in a scanner (Blakemore et al., 2004). Literature consistently highlights the complexity of the brain as an organ. Even during simple tasks, multiple brain processes are involved simultaneously, resulting in a complex and integrated system.

As the 'roadmaps' are complex, oftentimes principles related to social cognitive neuroscience are simplified for the sake of understanding. Referring to the reductionist approach being followed in the neuroscience, Lindebaum and Zundel (2013) questioned the value of neuroscience findings. Adding to their criticism, they questioned the process where information from a dyadic relationship, relies on information gained from only one

contributing party with little consideration for contextual elements. In a further article Lindebaum (2016, p. 538) suggested that the demand for "novel management theories and ideas" and the financial investment therein, led to the natural supply thereof.

Since the use of technology is very costly, many of the research articles in which it is employed have fairly small samples (15 – 25) as is also apparent in the various researches that have already been referred to. Lindebaum, (2016, p. 542) also referred to the fairly small samples that are used (15 - 25) and therefore challenged result findings as being inflated and not a true account of the measured outcomes. The view that the smaller sample size nullifies the findings was challenged in a follow up article by Butler, Lee and Senior (2017). They emphasised that the focus should not be on the size, but rather the "interpretation and implications" of statistical findings (p. 1181).

Lindebaum also referred to so-called "motherhood statements" that are lacking in conceptual and theoretical foundations (Lindebaum, 2016, p. 542). In some sense, social cognitive neuroscience is still a developing science and consensus on integrative models and core networks is lacking at this stage (Yarkoni, Poldrack, van Essen, & Wager, 2010). The lack in theoretical frameworks and concepts is seen to relate to the initial "formative language which is a natural process of evolution in any emerging discipline" (Butler et al., 2017, p. 1183). Increasingly though, certain neural networks are being recognised and acknowledged with reference to the default network, X- and C-systems.

Social cognitive neuroscience is in a developmental phase. Increasingly, the focus of research and the findings will evoke support as well as criticism, until such time as there are integrated models and theoretical frameworks. Research findings expand the knowledge and insight into human behaviour which could potentially assist leaders to create environments that are conducive to achieving organisational goals.

3.5   IN SUMMARY

In this chapter, the researcher provided a greater understanding of the neural processes and research findings available within a social cognitive framework. The neural processes that are involved in self-awareness were explored, as well as the reflective and reflexive systems which provide insight into the underlying reasons for certain behavioural responses. Various emotional regulation strategies were described as well as research involving emotional regulation. Elements that play a role in the ability to regulation emotions relate to personality as well contextual influences.

In order to gain insight into others, the self is used as frame of reference. This again highlights the need for self-awareness and insight in order to better understand others. Understanding others also requires the ability to step beyond the self and demonstrate an understanding of how other are possibly feeling. The role of empathy in understanding others was explored as well as the elements that potentially influence the ability to demonstrate empathy. Dynamics that influence the ability to demonstrate empathy relate to the nature of the relationship and being part of the in- or out-group. The sense of feeling understood and being the recipient of empathy was also explored.

At the interactive level between individuals various influences potentially play a role in the neural circuits that are recruited. Elements are the role of mood contagion, facial expression, the experience of social pain, goal motivation and our need for fairness, consistency and predictability. Lastly this chapter provided critical views that have been expressed regarding the use of neuroscience findings within the behavioural domain.

CHAPTER 4:   LEADER DEVELOPMENT: A LIFE-LONG JOURNEY

This chapter focuses on understanding what leader development is. A pertinent question regarding leadership development is whether leaders are born or can be developed? The chapter further reviews current trends within leader development and the measurement of success. Ultimately, the aim of leader development is to ensure learning which results in change. It was therefore deemed appropriate to also explore what are catalysts that lead to change and lastly within the context of this particular research to also examine the neuroscience of learning.

4.1   UNDERSTANDING LEADER DEVELOPMENT

Although the subject of leadership has been widely researched, the literature on the development of leaders is substantially less (Day, Fleenor, Atwarer, Sturm, & McKee, 2014). Manfred Kets de Vries (2001, p. 178) stated that "it is often easier to change people, than to change people" highlighting the complexity inherent in any attempt to develop people. Learning and leader development are viewed as critical in ensuring sustainable performance and the continued survival and success of companies (Yukl, 2009). This is also evident in the current war for talent where the identification, development, and retention of talent remain a priority for organisations (Avolio, Avey, & Quisenberry, 2010). Leader development is further viewed as a mechanism to change and influence organisations; by developing leaders and creating increased capability, organisations are also inherently changed (Day & Halpin, 2004). This resounds with what John Maxwell described as the law of the lid - leader capabilities provide the cap to personal as well as organisational effectiveness, as achievements are directly linked with the skill to lead others (Maxwell, 1998).

The need for leadership development is generally not disputed, but the challenge is often to measure and prove the success of leadership development interventions. Bruce

Avolio (2004) holds the view that leaders are influenced by the various experiences they are exposed during the course of their lives, and therefore development and maturation as a leader takes place over a life time. From his understanding, it is clear that it is unlikely that leader development can be ascribed to a single intervention or process. It is more likely to result from various sources of knowledge and experiences over a lengthy time period and is linked to self-sight as well as insight into others. As learning is a continuous process that does not rely on a single intervention, but rather builds on experiences and challenges both from the past and present, this complicates the ability to measure the success of leader development interventions.

Leader development in its broadest sense refers to the development of an individual's capability to be effective in leadership roles and processes. Roles and processes would entail "setting of direction, creating alignment and maintaining commitment in groups of people who share common work" (van Velsor et al., 2010, p. 2).

The literature tends to differentiate between leader development and leadership development. The focus of leader development is on the individual, while leadership development views the individual in relation to the context and the possible relationships between individuals, be that within a group, team or organisation (Day, Zaccaro, & Halpin, 2004). Leader development considers the unique aspects of each individual, and what is required of that individual to function effectively within an organisational context. Leadership development is focused on responsibilities, relationships and collective practices in the achievement of shared goals. As leader development provides the foundation for leadership development, both are viewed as essential within the modern-day organisation (Day et al., 2004).

Given the many theories on leadership, the theoretical foundations of any development intervention need to be aligned with the organisational culture and envisaged

outcomes. Writing a rather scathing review on leader development, Rost (1993, p. 95) criticized leader development approaches that advocate specific leader behaviours and/or styles, which he described as "unauthentic, manipulative and non-developmental". To ensure sustainable change, he advocated a need to move beyond an individualistic approach and to increase the focus on collaborative leadership development, which may lead to an enhanced understanding of the dynamics within relationships. Other authors also supported the need for leaders to gain a better understanding of their leadership identity and the dynamics that shape relationships (Karp & Helgø, 2008), as well as a need to create a culture of collective learning (Yukl, 2009). The diversity of theories, or lack in consensus thereof, should not limit leadership development, but does require a better understanding of the developmental processes (Day et al., 2014). The topic of this study is growth and development and hence it addresses the issue of leader development.

4.2 ROCK OR CLAY – ARE LEADERS BORN OR DEVELOPED?

Leader development is essentially focused on growth and change, and presupposes that skills, thinking, and behaviours can be developed, leading to change. It assumes a level of pliability and plasticity in our human make-up. Given that leader and leadership development presuppose that individuals can be developed, it is warranted to explore the age-old question of whether leaders are developed or born.

Many researchers make use of the data base that was started by Minnesota University that registers all twins born in this State. Using this data base, Arvey and colleagues found that genetic features could predict the likelihood of individuals occupying a leadership role (Cited in Barling, 2014). These results support the view that leaders are born with a genetic advantage.

However, further research by Arvey and colleagues (2014) established that, in cases where twins had unique experiences, this contributed further to the extent that they occupied leadership positions. In addition, where genetic influences are not in favour of the child, they found that positive experiences can diminish the potentially negative impact of genetic features (Cited in Barling, 2014). While genetics promotes leadership potential, it appears that experiences contribute to leader occupancy and also have the ability to overcome genetic limitations.

Various researchers confirmed the influence of environmental elements. The results of a study that was conducted over a period 50 years, indicated that children who had experienced adversity in the form of their father's unemployment, performed better at school compared to children who did not experience such adversity and as adults they experienced general happiness (Barling, 2014). This research therefore showed that adversity provides a training ground for developing skills that are much needed in later life.

The positive and negative impact of parenting style is another contributing environmental factor. Research findings support the view that exposure to independent thinking and decision-making at a young age correlates with positive leadership development. The converse is also true – experiencing rejection, abandonment or absence from parents' impacts negatively on leadership development. The parenting style and the likelihood of children occupying leadership roles in their adulthood were explored by Avolio and his colleagues. They found that those individuals who experienced an authoritative parenting style were more likely to occupy a leadership role (Avolio, Rotundo, & Walumbwa, 2009). Parents with an authoritative style are described as being assertive and setting clear standards, but are also kind, dependable, encouraging.

Stimulating home environments where learning is encouraged is another contributing factor in the motivation to lead others. Based on information gained from the Fullerton Longitudinal study – a study that spanned 29 years and tracked 130 children - it seems that children who enjoy learning are also more likely to be motivated to lead (Gottfried et al., 2011).

On the negative side, it would appear the abuse and disapproval of parents also leave their mark in adulthood. Christian Kiewitz and colleagues (Cited in Barling, 2014) suggested there is a correlation between negative experiences and the experience of abusive parenting as a child with later abusive supervision as an adult. Verbal abuse and aggression become the acceptable norm, which is then repeated as an adult.

To summarize, genetics in the form of personality, cognitive and affective abilities do appear to play a role. Avolio suggested that this could contribute up to 30% to leadership potential. He also referred to research findings that suggest that up to 50% of the overlap in personalities in twins can be ascribed to genetics (Avolio, 2011). However, the contribution of genetics can also be complimented or corroded by experiences. Thus Cozolino (2010, p. 324) stated that, "genetic expression is controlled by experiences throughout life, and that changes in the environment. Both good and bad, continue to have positive and negative effects on us". Experiences during childhood and adult life, as well as interactions with parents, peers and role-models play a significant role in our development.

As mentioned in the introduction, leadership appears to be the product of both genetics and experiences over a life-span. Yet, in the research of leadership within an organisational context, there is seldom a longitudinal approach that considers the contribution of genetics, parental and other experiences in the forming of leaders (Murphy & Johnson, 2011). This fairly short-term focus is also a limitation in organisational learning, as few studies focus on

the multi-faceted and dynamic processes that take place over a prolonged time period in organisations (Yukl, 2009). A heightened understanding of the powerful impact of life experiences provides leaders with choices in the selection of life experiences that could enhance their own personal development and potentially the development of others (Avolio, 2011).

4.3 THE FOCUS OF LEADER DEVELOPMENT

The organisational context within which leaders operate is increasingly unpredictable, and Day & Halpin (2004) therefore highlighted the increasing need for leader development to be conducted in a pliable and flexible manner. This ensures that, as changes occur within the work environment, leader development can be adapted accordingly. He further stated that leaders are increasingly confronted with 'open' problems as opposed to 'closed' problems. Closed problems have either a clear solution or a defined methodology leading to a solution. Open problems, in contrast, do not have this clarity and solutions are not clear. Leaders at all levels are increasingly being confronted with open problems, necessitating the ability to generate solutions. The need to address either open or closed problems is what further differentiates training from leader development. Training provides individuals with the solutions or methodology to address closed problems. The focal point of leader development is enabling individuals to address and resolve open problems by providing them with necessary skills to resolve the challenges they are newly faced with on a daily basis.

The skills to solve new challenges cannot be viewed as exclusive to specific leadership roles; instead they are competencies that are required by everyone in an organisation. As Day et al. (2004, p. 12) stated, "Leadership is the aggregate ability to create shared work that is meaningful to people and to add value to an organisation and therefore everyone should participate in leadership." Leader development, therefore, should not be the

exclusive mandate of a selected few, but should be accessible to everyone within an organisation. In fact, a top-down approach is more likely to limit a collaborative approach that could lead to increased levels of learning and innovation (Yukl, 2009). Accessibility also implies a voluntary approach, and not forced development. By following a process of voluntary nomination, individual readiness and commitment are more likely contribute to leader development (Graham & Robinson, 2002).

The focus of leader development tends to be three-fold, (a) leading oneself, (b) leading others and (c) leading the organisation. In leading oneself the focus on is on managing thoughts, emotions and actions. Van Velsor and colleagues (2010) mentioned the following self-management competences; self-awareness, the ability to balance conflicting demands, a learning ability and leadership values. The need for increased self-awareness and the ability to adapt is highlighted by others as well (Day & Lance, 2004).

Regarding the process of leading others Day and Lance (2004) also highlighted the "ability to build and maintain relationships, build effective work groups, communication skills and the ability to develop others". On the last focus, that of leading the organisation, they mention management skills, strategic thinking, creativity and change management as core skills.

Although leader development should not be the sole mandate of the exclusive few, researchers support the view that skills development should be linked with organisational levels and address appropriate developmental needs. It would stand to reason that leaders within senior leadership roles require skills related to leading organisations and strategic thinking, which may not be necessary at all levels within the organisation (Day et al., 2014).

The organisational context and climate should be considered in the design and implementation of leader development interventions, as it plays a determining role in the success of any development initiative (van Velsor et al., 2010). An organisational culture

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that reflects openness, engagement and trust, plays a pivotal role in the success of learning and development (Day et al., 2014). What leaders therefore support, say and do, plays a key role in creating a culture of collective learning (Yukl, 2009). The ideal would be to ensure that development programmes form an integral part of the organisational culture and support retention and succession planning processes (Graham & Robinson, 2002). Leader and leadership development programmes should be aligned with the organisational culture and support the envisaged strategies.

4.4   CURRENT TRENDS IN LEADER DEVELOPMENT PROCESSES

Many early articles fail to differentiate between management training and leader development and tend to provide training for leaders in a functional manner. As Hackman (2010, p. 110) pointed out, "we expect leaders to learn, then use concepts and models that are abstract and far removed from their daily experiences. We ask them to think like a scholar and translate the theory to practice on their own". Moving away from classroom training and lectures, there is an increased understanding that development interventions are more valuable where processes that require increased levels of self-awareness, reflection, feedback and supportive coaching are incorporated (Conger, 2010). As it is much more than the transfer of knowledge, the design of any leader-development training intervention then becomes critical in ensuring long-lasting learning facilities for participants.

The Centre for Creative Leadership (CCL) advocates the following three-pronged leadership development model: (a) assess, (b) challenge, and (c) support (van Velsor et al., 2010). *Assessment* of individuals provides leaders with a benchmark and clarity on strengths as well as areas requiring further development. To ensure learning, interventions should provide *challenges* which could be in the form of goals, assignments or real-life experiences. In the learning process *support* should be ongoing for the participants which could be

provided by line managers, colleagues, coaches, mentors or others. Ultimately the focus is on learning that results in insight and change.

Tools and techniques that can be used to create a challenging and learning opportunity are wide and varied. The CCL advocates five clusters they believe lead to development (van Velsor et al., 2010), namely (i) challenging assignments in the form of increased responsibility or a change in role, (ii) coaching or mentoring relationships that provide developmental feedback, (iii) exposure to adverse situations, (iv) training, and lastly (v) personal experiences. Stogdill (1981) also mentioned the use of lectures, discussions, roleplays and simulations to create learning experiences. There are various platforms and role-players that could be utilised to create challenges and enhance learning.

To ensure support of development initiatives, the involvement of line managers in both the development of initiatives and the selection of participants is recommended. This ensures clarity about the envisaged outcomes as well as continued support of new skills and insights back in the organisational context (Graham & Robinson, 2002).

Departing from the focus on ensuring challenge and support of interventions, Heslin and Keating (2017), advocated that the key to learning lies with the learner. Irrespective of the design of an intervention certain individuals tend to take more learning from any experience, and others less or none. They suggested that this relates to being in a "learning mode" which requires a "growth mindset" as opposed to a "fixed mindset" (Heslin & Keating, 2017, p.370). Individuals with a growth mindset believe in their ability to change their attributes when deliberately concentrating thereon. Success or failure is seen as a product of their approach or input, which can be changed to achieve a different result. Individuals with a fixed mindset believe their attributes are fixed and achievement or lack thereof is as a result of inborn characteristics. This ties in somewhat with the work of O'Connel (2014) who provided a framework for leader development which is founded on

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five theoretical beliefs, of which one is the belief of learning. The foundation of this belief is one of an inherent ability to learn, linked with the drive and motivation for learning and the application thereof.

While organisations may provide the mechanism for learning, increasingly there is the understanding that ownership of development lies in the hands of the learner (Ardichvili, Och Dag, & Maderscheid, 2016). Although leader development has an individual focus on personal development, Day et al. (2004) supported the view that leader development enhances leaders' capacity to handle complexity and provides the organisation with greater potential and the ability to transform. Ultimately, leader development lies in the hands of every individual, and distributing this responsibility creates an empowered and powerful organisation.

4.5   EXPLORING THE CATALYST FOR PERSONAL BEHAVIOURAL CHANGE

Should leader development have a personal focus and lie in the hands of the learner as stated above, it is important to gain a better understanding of what drives leaders to implement behavioural changes. There is extensive literature available on leader development and change management processes that are focussed at an organisational level. To ensure the success of changes at a macro level, requires change at a micro level, of the leader or a person. Yet, there is surprisingly little literature available on the personal development processes leaders undergo in their journey of personal development and behavioural change (McDermott, Kidney, & Flood, 2011). Karp (2006, p. 7) highlighted the need for change management practices to not only have scorecards for the system, but also for "internal balanced scorecard addressing individual perspectives" in order to balance the collective organisational needs with the individuals needs of people. As McDermott and colleagues (McDermott et al., 2011) suggested, leader development has an intrapersonal

focus which leads to personal "human capital," rather than a focus on building collective capacity within an organisation.

Berkman (2018) referred to two dimensions that lead to behavioural change, namely *way* and *will*. He defined the *way* as the resources required to achieve behavioural change. This could relate to skills, knowledge and cognitive processes. Behavioural change could be on a continuum, which requires fairly effortless cognitive processes to a high level of complexity, which requires high levels of skills and knowledge. *Will* refers to the motivation to achieve the set behavioural goal. Some behavioural changes could be experienced as relatively easy, while others could feel hard and therefore requires higher levels of motivation. Based on the two dimensions he suggested a model that defines four quadrants of behavioural change: simple and routine tasks (low skill, low motivation), simple but novel tasks (low skill, high motivation), complex but routine tasks (high skill, low motivation), and complex and novel tasks (high skill and high motivation). He suggested that most behavioural changes that are important to leaders are within the fourth quadrant, which requires both high levels of skill and motivation. He made some valuable links to neuroscience with regards to both will and way.

The *way* (resources) needed for a complex task, requires focussed attention and therefore access to the executive function. Berkman suggested that, because learning is dependent on the executive function, behavioural change can feel like it is difficult to achieve. The *will* (motivation) is influenced by our reward system, which is focussed on recreating situations that have led to an experience of reward. New behaviour, though, does not have a history of reward reinforcement. He therefore suggested that it is critical that goals or behavioural changes be "identity-linked" (Berkman, 2018, p. 39) as a sense of self has greater subjective value. It would appear that there is a greater need to research and gain and understanding of what leads to behaviour change.

4.6 MEASURING THE SUCCESS OF A LEADER DEVELOPMENT INTERVENTION

Irrespective of the theoretical foundations, content or methods applied in interventions leading to learning and development vary in success. Despite the time and cost invested in any leader development intervention, measuring the success thereof remains a challenge.

Collins (2001) stated that organisational outcomes should be the foundational drive for any leader-development intervention. He reviewed 54 studies over a time period of 16 years (1984 – 2000), to determine whether they met this criterion. Referring to a previous study, which was done by Burke and Day in 1986, which Collins uses as a benchmark, he found a marked improvement from their finding of 3% to that of 30% of the studies that indicated organisational outcomes.

Many studies aim to measure the impact or effectiveness of leader development interventions and try to determine the success or value of the intervention by gaining feedback from the participant. Although valuable, this excludes data from other sources (other leaders, peers, subordinates, line manager) that may provide additional information on observed behavioural changes (Barling, 2014). In addition, feedback from participants are more likely to overestimate the value of an intervention, as they need to justify the time and cost invested in the intervention. How the successes of interventions are measured could be problematic.

Attempting to gain some understanding of the measure of success, Avolio and his research team identified 200 interventions in 2009 (Cited in Barling, 2014). The focus was on field studies where the intervention was provided at training facilities within the workplace. They found that individuals that attended a leader development intervention are 30% more likely to achieve significantly better outcomes than those who did not attend the intervention. They also found that at least 95% of all studies had a small positive effect on

outcomes. Outcomes were measured on the affective, behavioural and cognitive dimensions. They further found that the theoretical paradigm played a role in the outcomes. They differentiated between traditional, newer paradigms and the Pygmalion theory. The traditional paradigm refers to behavioural and contingency theories and the newer paradigm refers to charismatic and transformational theories. Pygmalion theories relate to leaders having optimistic expectations of subordinates. They found that traditional paradigms lead to stronger behavioural outcomes, while the newer and Pygmalion paradigms lead to improved affective and cognitive outcomes. This illustrates the relevance of the theoretical foundations selected for leader development interventions, based on the required organisational outcomes.

A number of elements could influence the success of any intervention. This is often related to challenge and support. The composition of the learning group could contribute to increasing the challenge. A high level of diversity is likely to result in differing viewpoints and could lead to possible conflict, but this provides an excellent learning opportunity (Stogdill, 1981).

The influence of the facilitator and the style of facilitation are significant. A considerate style that ensures group participation yields better learning results than where a facilitator is experienced as domineering and aloof (Barling 2014).

The success of an intervention is also dependent on the supportive feedback after the intervention. Feedback provides the reinforcing backbone to leader development. It provides individuals with validation, a testimony that others are observing and acknowledging your behaviour, which is critical to in reinforce the learning (Avolio, 2011). For this reason, feedback from colleagues, line managers, mentors or coaches are invaluable. Day and Halpin (2004) referred to a leadership-development programme that was conducted at International Harvester Company as part of the Ohio leadership studies. The intervention was focused on developing managerial skills related to people as well as organisational abilities. Various

methods were applied during the intervention, ranging from role plays to group discussions. While evaluations during the training measured changes in their mind-set and behaviour, they found that the changes were not maintained when delegates were back in the workplace. This was largely ascribed to the lack of support from senior leaders who had not attended the development intervention. It is for this reason that Stogdill (1981) suggested that leader development interventions should involve the entire leadership team of any organisation. This ensures a common language and understanding of leader concepts that can more easily be recognized and reinforced.

In review of articles published in the journal *Leadership Quarterly* over a period of more than 10 years, Day and colleagues (Day et al., 2014) found that research in the domain of leader development has been limited. The results of the studies they considered in their review challenge the view that leader development can be measured by performance measures, because it appears that there are many dynamics that play a role in performance outcomes. Based on their review, Day et al. (2014) highlighted the need for the identification of indicators in development which take into consideration the organisational context as well as the positional and functional role of the learner.

The simplistic mindset that certain leader development inputs will automatically lead to certain outputs is also challenged by Shamir (2011). The time from the input until measurement of output is seldom taken into consideration. In this period numerous changes or elements could influence the learning process. He suggested a focus on how processes and relationships change during this period and argued that measuring the sustainability of those changes over a longer period may enhance one's understanding and measurement of leader development.

Taking into consideration various elements, of which one is time, Avolio and colleagues (Avolio et al., 2010, p. 633) attempted to provide a measurement for what they

term as "return on development investment" (RODI). Although attempting to promote a system for the measurement of leadership development, they acknowledged that their approach can be criticized, because it depends on the methodological assumptions and accurate data measurement.

The measurement of development outcomes remains complex. Although leaders play a key role in organisational performance and sustainability, when it comes to leader development the key focus should remain on development and measures should relate to this (Day et al., 2014).

4.7   LEARNING: A NEUROSCIENTIFIC APPROACH

Researchers attempting to address the existing gap on how individuals learn is increasingly studied in the domain of social cognitive neuroscience. As referred to in the previous chapter, the brain is not a rigid structure and is essentially 'plastic' referring to its ability to change (Ratey, 2008). The plasticity of the brain is pivotal to learning and development of skills (Hendel-Giller et al., 2011).

Kandel and colleagues, (Kandel, Schwartz, Jessel, Sieglebaum, & Hudspeth, 2013, p. 1441) referred to learning as a "change in behaviour that results from acquiring knowledge about the world, and memory is the process by which that (knowledge) is encoded, stored and later retrieved". Making a change in behaviour, though, is not always easy because of the way the brain is wired. The basal ganglia are often described as the "habit centre" of the brain. The basal ganglia form neural pathways that are activated automatically, leading to the display of certain behaviours without any active thought (Schwartz, Gaito, & Lennick, 2011). Behavioural change requires overriding this effortless circuitry and forming new effortful neural pathways.

Learning and behavioural change requires access to knowledge and the ability to retrieve the knowledge from memory. Memory is a complex neural system, which is not represented by a single neural network, but rather by a number of networks. Short term memory would typically allow someone to retrieve information for a short period of time, for example, to remember another's name.

Learning requires long term memory, a process which is dependent on the executive function and focused attention. Long term learning could be at a conscious level, referred to as explicit memory, or could be at an unconscious level, referred to as implicit memory (Cozolino, 2010; Kandel et al., 2013). Explicit memory relates to conscious learning and implicit memory relates to unconscious patterns of learning or habits. Emotional learning would relate to implicit memory. Different neural networks are involved with the forming of explicit and implicit memories. Implicit memory is an automatic process and involves the amygdala, while explicit memory requires an intentional focus to access information and relies on the hippocampus and the medial temporal lobe (Fishbane, 2007; Kandel et al. 2013).

Explicit memory is informed by both personal experiences, which is referred to as episodic memory, as well facts and knowledge, which is referred to semantic memory (Kandel et al., 2013). The forming of explicit memory involves four processes: the encoding of information, storage and consolidation thereof, and the ability to retrieve it.

How well new information is encoded is critical in storing it in the long term memory. It was found that integrating new information with existing information, ensures that the encoding is stronger. It is often in the encoding process that relevance and motivation play key roles in whether it is viewed as important to remember. Learning, therefore involves both emotion and cognition. Information that is encoded is stored in numerous brain regions. A process referred to as consolidation ensures the stability of the stored information. Information that is stored in the long term memory can then be consciously retrieved.

Learning is not a linear process in the brain, but a complex network of connections, that are highly influenced by the learning conditions. Various things play a role in enabling learning. Based on findings from research in neuroscience, Rock and colleagues (Davachi, Kiefer, Rock, & Rock, 2010) compiled the attention, generation, emotions and spacing (AGES) model which they believe supports the learning process and enhances memory of the learning's for the learner.

Attention: Learning requires the undivided attention of the learner. Attention is proportionate to the levels of arousal and stimulation and entails three processes: alerting, orienting and executive (Posner & Rothbart, 2007). As each process activates different neural pathways, this may give some understanding of why the ability to focus and pay attention can be an energy consuming exercise.

The ability to pay attention is directly linked with the activation of the reward system. Where the learning experience is viewed as positive and rewarding, the ventral striatum is activated, and dopamine and norepinephrine are released. Dopamine is strongly linked with a feeling of reward and relevance, while norepinephrine ensures alertness and focus. When arousal is lacking, learning is unlikely to take place. When arousal is too high and linked with a possible threat, the threat response is likely to be evoked, inhibiting learning from taking place (Cozolino, 2010). Cozolino and Sprokay (2006, p. 14) referred to the creation of a state of "safe emergency" to enhance the learning process. Where learning content is real and personal, it is also experienced as more relevant, tending to keep learners' attention. That which we experience as novel or new also tends to grab our attention (Ratey, 2008).

Generation: In addition to attention, a sense of ownership tends to guide the process of encoding. A deeper level of encoding is achieved where information is interpreted by learners in ways that are meaningful to them. Cozolino and Sprokay (2006, p. 17) noted the "window of self-knowledge", which means that learning happens best where it builds on

existing personal experiences and knowledge. Learners therefore need to make sense of the information within their current organisational context.

Emotions: The amygdala plays a central role in defining the motivational significance of information received (Kandel et al. 2013, 2015; Ratey, 2001). Emotions can play either an inhibitory or and beneficial role in the learning process, dependent on whether the emotions experienced are positive or negative. Where information has motivational value, it is more likely to be encoded (Berkman, 2018; Hendel-Giller et al., 2011). The activation of emotions tends to direct attention and ensure focus which leads to enhanced memory (Zull, 2002). To solicit learning, the emotions that are evoked should be positive, since negative emotions impact negatively on creativity and innovation. In addition, stress can inhibit the learning process (Hendel-Giller et al. 2011).

Spacing: Rock and colleagues also found that learning that is spaced over time results in better long-term memory as new connections are built over time. One study appears to support the thinking that there may be a gap between learning and application of the learning, which requires spacing in the form of time intervals. Conducted over 12 months, 50 research and development (R&D) teams, with both new and experienced leaders, were studied to monitor learning and the impact of learning. They found that it took eight to twelve months from the learning before the behaviour was applied, demonstrating a level of procedural skill (Hirst, Bain, Pirola-Merlo, & Richver, 2004). Learning interventions that overload learners with too much information, may be less effective. The recall of the information has been shown to be better if rest times are given. Such spacing between learning episodes seem to have a positive effect on memory.

There are some similarities between the above framework and the learning process as described by Zull. Hendel-Giller et al. (2011) commented on the work of Zull who built on the learning cycle proposed by Kolb. Zull (2002) supported the view that learning that leads

to behavioural change involves four processes. The first phase is the *gathering of information* through our various senses. This is followed by a *reflection phase*, which largely involves the temporal lobe. This phase allows for the integration and internalisation of information. This process requires some time for both conscious and unconscious reflection. The third phase involves a process of *creation* where the learner makes meaning of the knowledge and links it with prior knowledge. This process of meaning making ensures a deeper coding of the knowledge. The final phase is that of *active testing*, which involves the application of the learning by taking action and implementing behaviour change.

In summary, learning and memory rely on a complexity of neural networks. Memory can be formed by either an implicit process where memory is an automatic process, or it can be an explicit process that requires focus and attention. Explicit memory is guided by both personal experiences and the knowledge that one is exposed to. After being exposed to information, it appears that there is an internal process of meaning-making, where the new information is integrated with existing information. Various influences play a role in how well this encoding takes place, for example, relevance, emotions and motivation and timing. Learning does not result from the activation of a single neural pathway, but is rather the activation of various and complex neural pathways. As learning is focused on developing and acquiring cognitive, affective and behavioural skills (Day et al., 2004), the learning process requires the activation of both affective and cognitive neural processes (Cozolino & Sprokay, 2006; Le Doux, 2000).

4.8   IN CLOSING

The value of leadership development is highlighted by many authors. The need for leadership skills is a pre-requisite not only for personal growth and advancement, but also for the survival of organisations within a very competitive, global economy. Although various

theoretical leadership models exist, it appears that the foundation of leader development lies in a level of self-awareness and insight, and the ability to mould the self to meet current demands and challenges. Building on this is the need to lead others and understand the dynamism of relationships. Leader development usually takes place within an organisational context, and the possible influences of organisational culture as a support or hindrance to development, must therefore be recognised. As the environment within which leader development takes place has evolved and increased in complexity, so has the delivery of leader development interventions also grown in richness. Various platforms are now used to ensure that learning is challenging and also relevant to the learners within their current roles and contexts.

Leader development is not without challenges. Although the value of this process is not disputed, the true measure of success remains a topic for further exploration. As organisations are ultimately profit driven, there is the tendency to want a measure of return on investment on leader development, a measure that may not be so easy to obtain when dealing with human dynamics.

Having evolved from the typical classroom training, to stay up to date and relevant the domain of leader development needs continued research and development to ensure that the delivery methods are still relevant. Elements that challenge the relevance and methodology of leader development relate to the rapid progress of technology, globalisation and a new generation of leaders. While the use of technology speaks for itself, globalisation and the distribution of leaders across continents who lead diverse cultures is likely to create a need for a new set of skills and delivery methods. The target audience is also one that is evolving with the entrance of millennials as leaders into organisations.

Bennis (2009) promoted the view that the foundation of learning lies in our ability to reflect on experiences. Learning and development does not happen in isolation, but is largely

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dependent on our interactions with others. There may be a need for a greater exploration and collaboration to benefit a collective understanding of leader and leadership development. Ultimately, the value of any learning development intervention lies in the hands of the learner. Neuroscience findings provide some insight into this learning process. A better understanding of this learning process could guide and strengthen leader development efforts.

CHAPTER 5:   RESEARCH METHOD

The purpose of this chapter is to provide the framework for the research approach and methodology. As stated in the first chapter, the purpose of this case study is to explore the value of gaining social cognitive neuroscience knowledge by means of a leader development intervention and the possible influence of this on the thought processes, feelings or behaviour of leaders within a retail environment. This chapter outline the qualitative research design, the collection and analysis of data.

5.1   RESEARCH APPROACH

There are only a limited number of studies of interventions that use neuroscience principles as the foundational knowledge to develop leaders. Although increasingly used in leadership development, little empirical evidence exists that demonstrates the relevance of neuroscience principles within the field of leadership. The purpose of this research is to gain insight and understanding of the value of gaining increased knowledge of social cognitive neuroscience by leaders, and how their insight and understanding of this knowledge influences their thoughts and emotions and possibly leads to behavioural changes. The focus in this research is therefore on exploring, understanding and making meaning of participants learning experiences within an organisational context.

Given the lack of knowledge of the application of neuroscience within the domain of leadership, a qualitative research approach was deemed the most appropriate method to gain an understanding of participants' thoughts, emotions and experiences in the application of the knowledge they have gained (Flick, 2014; Lichtmann, 2014). This research therefore follows an inductive qualitative exploratory approach. Qualitative research allows for a process of inductive exploration of participants' interpretations, understanding and experiences (Terre Blanche, Durrheim, & Painter, 2012).

It should be noted that the aim of this study is not to generate theory, but rather to expand on the value of an increased understanding of social cognitive neuroscience within the leadership domain. Qualitative research is not designed to test theory, but rather to build on the knowledge base of the understanding of human behaviour (Lichtmann, 2014). Ontologically, qualitative research is based on the assumption that reality is subjective and formed by the interaction between the researcher and the researched.

An interpretivist stance was adopted, which focuses on expression as a vehicle to create the insights and understanding of participants. It is assumed that greater insight into participants' understanding and lived experiences is to be gained by the researcher interacting and engaging with the participants. However, the researcher acknowledges that data generated using this research process cannot be "value-free" as stated by Klenke (2008, p. 23), because both the researcher and participants are influenced by their personal experiences.

Qualitative research allows for in-depth exploration through 'thick descriptions' of situations and interactions (Klenke, 2008). Thick descriptions allow the researcher to not only report on the learning experience of participants, but also to analyse the experiences by means of interpretation (Thomas, 2016). The learning experience of understanding neuroscience principles and the application thereof are subjective to personal interpretations and the experiences of the participants. The focus is therefore on exploring the subjective nature of reality as experienced by participants. Qualitative research provides the opportunity to explore the emic (insider) view of participants by gaining an understanding of the participant's thoughts, emotions and behaviours (Bernard, 2013; Denzin & Lincoln, 1994). Interpretations are dependent on participants' understanding and their lived experiences within their current organisational context.

The researcher believes there could be numerous ways of understanding and applying social cognitive neuroscience principles relative to the unique experiences of each participant

and their context. It is in the interaction with others that social cognitive neuroscience gains value; hence the focus was on how participants expressed their understanding of the social cognitive neuroscience knowledge that they had gained. The interpretivist paradigm supports the view that knowledge and sense making is the result of interpretations made by rational thinking beings (Klenke, 2016). The value of social cognitive neuroscience is therefore dependent on a sense making process by participants.

The researcher also strongly focused on exploring how participants' understanding of social cognitive neuroscience is being applied within their current working context. The researcher therefore also adapted a pragmatic stance by exploring the relationship between acquired knowledge and the application thereof (Creswell, 2007). The application of neuroscience knowledge and the resulting learning experience is unique to each participant and may lead to an enhanced understanding of the relevance of neuroscience within the field of leadership.

Ultimately the focus of the research was on inductively exploring and gaining an in-depth understanding of the participants' insights and experiences after attending a leader development intervention that uses social cognitive neuroscience as a foundation to create understanding of the self and of others. These experiences could be cognitive, affective or behavioural.

5.2   RESEARCH STRATEGY

As this research explored how a leader development intervention contributes to leaders' behaviour change within their "real-life context" (Klenke, 2008, p. 58), an exploratory case study was selected as the research method. Creswell 2007) defined case study research as "a qualitative approach in which the investigator explores a bounded system (a case) through detailed, in-depth data collection involving multiples sources of information

and reports a case description and case-based themes" (Creswell, 2007, p. 73). Leaders attending a leader development intervention, which uses social cognitive neuroscience as a foundation within a specific organisation over a two-year time period form the boundary of the case (Thomas, 2016). The selection of this particular case can be ascribed to gaining access to the organisation. The units of analysis are the individual and the texts.

This research was conducted within a business environment with middle to senior managers that have a key role in influencing and guiding others, either through their role as managers or their specialist roles as advisors. The work environment reflects the realities of the day and can be described as one where employees are confronted with changes that relate to leadership, strategies, roles and the organisational structure. Taking into consideration the individualism and uniqueness of the human nature, there is likely to be a diversity of perspectives and circumstances. A case study approach provides the opportunity for exploring the complexity of behavioural change as a phenomenon from a variety of perspectives.

A key element of case study research is the use of multiple sources of information (Creswell, 2007; Yin, 2014). This is also referred to by various other authors using the term triangulation. To provide depth of information and multiple perspectives, the sources of information were the participants attending the learning intervention, their line managers as well as individuals reporting to them as well as observations made by the researcher.

Literature differentiates between exploratory, explanatory and descriptive case studies. Explanatory case studies are focused on defining causal relationships and patterns and descriptive case studies are primarily theory driven (Creswell, 2007; Klenke, 2008). As little previous research is available on the application of neuroscience principles within the leader domain, it can be viewed as an exploratory case study.

5.3 RESEARCH METHOD

This section will provide an account of the research setting, how entry was gained into the organisation where the research was done, clarity on the role and background of the researcher as well as the development process of the leader development intervention. The method of data collection and data analysis will be described as well as the strategies that were implemented to ensure the quality of the data. Finally, ethical consideration will be discussed.

5.3.1 The research setting

The researcher is a registered industrial psychologist who gained an understanding of concepts relating to social cognitive neuroscience within the field of leadership by completing a post graduate certificate at the University of Middlesex, UK. This entailed weekly online sessions, weekly and quarterly homework projects and assignments over a period of 18 months followed by the completion of a research project. This provided the foundational knowledge and motivation to design a leader development intervention focused on increasing the knowledge base of leaders and to provide leaders with additional tools and techniques to grow develop and address challenges within their work environments.

The client organisation is a South African-based organisation within the wholesale and retail industry. The organisation is widely represented within South Africa and has a total of 412 stores that focus on high-volume and low-cost distribution. Although they operate in 13 countries in sub-Saharan Africa, participants in this study were all from the South African business units.

Operating within an extremely competitive industry where buyers are cost sensitive, the culture is highly results driven and customer focused. This is reflected in their dedication

to adding value by demonstrating operational excellence, good business, sustainability and growing talent.

The client organisation has a number of leader development programmes that are focused on development of leaders. This specific leader development intervention was developed by the researcher (the intervention programme was called Neurolead) and was listed as a product offering with a focus on leader development. Participants were nominated by the talent manager and the leadership development team, with the input of line managers to attend development programmes. Participants that attended the development intervention were from different business units as well as from a variety of roles, ranging from both the support structures (Human Resources, Finance and other) as well as managers within the retail environment.

5.3.2   Entry and establishing the researcher's roles

Focused on developing and managing talent within this specific organisation, the group talent manager indicated an interest in exploring a programme that would provide participants with a foundational understanding of neuroscience principles as applied within a leadership context. With the approval of the then human resources executive, a pilot group was identified to attend and critically review the initial programme as designed by the facilitator. Various managers from different business units were invited to attend this pilot phase. Their role was to critically review the value of the programme for the business as well as reflect on the content and suggest changes. This pilot programme was run from February 2014 to April 2014 and entailed eight morning sessions on a weekly basis with 18 attendees. Based on group discussions and inputs, it was suggested that the leader development intervention would be reduced to a total of five sessions, with smaller groups to ensure a high level of dialogue and participation. The learning and development division listed this leader development intervention as an offering for middle to senior managers within the

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organisation. Viewed by the researcher as a test phase, the programme was facilitated to nominated delegates in the second year, 2015, and led to further amendments and refinements. Further to this, the leader development intervention was listed as a product offering by the learning and development division, during 2016 and 2017.

Permission was gained from the organisation to conduct this research. Delegates that participated in the 2016 and 2017 roll-out were invited to participate in this study. It is data provided by delegates from the 2016- and 2017-year intakes that form the foundation for the data analysis.

5.3.3 The leader development intervention

The leader development intervention was run over a five-month period. Participants attended five half-day sessions at monthly intervals. During the leader development intervention, participants were given an understanding of the key neural processes and networks as described in chapter 3. The leader development intervention focused on two modules:

Module 1 was focused on the individual and increasing personal effectiveness as well as increasing levels of emotional regulation. This module used the model as presented by James Gross (2002) as a foundation for the application of social cognitive neuroscience principles. This model proposes five strategies for emotional regulation; "situation selection, situation modification, attention deployment, cognitive change and response modulation". A process was facilitated that provided delegates with a better understanding of the brain's response to threats and rewards, and guided delegates to explore and gain a better understanding of their personal reactions to situations or people.

Module 2 was focused on understanding others in order to build relationships and increase the levels of collaboration within the workplace. Using a model designed by the researcher, this module aimed to provide insight into behaviours that are experienced as

rewarding by others. The 4-C model as defined by the researcher highlights four core areas that are experienced as rewarding by others; acknowledgement of contribution, feeling interpersonally connected, a sense of control and choice, and lastly consistency of expectations. The focus in this module shifted from one of gaining insight into the self, to that of exploring and understanding the behaviour of others, based on one's understanding of the brain. The leader development was highly interactive making use of various experiential exercises.

5.3.4   Data collection

Central to data collection is the selection of participants, as well as the technique whereby data is collected. In this research a purposive sampling technique was applied, and data was collected by means of interviews and field notes.

5.3.4.1   Sampling

Critical to the selection of participants was the need for participants to have a foundational knowledge of the subject matter, in this case social cognitive neuroscience principles. Therefore, participants who had attended the leader development intervention (as described in 5.3.2) were invited to participate in the study. For the purposes of this research, a purposive sampling approach was deemed best as it allowed the researcher to select participants that were sufficiently informed on the subject matter and therefore best suited to the purpose of the research subject (Silverman, 2005). To ensure a consistent standard of knowledge, attendance of all the workshops was a primary requirement of the sample group.

As levels of motivation and the perceived threat in participating have proven to impact on the response rate (Mouton, 1996), participants were duly informed of what the research entailed, by receiving information in both written format as well as via verbal

engagement. Participants had the freedom to make their own decision on whether they were willing to participate.

The opinions of researchers on what constitutes a sufficient sample size for qualitative research approach, varies. Although Bernard (2013) suggested that 10 – 20 participants would constitute a big enough sample size, there appears to be little consistency with regard to ideal number in literature. Symon and Cassell referred to Morse's suggestion that "saturation is the key to excellent qualitative work" (Symon & Cassell, 2012, p. 44). Saturation refers to collection of data until such a point where no new information emerges. The researcher also actively reflected and interpretively considered if the sample size would answer the key research question, as suggested by Emmel (2013). Initially, after facilitation of the leader development intervention in 2016, 13 participants were identified.

As qualitative research hinges on methodical reflexivity by the research and emergent design, the researcher decided to extend the research project with another year (Creswell, 2007; Symon & Cassell, 2012). This was done to ensure saturation of information and to increase the diversity of participants and the sources of information. An additional 13 participants were identified following the facilitation of the 2017 intervention. Although this extended the research process by a year, it provided richness of data and diversity of perspectives that led to saturation of the information generated. In addition, it ensured a greater level heterogeneous in the sampling, as participants from the years 2016 and 2017 were from different business units. By including a wider spectrum of participants from different business units provided access to diverse characteristics and a greater range of diversity in the data collected (Symon & Cassel, 2012).

The importance of triangulation and the need to have multiple sources of data to increase overall reliability was considered. For this reason, the source of information was amended to include both line managers and direct reports. This led to interviews with line

managers and direct reports being conducted at different time frames (see Table 5.1), but also led to insight of the sustainability of behavioural changes as some interviews were conducted 14 months after the intervention.

Table 5.1. *Timeline of the Conducted Interviews*

Participants' division	Indicates the number of months after the completion of the intervention, when the interviews were conducted		
	Participant	**Line manager**	**Direct report**
Operations	2 months	14 months	14 months
Specialist roles	2 months	2 months	
Finances	2 months	2 months	2 months
Human resources	2 months	2 and 14 months	

5.3.4.2   Interviews

The focus of the research was on exploring participants' insights and understanding of their newly acquired knowledge of social cognitive neuroscience, how insights have led to behavioural changes, what the underlying change process entailed as well as the impact of their behavioural changes on others. The researcher's need was to gain data of participants' knowledge, personal experiences, feelings and views. The researcher identified semi-structured interviews as the best vehicle to access this information.

The level of structure in an interview is likely to determine to what extent the interviewee can share personal experiences and feelings. Flick (2014, p. 50) noted the work of Rubin and Rubin and the need to unlock "rich and detailed" information, rather than closed responses. As the focus in this research was on uncovering the experiences of research participants, structured interviews were not considered as they do not adapt an interpretive stance and are more useful where standardised information is required (Lichtman, 2014). On the other continuum of structure are in-depth and unstructured

interviewing, which are recommended where time constraints and access to subjects is not a limitation (Bernard, 2013).

The context within which interviews were conducted during this research project was a key consideration. Participants function within a high-pressure work environment, where time and the opportunity to access interviewees more than once was limited. Given the limited access and time, semi-structured interviews were deemed to provide the researcher with enough flexibility without compromising on the subject matter content (Bernard, 2013), and therefore the most appropriate manner to collect data.

With the overall research purpose in mind, a set of interview questions was prepared as a guideline. David and Sutton (2011) mentioned to the need to pilot the questions. Lazersfeld and Wagner (Strauss & Corbin, 1998) also emphasised the need to conduct exploratory interviews before finalising interview questions. This gives an indication of the depth and detail of information generated by the interview as well as possible built-in biases. An initial pilot interview was conducted to ensure that the format of the interview generated the data required. Based on the pilot interview, amendments were made. Further amendments were made as interviews progressed based on insights gained by the researcher during the interview process. The final interview questions are attached as Addendum B. The interview questions ensured that the necessary subject matter was addressed, but was conducted in a flexible manner by following up with the necessary probing to gain depth and detail (Cassel & Symon, 2012; Lichtman, 2014). The need to ensure a flexible approach and follow-up with probes in the conducting of the interview is one that is highlighted by numerous authors. An advantage of this flexible approach is that it allows the interviewee the freedom to share their experiences and viewpoints (Cassel & Symon, 2012).

The interview questions were emailed to all participants prior to the interview. As qualitative research requires of the researcher to remain open, a flexible approach was

adopted in the asking of questions and, where relevant, additional questions were asked to elaborate or clarify data. Dependent on the responses, the researcher probed further where appropriate to access the most information possibly.

As the researcher also facilitated the intervention, a relationship had been established over the five-month period, creating rapport with the participants. Interviews were conducted in a relaxed and conversational tone, as Denzin and Lincoln (1994, p. 353) elegantly state, "it is a conversation – the art of assigning questions and listening".

As participants shared experiences freely during the workshops, a sense of trust had been established, allowing participants to share their thinking and experiences during the interviews uninhibited. Interviews were conducted at a venue of the interviewee's choice with the proviso that it should provide privacy without interruptions.

Most participants agreed to the interview being recorded. This was clarified and affirmed before each interview. With the exception of one participant, all interviews were recorded. A total of 26 interviews were conducted with the participants over a two-year period.

As already highlighted, a shortcoming of many research articles is that only a single source is used to gather information. In order to increase the validity and reliability of this study, the original design method was amended, and the researcher attempted to expand the sources of information by interviewing both subordinates as well as line managers. Within the context of this research, subordinates that report to participants, are referred to as "direct reports". Interviewing direct reports and line managers proved difficult for the following reasons:

Direct reports. Some participants in the human resources division or those in specialist roles, do not have anybody reporting to them directly. To ensure that direct reports were able to observe potential behavioural changes in the participants, they had to be in a

reporting relationship with the participant prior to the training, during as well as after the training. Within the organisation employees are transferred or promoted continuously, resulting in the lack of an established line manager – direct report relationship. Many participants had recently been promoted or transferred to their current roles, thus having a limited historical relationship with their direct reports. The geographical spread of direct reports further complicated the ability to interview them since the cost implications of travelling limited access to them. Access to the direct reports was also dependent on the participants setting the scene and providing the researcher with details and access. Given work pressures on the side of the participant, this did not always happen.

Line Managers. A further source of information was deemed to be the line managers. Because many of the delegates reported to the same line manager, this created some ease in accessing information, but was also found lacking in depth of information. More in this regard will be discussed during the analysis phase.

5.3.4.3   *Description of participants*

The data generated from 16 participants were utilised as a foundation for interpreting and analysis. Their personal details are summarised in Table 5.2. and reflect diversity in terms of age, gender, positional roles as well as experience.

Table 5.2. *Biographical Data of Participants*

Participant	Gender		Age	Role	Years		Tenure
	Male	Female			Current role	Management	
P 1	X		43	Regional Operations manager	6	20	22
P 2	X		55	Regions Operations manager	20	25	35
P 3	X		51	Regions Operations manager	5	20	20
P 4	X		35	Regions Operations manager	1,5	14	18
P 5		X	47	Merchandise manager	2	15	3
P 6		X	46	Stock planner	3 mth	14	22
P 7	X		43	Finance manager	6	15	6
P 8	X		46	Finance manager	1	11	21
P 9	X		45	Finance manager	5	12	21
P 10		X	35	Finance manager	4	9	4
P 11		X	30	Regional HRM *	1	5	2
P 12	X		29	Regional HRM *	1	7	4
P 13		X	43	Regional HRM *	5	21	5
P 14		X		Talent acquisition manager	4	11	11
P 15		X	34	HRD manager **	3 mths	3	10
P 16	X		36	Regional HRM *	3	13	6
*	HRM		Human Resources manager				
**	HRD		Human Resources Development				

5.3.4.4 *Description of line managers and direct reports*

As mentioned in section 5.3.5 additional interviews were conducted with some participant's line managers as well as employees reporting to participants. Interviews were conducted with six line managers. As illustrated in Table 5.3, the five line managers constitute management for 12 of the 16 participants, as some participants reported to the

same line manager. Since many of the participants were in specialist roles, they did not have direct reports. Interviews were conducted with nine individuals that report to the participants.

Table 5.3. *Interviews Conducted with Line Managers and Direct Reports*

Manager	Participant	Direct report 1	Direct report 2
✓	Participant 1	✓	
✓	Participant 2	✓	✓
✓	Participant 3		
✓	Participant 4		
	Participant 5		
✓	Participant 6		
✓	Participant 7		
✓	Participant 8	✓	✓
✓	Participant 9	✓	✓
✓	Participant 10	✓	✓
✓	Participant 11		
✓	Participant 12		
✓	Participant 13		
	Participant 14		
	Participant 15		
	Participant 16		

5.3.4.5 *Observation and field notes*

The researcher was also the facilitator of the leader development intervention. This provided the opportunity to observe participants in their real-world environment (Yin, 2014). The intervention took place within the work environment, which allowed for observation of the work spaces. Field notes were made of discussions during the facilitation of the intervention, as well as after the facilitation of sessions. Field notes were also included in the data analysis process.

5.3.5 Data analysis

The purpose of this qualitative research was on exploring participants' understanding and application of the social cognitive neuroscience knowledge they received during a leader development intervention. The interviews (in total 40 interviews) generated a significant

amount of data. Through analysis, the researcher attempted to reduce and present the data in a meaningful coherence that answers the original research aims.

Data generated from case studies can be analysed by a variety of techniques; categorical aggregation, pattern matching, explanation building, analytic generalisability, within and between case analyses and coding (Creswell, 2007; Klenke, 2016). Reviewing various authors' views, it is clear that the analysis of qualitative data is not a rigid nor a well-defined process, but rather one that is flexible and defined by the researcher (Lichtman, 2014).

In the analysis of data generated from this case study, a process of coding by means of content analysis was applied. Content analysis of qualitative data essentially encapsulates three phases in the process: the organising of data for analysis, reducing the volume of data by a methodical process of coding, and finally portraying the data by means of figures, tables and discussion (Creswell, 2007). As Creswell further shares, there is no one off-the-shelf solution for analysing data, but it is a process that requires a customisation. It is on the mentioned three phases that more information will be shared.

5.3.6   Organising of data for analysis

The first step in the analysis of data requires the organisation of the data into a format that can be analysed. This required that all interviews be transcribed to text data. Although McClellan and colleagues (McClellan, MacQueen, & Neidig, 2003) stated that not all data generated during an interview is pertinent to the research question, and therefore does not require transcribing, the researcher decided to transcribe all the interviews in their entirety. This was largely due to the need of the researcher to maintain an open-minded approach that was not predisposed in any way and ensure an inductive and interpretative stance remained intact. The services of trained transcribers were used. To benefit the ease of analysis,

transcribers used the same structure and format. In order to ensure the confidentiality of the participants, transcribers all signed a confidentiality agreement.

Transcriptions were done in what Oliver and colleagues (Oliver, Serovich, & Mason, 2005) referred to as a naturalistic way - pauses, stutters, overlap in talk, incomprehensible speech, were all indicated as such in the transcription. A naturalistic mode of transcription was preferred to ensure that the researcher "heard" the voice of the participant, rather than the interpretation of the transcribers.

To ensure the quality of all the transcriptions, the researcher listened to all recordings and proofread the corresponding transcriptions. The researcher found that the transcribers did at times experience difficulty in understanding certain accents, pronunciation and terms unique to the organisational environment. The benefit of proof reading all the transcriptions was that it provided the opportunity for the researcher to achieve the level of immersion in the data that is required for coding analysis.

5.3.7 Coding analysis

Content analysis explores language in the form of words, sentences and paragraphs and by a methodical process of coding reduces the text into manageable categories in order to identify key concepts (Klenke, 2016). Although different authors propose different processes in content analysis and the process of coding is not a clearly defined one, the core steps do not differ significantly and tend to relate to three core steps. Firstly, reducing the data by allocating codes to the text, codes are then combined into broader categories and finally comparisons are presented in graphs, tables or discussions (Creswell, 2007; Klenke, 2016).

The first step requires reducing the data by a process of coding. Lichtman (2014, p. 329) called it "initial coding", which is the process of allocating descriptive words or phrases, based on the researchers understanding of the data. The second step requires combining the codes into broader categories. This is an iterative process, where the initial codes and

resulting categories are reviewed and revised, eliminating those that are redundant. Finally, the categories are revised to define clear concepts which are presented in graphs, tables or discussions (Creswell, 2007; Klenke, 2016; Lichtman, 2014). Ryan and Bernard (2007) suggested a similar process of initially discovering themes, prioritising and minimising the themes, generating a structure of themes and lastly linking the themes to theoretical models or concepts. They also suggested various techniques to identify themes by focusing on repetitions, unique language, metaphors and analogies, similarities and differences and linguistic connectors.

Taking the various approaches into consideration, the researcher applied the content analysis guidelines as suggested by Ritchie and Lewis (2003) and customised the process by incorporating suggestions from various other authors, which will be shared. Richie and Lewis (2003) referred to their approach as an analysis method framework which aims to ensure that data is managed in a clear and precise manner and that analysis follows a systematic process.

5.3.7.1   *Initial coding*

Immersion in the data or familiarisation of the data is critical in this first step. The researcher conducted the interviews and proof read the transcriptions and this provided a level of familiarity. Nevertheless, the researcher achieved a further level of immersion by re-reading all the interviews conducted with participants. Each interview was read, and notes were made in the margins that described the central concept within a sentence or paragraph.

Since the researcher was the facilitator, designer, interviewer and analyser, the possibility of bias was considered. For this reason, it was decided to also recruit the services of a co-coder. The co-coder also read through a number of interviews, making notes of central concepts within the data text. The researcher and co-coder met on a regular basis to compare how text was interpreted to relate to a concept or idea. This process led to a

significant number of codes being identified. In the initial coding process, a number of guidelines as suggested by other authors were followed. Guidelines as proposed by Ryan and Bernard (2007) were found to be valuable. They suggested that the researcher look for repetition of certain thoughts or ideas as expressed by participants. Unique terms as expressed by participants were highlighted (*in vivo* coding). Where participants made reference to analogies and metaphors, the underlying theme was explored. Within the data, the researcher also explored similarities and differences in the shared experiences of participants. Ryan and Bernard also referred to linguistic connectors. Certain key words could refer to causal relationships (because, since, as a result), conditional relations (if, them, rather, than) or provide a time orientation (before, after, next). All linguistic connectors were highlighted for meaning and interpretation by the researcher.

The initial coding process made use of descriptive, concept, *in vivo*, as well as process coding. Descriptive coding encapsulates what is being said by the participant in a word or phrase and was found useful in categorising the information. *In vivo* coding refers to the use of words as shared by the participants and process coding focused on identifying any action or interaction in the data. Concept coding uses a word or phrase that has a broader meaning (Saldaña, 2016). Initial codes were identified by reading each interview. The co-coder followed the same process independently.

Following the identification of initial codes by both the researcher and the co-coder, the codes were compared, and expanded or amended by comparing similarities, differences as well as the frequency of occurrence. The list of initial codes was then sorted and grouped together according to similar themes. This provided a framework that consisted of main themes (or categories) with sub-themes. Although this reduced the number of initial codes (themes), a significant number of main themes (16) and sub-themes (95) were generated.

Ritchie and Lewis (2003) refer to this process as one of indexing. This index provided an initial conceptual framework.

5.3.7.2   *Labelling of data*

A key concept that is often highlighted as core to qualitative research is the highly iterative nature of the process, as opposed to a linear process. The need to go back to the original raw data and re-interpret was a continuous and recursive process during the research process.

The initial conceptual framework or index as referred to by Ritchie and Lewis (2003) was then applied to the raw data. This entailed reading the raw data and deciding which sentences, paragraphs or words linked with the index defined in the first step.

Rather than making use of electronic packages, this was done manually. The reasons for this were due to limited access to packages as well as finances, but also due to a need by the researcher to be immersed in the data in order to extract meaningful findings. Where additional themes surfaced, they were added to the initial index. This process led to further amendments of the index. It was found that some indexes were closely related and could be collapsed into one.

5.3.7.3   *Sorting of data according to categories*

Following the indexing of the raw data, the original transcribed data were grouped together according to themes. Given the visual space constraints of a computer, this was done electronically as well as manually in order to gain a better visual representation of the information. Given that each interview was at least an hour, the volume of data generated was significant. Themes were determined by mapping the data on a chart where each participant was allocated a row, and each theme a column.

5.3.7.4 *Summarising and synthesising the data*

The data under each theme were then summarised in order to reduce the volume, and also to refine the meaningfulness of the data. The process of summarising allowed for further exploration of the content for meaning and relevance. In this systematic process of summarising and synthesising the data, the aim was to reduce the volume of data without compromising on expression or phrases of the participants. The initial aims of the research were kept in mind, and data that did not pertain to the research aims were excluded at this stage. This process evoked further possible interpretations for the researcher and lead to further changes of the themes. This provided the basis for the report findings.

5.4 STRATEGIES EMPLOYED TO ENSURE QUALITY DATA

Of importance in any research, be it qualitative or quantitative of nature, is the need to demonstrate the reliability of the chosen methods and validity of the findings (Silverman, 2005). The terms reliability and validity are unanimous with quantitative research and qualitative research has, in the past, been seen as lacking therein (Creswell, 2007). In quantitative research, reference is made to internal and external validity where internal validity refers to cause and relationships and external validity to the generalisability of findings. The focus in qualitative research though is not on causal determination and generalisation, but rather on understanding and meaning making (Klenke, 2016). Whereas quantitative research hinges on objectivity, qualitative research is seen to be enhanced by the interwovenness of the researcher and the researched. The case study approach in particular, is valued for its uniqueness. Replication in order to demonstrate reliability is therefore not needed (Lincoln & Denzon, 1994). It would stand to reason that the same measures to determine reliability and validity cannot apply to both qualitative and quantitative research.

Validity in qualitative research would require research findings to be consistent with reality. As Silverman (2005, p. 210) said, "Validity is another word for truth". Denzin and Lincoln (1994) placed a high premium on congruence between the description and explanation to ensure validity. Klenke (2016) referred to the framework provided by Lincoln and Guba who defined validity and reliability as measures of credibility, transferability, dependability, and conformability. Using this as a framework, the researcher aimed to increase validity in this research by ensuring certain steps in the process were adhered to as will be described:

Credibility (internal validity) refers to the credibility of findings as viewed by the participants. In the presentation of findings, the researcher actively focussed on ensuring the authentic voice of the participants was represented (Klenke, 2008). To ensure that the findings are viewed as credible by the participants, a feedback session was scheduled with participants. The research findings were shared with those participants that attended the feedback session and their views were explored. Participants' feedback reflected an alignment between the presented findings and their experiences. In addition, multiple sources of evidence were used (Yin, 2014). Interviews were conducted with participants, their line managers as well as employees reporting to them. Use was also made of observation and field notes.

Transferability (external validity) refers to the extent to which the findings are applicable in others' settings. In this case study a clear description was given of the research setting which provides information on the participants, the organisational setting as well as the leader development intervention. Having clear descriptions ensures that others can make an informed decision of the value of the findings in another similar setting.

Dependability (reliability) refers to the extent to which the research findings could also be achieved by another researcher. The researcher was clear on the research approach,

as well as the research strategy and research methods. Clear descriptors are given of the data collection process as well as the analysis of data.

Confirmability (objectivity) refers to the extent to which results can be confirmed by means of member checks and audit trails (Denzin & Lincoln, 1994). The researcher was clear on the interview process, the interview questions as well as the process of analysis. Analysis was rooted in the data of the participants and is also illustrated as such in the findings. During the analysis process, use was made of co-coder to increase the level of objectivity and address possible bias by the researcher.

The researcher aimed to address credibility, transferability, dependability and confirmability in this research. Creswell (2007) further suggested a number of strategies to ensure the quality of data**.**

Prolonged engagement: Since qualitative research relies on the researcher accessing information from the participant, a relationship of trust is essential. Prolonged engagement with the participants provides further opportunity for rapport building and immersion (Symon & Cassel, 2012). In this particular case study, the researcher interacted with participants on a monthly basis over five months and conducted the interviews in the seventh month. Regular engagement and interaction allowed for a professional relationship that was built on trust to develop. This was evident by participants sharing highly personal experiences during this period and a high level of interaction as perceived by the researcher during the leader development intervention.

Peer debriefing: The design, facilitation, data collection and analysis was done by the researcher and the need to adapt a reflexive approach was constantly kept in mind by the researcher. The researcher also met with a colleague that was external to the research process to discuss research findings. The colleague played the role of "devil's advocate" (Creswell,

2007, p. 208) by challenging assumptions and interpretations and providing the researcher with an objective view.

Member checking: Given the trust put in the research process by participants and their willingness to participate, the researcher contracted upfront that participants would receive feedback on the research findings. A feedback session was scheduled with participants. The focus of the feedback sessions was, firstly to inform participants of the research findings, and secondly to use the opportunity to gain participants' views on the findings to increase the credibility of the findings. During this session participants tat attended the session were asked to critique the accuracy of the findings and to share their views freely.

Negative case sampling: In order to increase the quality of the data, it is suggested that cases that do not corroborate research findings be explored. Participants in this case study participated on a voluntary basis. It would therefore stand to reason that, possibly as a result of the established relationship, those participants that had a less positive experience did not volunteer to be part of the research process. As the intervention was highly interactive, it could also be possible for groupthink to develop. The researcher did not identify any particular participants that held views contrary to the majority of the participant views.

Reflexivity: The researcher was the designer and deliverer of the intervention, as well as the primary instrument in the collection and analysis of data. For this reason, the importance of a reflective stance (Greene, 1994; Lichtman, 2014) was very important to allow for the possibility of multiples interpretations. Being highly aware of the possibility of bias and predispositions, the role of a co-coder was invaluable in challenging possible interpretations.

Triangulation: Triangulation as a strategy attempts to confirm research findings by making use of various sources. In this particular research triangulation was achieved by

making use of multiple sources as well as multiple coders during the content analysis. In order to verify the data received from participants, additional interviews were conducted with both line managers as well as individuals reporting to the participants. Further during the content analysis process, codes and categories were defined by using a co-coder.

5.5 ETHICAL CONSIDERATIONS

The primary source of this qualitative research relates to individuals within an organisational setting. Therefore, ethical considerations are of paramount importance and were consistently considered. This was done by providing potential participants with a written document providing information on the purpose of and the reason for the research, why they have been requested to participate, what their role would be in the research process, the nature of the interview with the interview questions, the benefits as well as possible discomfort, confidentiality issues and storage of information. In addition, an interactive session was held, providing participants with the opportunity to ask questions and clarify any concerns.

5.5.1   Informed consent

Informed consent is a cornerstone that supports ethical and professional behaviour in social research (Wiles, 2013) and requires ensuring that participants have both a clear understanding of what the research involves as well as a choice in participation. To ensure that this aspect is addressed adequately, communication on a number of elements need to be clear: there should be clarity on the purpose of the research being conducted, whether it is funded, how results will be shared, what is required of participants, clarity on potential risks or benefits, and lastly the extent of confidentiality and anonymity (Ritchie & Lewis, 2003; Wiles, 2013).

In this particular research, it was important that delegates understood that their participation in the research interviews was independent from their employee organisation, with no expectations that they should participate. It was made clear that participation is voluntary, and the choice was solely theirs to make. To ensure that all potential participants were informed of the nature of the study, all delegates received written information regarding the study both manually as well as per email. In addition, the researcher met with the delegates and verbally shared all the relevant information and answered questions. It was made clear to all participants that participation was an individual choice and that they could withdraw from the study at any time.

5.5.2 Anonymity and confidentiality

Anonymity requires that steps be taken to ensure no participant is identifiable externally (Richie & Lewis, 2003; Wiles, 2013), while confidentiality refers to possible comments that can be linked with a participant. Participants expressed different views on their need for anonymity and confidentiality, with some stating that they would not require this, and being quite open about sharing their views. Sensitive to the fact that the context within the research was conducted was within an organisation that represents a social structure; measures were taken to ensure the privacy and anonymity of all participants. For this reason, interviews were transcribed, and names were replaced by numbers in the transcriptions. Where reference was made to other delegates or participants, the names were replaced by fictitious names . To ensure confidentiality of the participants, all role-players involved in the research project, co-coder and transcribers, signed confidentiality agreements.

5.5.3 Protecting participants from harm

It was critical that research participants not be harmed in any way. Potential risks for participants in this particular research related to information being shared of colleagues

and/or line managers that could potentially create risk to the participant, if exposed. In addition, participants shared personal experiences that were not in the realm of the work domain and may not be commonly known. Having built a relationship with the participants, it was important that their contribution was seen to be valued and appreciated, both from a research perspective as well as benefiting the organisation. It was therefore important to ensure delegates understood the value of their input and that there was no expectation to share beyond what they felt comfortable to share. The researcher was cognisant of the fact that potentially compromising information was shared freely. This prompted the researcher to exclude such information.

5.5.4   Rapport and friendship

Since the interviewer was also the facilitator of the intervention, interviewees were familiar with the interviewer. Having interacted with delegates over a five-month period allowed for a relationship of trust and openness to develop, encouraging the sharing of information.

5.5.5   Intrusiveness

Sensitive to the value of time for participants, interviews were scheduled for a time that was convenient to participants and a venue of their choice; the proviso was that the venue had to provide the necessary privacy. Interviewees were mostly conducted in the work environment in a private office, or a venue that provided privacy.

5.6   REPORT FINDINGS

The research findings are reported in a qualitative, narrative style making use of figures, tables and discussions. The stated empirical research aims and questions form the framework for presentation of the findings. Findings are linked to the descriptive and raw

data as shared by the participants. Interpretations of participant experiences are supported by literature within the fields of leadership, leader development and social cognitive neuroscience. Finally, conclusions - based on the research questions - recommendations, limitations and ideas for further research are provided.

5.7   CHAPTER SUMMARY

This chapter provided clear information on the research approach and methodology that was applied during this qualitative research project. Furthermore, a thorough account was provided of the research strategy. These encapsulated descriptions of the research setting, how entry was gained into the client organisation as well as the process related to the design of the leader development intervention. The data collection process clarified the sampling procedure, a description of the participants and the collection of data by means of semi structured interviews. Data was analysed by the application of a four-step process. Strategies were implemented to ensure the quality of the data and findings. The value and importance of ethical consideration was given a high priority during this research process and is also detailed.

CHAPTER 6:   FINDINGS

This chapter presents the findings of the research in accordance with the initial research questions and the social cognitive framework as presented in chapter 3 and detailed in Table 6.1.

Table 6.1. *Research Questions in Alignment with a Social Cognitive Paradigm*

Social cognitive paradigm		Research questions
Self-awareness & understanding	Understanding others	1. How does gaining social cognitive neuroscience knowledge contribute to the development of leaders within an organisational setting?
2. Why do leaders change and what is the underlying process that leads to behavioural change?		
Emotional regulation	Interaction between self & others	3. How is leader behaviour changes manifested within the organisational setting based on participants understanding of social cognitive neuroscience knowledge gained?
4. What is the perceived impact of behavioural changes on the participant and others		

6.1   CASE STUDY

This research was conducted within an organisation within the retail industry. The findings in this chapter are based on data collected from three sources: participants, their line managers and employees reporting to the participants. More information will be provided on the organisational setting and the sources.

6.1.1   Organisational setting

This qualitative research is set in a particular organisational setting of which the culture was described in chapter 5. Based on information gained from the interviews the organisational culture in which the participants were employed can be described as a high-

pressure environment that is results driven. It is within the context of this organisational culture that findings are interpreted.

Past training development in this organisation tended to focus on ensuring functional competence rather than leadership and people management. The current economic climate is placing increased pressure on the business, which is resulting in further organisational changes. From engagements and discussions during the intervention, the researcher observed that anticipated changes were contributing to further tension and uncertainty for participants.

From interviews and engagements with human resource managers during the entry phase (refer to chapter 1), it is evident that there is currently a drive to change the organisational culture to one with a greater focus on people. Managers are being exposed to leadership development to support this envisioned change, hence their exposure to this leadership intervention.

6.1.2 Participant information

The data generated from 16 participants were utilised as a foundation for interpreting and presenting the research findings. Their personal details are summarised in Table 5.2. For ethical reasons, the names have been replaced by numbers to ensure anonymity. Where findings are reported, the names of participants have been replaced with fictitious names for the same reason.

The participants reflect diversity in age, gender, positional roles, and tenure as well as management experience. They represent four divisions within the client organisation, consisting of human resource managers (six participants), finance managers (four participants), regional operations managers (four participants) and specialist roles (two participants).

Most of the participants have been in management roles for a number of years, but some (10 participants) are fairly new in their roles with less than three years tenure in their

current position. The majority of the participants (12) have over 10 years of management experience. Most participants therefore have a clear understanding of the organisational culture.

Information was also gathered from five line managers. The aim of interviews conducted with managers was to explore possible behaviour changes as observed by the managers. A number of participants report to the same line manager as shown in Table 6.3.

Table 6.2. *Interviews with Managers*

Division	Number of participants that attended training
Manager 1: Human Resources	3 participants
Manager 2: Finance	2 participants
Manager 3: Finance	2 participants
Manager 4: Specialist role	1 participant
Manager 5: Operations	4 participants

The five managers represent 12 of the 16 participants and cover all four divisions as originally described in chapter 4. In order to provide context, information is provided regarding the involvement of the line manner in the nomination process as well as during the training intervention.

Of the five managers, it appears that three managers actively played a role in the nomination of the participants. Expectations from the managers of the leader development intervention were to provide participants with a foundation to lead interact and influence people successfully. However, with the exception of one manager, who had attended the same intervention previously, managers had little knowledge of what the intervention entailed, and did not follow-up with participants during the course of the intervention.

6.1.3   Employees reporting to the participants

Participants provided access to individuals reporting to them for interview purposes. Although 14 interviews were conducted, not all the information was of value. Critical was the period during which the participant was a manager to the direct report. As some of the participants were new in their roles, their relationship as a manager to the direct reports commenced during or shortly before the intervention, and direct reports were not able to comment on behavioural changes. For this reason, only seven interviews of employees reporting to participants were utilised, as illustrated in Table 6.4. Participant names are not shared for ethical reasons, and reference is only made to the division they are in.

Table 6.3. *Interviews with Direct Reports*

Participant	Time period as manager of the DR (direct report)	
	Direct report 1	**Direct report 2**
Finance	3 years	3,5 years
Finance	9 months	
Finance	1.5	
Operations	1 year	10 months
Operations	2 years	

The majority of interviews were conducted within the finance division. Employees in the operations division tend to work their way up the corporate ladder by starting at grass roots level. This usually means that relationships are formed over a number of years in different roles, sometimes as a colleague, and sometimes as a manager. The aim of the interviews was to explore observed behaviour differences without asking any leading questions. One observation that the researcher could make was that there were significant differences in the perceived behavioural changes of participants working in the finance division and those in operations.

6.2 EXPLORING THE VALUE OF ACQUIRING SOCIAL COGNITIVE NEUROSCIENCE KNOWLEDGE WITHIN THE ORGANISATIONAL SETTING

Fundamental to this research is gaining an understanding of the value for participants of being exposed to social cognitive neuroscience principles that are relevant for them to understand behaviour in their own work environment. The question of how the value of this knowledge was perceived by participants was asked in an open manner, without guiding their thinking in any way. Based on the data, the value of acquiring this knowledge relates to three themes: i) the nature of the knowledge, ii) creating insight and understanding of the self, and iii) insight and understanding of others.

6.2.1 The nature of the knowledge

Most of the delegates had very little knowledge of what the training would involve and were initially not enthusiastic about attending the leader development intervention. This is reflected in their views that the intervention was most likely a "*warm fuzzy thing with no direction*" and a *"lot of mumbo jumbo"*. A contributing factor to the lack of enthusiasm was the limited time available to attend the monthly workshops, given the high-pressure environment. After the first session the level of enthusiasm of the participants changed considerably and this was reflected in a subsequent high attendance rate.

The participants were generally positive about the sessions they attended as reflected in the comments such as the following. Gaining social cognitive neuroscience knowledge was valued because it made "*sense*" as Nadia said. This is supported by Sarah who stated that, "*it made a lot of sense to me and that as I start to think differently, I started to feel different and behave different, so for me it helped.*" The type of sense-making process could have influenced how participants thought and felt and may have contributed to behavioural

change. The process of sense-making was largely dependent on personal interpretations and experiences within their current context. Thus, Dave emphasised the value associated with the personal relevance of knowledge, saying that a typical "*post-it*" model, was not remembered and being told what to do as a leader was not helpful. For Shanika again, the theory did not prescribe a leadership style, but rather provided a foundation for each individual to apply individually, and this made it "*stick in your head*". This thought is also iterated by Sarah, who did not experience it as directional, but rather as helping one to "*think differently*".

The interactive nature of the intervention was seen to contribute to their learning. Participants shared the view that they "*learn through other people*" by listening to how colleagues dealt with certain situations and their experiences and by getting exposure to diverse ways of thinking. Participants could also crystallise their thoughts by sharing them with other participants.

Although the intervention provided a theoretical foundation in neuroscience, it was experienced as a "*practical course*" due to the experiential exercises to which participants were exposed. The idea was that the exercises would provide them with the opportunity to test and apply learning in a 'safe space', which they could then take back to workplace or even apply within their personal lives.

It appears that this exposure to knowledge of social cognitive neuroscience provided a deeper understanding of human dynamics and that it helped to encourage personal interpretation and insight. Further, the interactive nature of the learning intervention and the opportunity for practical application contributed to the learning process.

However, a criticism that was raised by some participants was the reference to biological terms and the "big words" saying that they are unlikely to remember the various biological terms for the role-players in the brain and do not actively think of the brain, but

that they will rather remember their interpretation and understanding of the principles related to the brain's functioning. Principles they deduced related to an awareness of one's style of communication, being emotionally in control and more aware of others needs and the impact one has on others. These comments indicate that careful thinking is needed of how to present social cognitive neuroscience in a manner that is palatable to a lay audience, such as in this case, leaders within an organisational setting.

Another criticism that was raised by participants was the need for further extending the learning journey to allow for greater in-depth discussions. This highlights the value that is placed on an interactive learning experience.

6.2.2 Insight and understanding of the self

The value of gaining a better understanding of social cognitive neuroscience related strongly to developing a new perspective and framework for understanding human behaviour, both of self and others. Comments of the participants relating to the value of gaining knowledge on social cognitive neuroscience are tabulated in Addendum C. Since these comments were core to this study, the researcher deemed it appropriate to provide more detailed information from the transcripts of participants where reference was made to social cognitive neuroscience knowledge. The majority of the participants referred to the value of the social cognitive neuroscience knowledge in increasing their level of self-awareness, understanding of their emotions and how their emotions influenced their personal behaviours. This was illustrated by Brenda:

> *Understanding the nut (amygdala) and why we would behave the way we do and how we could actually, you know, if you are not emotionally intelligent, how you could actually just act like you feel – you don't think about it. And then the PFC part is that you put the executive in charge you know, you know, you have to control what you're thinking and not just act on what you are feeling.*

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Of interest is the reference to the 'nut' and 'executive', which became the preferred terms used by participants to refer to the amygdala and PFC. The terms were initially used by the facilitator to describe the amygdale based on its shape and the PFC based on the role it plays. The use of these terms highlights the need for simplistic language that is more easily remembered by participants.

The principle that this participant referred to, is the value of understanding the reflexive and reflective systems (automatic and controlled systems) as described in chapter 3. Gaining an understanding of the reflexive and reflective systems increased the level of self-awareness for participants of when they were operating from a 'rational' or 'emotional' frame of mind. They developed insight into the interplay between rational and emotional responses and also the knowledge that one has the ability to control emotions and respond from a more rationally, controlled mindset. William used the analogy of a car to demonstrate the value of this knowledge:

> *Then I link that to a car's gears to say: you know what? I need to change my gears –*
> *if I hit a certain speed, I need to change my gears, either to slow down, or to cruise.*

This metaphor relates to discovering gears on a car and having the ability to change those gears. It infers a level of consciousness of what the current "rev count" (intensity of emotion) is, and the need to throttle down and change gears (change behaviour), to avoid a potentially explosive situation. Based on the data generated from the interviews, the researcher identified phases in the process of self-awareness, which she illustrates in Figure 6.1.

Figure 6.1. Process of Self-Awareness

Phase 1:   The blind self: "the bull in the china shop". Having had no exposure
to the field of social cognitive neuroscience prior to attending the workshops, the knowledge
seemed to have created an awareness of current and past behaviours. One participant
mentioned that, in the past, he was "*confronting situations blindly*" and another participant
described his leadership style prior to attending this intervention as being *"a bull in a china
shop".* Actions appear to have been instinctive with limited self-awareness and little thought
of the possible impact on others.

Phase 2:   Discovering the self: "uncovering the reflection in the mirror".
Some participants mentioned that having an understanding that cognitive and affective
processes are linked to different role-players in the brain as described by the reflective and
reflexive systems, helped them to become more aware of their own cognitive and affective
patterns. They stated that they reflected increasingly on what emotions they were
experiencing, and that they explored the possible reasons for certain emotions being elicited.

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Such a process of exploration and self-discovery was described by the majority of the participants and is best illustrated by following excerpt reported by Andy:

> *Until you start becoming conscious of the fact that there is an amygdala, and you ask yourself the question, when somebody says something and I do it often and I get my back up about it or I feel: Hey, this starting to irritate me, instead of just responding to it, you know, I go back and I think but why do I feel this way, I start thinking why do I feel this way, why am I getting edgy about what he said or what she said?*

Noteworthy is the ability of participants to recognise and describe the emotions they were experiencing. Some descriptive labels that they referred to during the interviews were: irritation, edgy, frustration, stressed, upset, angry, hurt.

A focus during the development intervention was on discovering and understanding personal triggers for emotions. Triggers relate to incidents that provoke strong emotions leading to emotional responses (Goldsmith, 2015). Gaining an understanding of personal triggers was often cited by participants as the greatest learning process that led to personal growth. Participants shared insights of their triggers for both positive and negative experiences. Nadia commented how she tended to go into "*fight mode*" when somebody raised their voice. She never understood the reason for her defensive behaviour but could "*work this out*" during the training intervention. Taking time to reflect on personal triggers, allowed Eddie to recognise his defensive behavioural pattern of "*silence is violence*" which referred to his tendency to bottle up emotions. The ability to recognise their defensive behaviour was shared by a number of participants.

The process of reflection and gaining an understanding of the self was not an easy process for all the participants. Andy expressed how he struggled to be honest with himself in the beginning and how this changed as the course progressed and the *"reflections"* in the mirror became clearer. Some participants reflected on experiences from their childhood,

some of which were painful, to gain a better understanding of themselves. This allowed them

to understand how past situations or people influenced their current behaviour and responses.

These insights required time for reflection. Some researchers have commented on the value

of an extended learning journey, because that allows for maturation, continued reflection and

thinking, a process that is pivotal to learning (Davachi et al., 2010; Zull, 2002).

The lack of reflection prior to this intervention may relate to the organisational

culture, which is performance driven with a little focus on people. The organisational culture

is more likely to direct attention to results, leaving little time for self-reflection. Having a

better understanding of the brain, led to a process of natural reflection and better

comprehension of personal emotions and behaviours.

Phase 3:   Acknowledging the real self: we are after all, human!

Understanding the working of the brain created an understanding and acceptance of the

inherent nature of being human for participants. This appears to create a sense of normality

in how participants viewed themselves and other people. Cathy said: *"I think it taught me*

I'm just human as well and I have those certain things, that criticism I don't take well

always…"

The thinking pattern that human beings are wired to respond in a certain way, was

mentioned by a number of participants. Having a theoretical foundation contributed to

participants ability to adopt a more objective stance in order to better understand human

behaviour.

Some descriptions shared by participants of their real self were being rough, short

tempered, bottling up feelings and being sensitive to criticism. Statements reflecting

acknowledgement of the real self are attached in Appendix D. The ease with which

participants were able to express their real selves, and often-times their shadow side,

indicated a possible shift from denial to acknowledgement. The behaviour that was

acknowledged by participants often related to how they responded when placed under threat and demonstrated a lack of emotional regulation by responding in a fight, flight or submit manner.

With the increased acknowledgement of the real self also came a sense of vulnerability for some participants. Having a better understanding of what easily tipped them out of the bounds of rational thinking, the concern was expressed that others may also have this insight and could use this information to manipulate or exploit them. However, the majority of the participants did not voice this concern. Having a better understanding of their real self, participants reflected on how they were perceived by others and what impact they had on others which are critical components of leadership (Karp, 2006).

Phase 4: **The Interactive self: How do others see me?** During the interviews, the majority of the participants reflected on how their behaviour played a role in how they were possibly perceived by others and how it could be viewed as either a threat or a reward. Dave stated that "*it's about how other people see me, and how other people see me is going to be determined by how I've chosen to react, so they can only work on what they have seen.*"

Participants increasingly became aware of how others responded to their actions, which is a critical component of self-awareness (Goleman et al., 2002). Thus, some participants explained that they developed the insight that their visible behaviour could be viewed as a threat by others, and this could result in avoidance behaviour from others. Behaviours that participants mentioned that they were displaying, which most likely contributed to avoidance behaviour being displayed by others was being result-driven, addressing poor performance in an aggressive manner, speaking loudly and shouting, lack of communication or communicating in an abrupt and straight forward way and being rude.

Self-awareness and insight therefore, evolved into a dual process – as much as participants became increasingly inquisitive to explore the underlying reasons for their own

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behaviour, so they also started thinking about why others were reacting to them in a certain manner. As leaders, there was the understanding that what one does and says could significantly impact on others' morale, contribution and productivity and overall performance, as shared by John: *"I mean the guys are eager to see me, but if I just go in there with a negative attitude and pack off all this baggage and leave, what is the motivation that they are left with to go and fix that actually and improve for the next visit?"*

Participants displayed an awareness of the critical role leaders' play in creating an atmosphere that is conducive for productivity and the need to regulate their emotions.

6.2.3   Understanding others: a highly dynamic and interactive process

From the interviews it is clear that participants' understanding of others were also markedly increased. There is a neural connection between self-awareness and the understanding of others, as they make use of the same neural processes (Mitchell et al., 2006). An increased level of self-awareness could therefore create the foundation for gaining a better understanding of others.

Participants tended to demonstrate a higher level of understanding of others at two levels: affective and cognitive levels. Participants did not separate themselves in the process of understanding others, but rather tended to observe the interactive dynamic between their own behaviour and their understanding of others' behaviour - one's understanding of another's behaviour influences one's own behaviour. A better understanding of others' behaviour, the role of the participants' own behaviours, and the inter-activeness of the two, led to cognitive and affective changes for participants. Learning and development appears to be a highly interactive process that is dependent on both intra- and interpersonal processes (De Vries, 2006). Based on her understanding, the researcher attempted to depict this process in Figure 6.2.
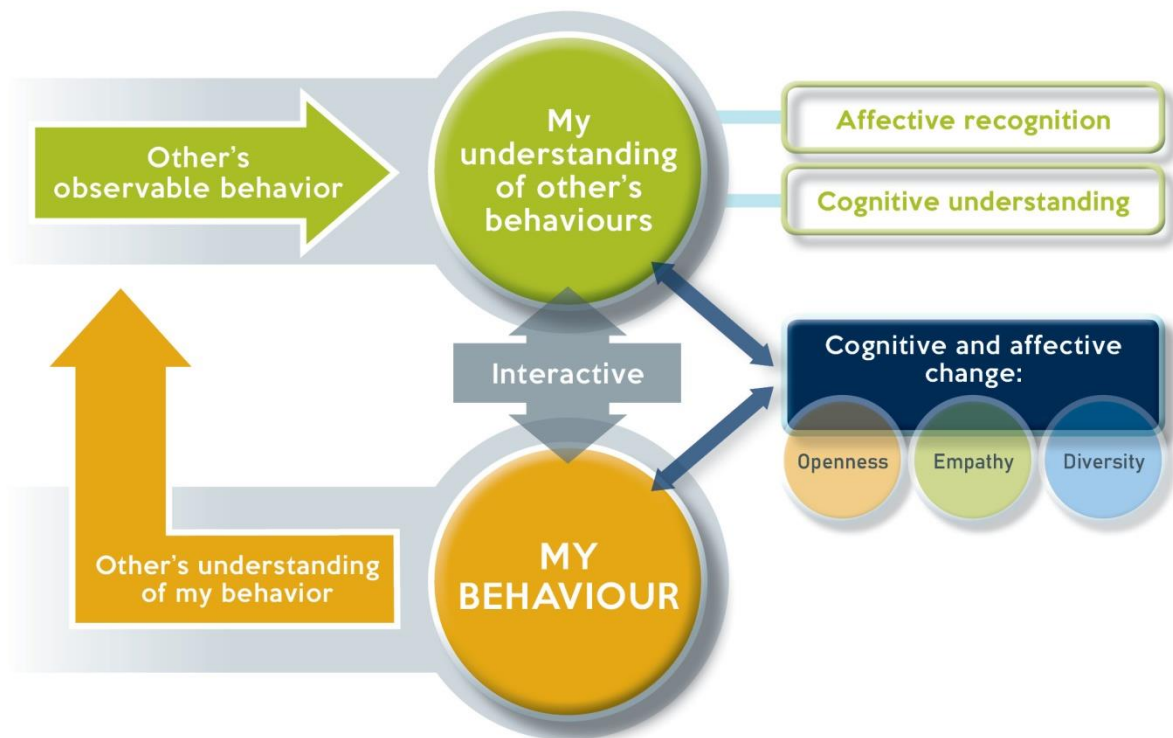
Figure 6.2. The Dynamic Process of Understanding Others

6.2.3.1   *Affective recognition: "because you are put in a corner, you feel..."*

As participants paid attention to their own feelings, they also started paying attention to the feelings of others. Participants referred to the feelings and emotions of others numerous times during the interviews, demonstrating an awareness thereof which is illustrated by the following statements:

a) *"...others also have feelings..."*

b) *"... I understood he felt constantly under attack."*

c) *"I understand that people want to feel like you acknowledge them..."*

d) *"I understand they feel threatened."*

e) *"... people are upset because they are passionate and don't want to miss their deadlines..."*

f) *"I think she was afraid, and that was what I felt..."*

There was an awareness of both that which leads to a possible threat response, as well as a reward response. As Eddie stated: *"Now that I went through Neurolead, I realise that there are certain ways that people react when they are put in a corner."*

Having a better understanding that the reflexive neural pathway was activated when individuals experienced negative emotions, created perspective and a level of objectivity to step back from the situation, and recognise the emotions and feelings being experienced by others. As Brenda shared, others' state of mind will determine whether they interpret something in a positive or a negative manner. Whereas in the past, emotions were not considered, participants now paid attention to the emotions that others were possibly experiencing, which was a significant change and critical step in leadership (Fehr & Fischbacher, 2003; Goleman et al., 2002).

6.2.3.2 Cognitive understanding of other's behaviour: "going into some-one else's world"

Recognising others' emotions, appears to have led to a natural internal process of enquiry which was focused on consciously trying to understand the reasons for the emotions being experienced, and certain behaviour being displayed as commented by Jenny:

> *It's just that you know, now that you understand, or I understand myself better and I understand others better, you kind of start thinking and looking at people and think about when they behave in a certain way, 'well why are you behaving in that way?', you know 'are you afraid of something?', or 'are you upset about something?', or whatever it may be. You choose you start thinking about people in that manner.*

Understanding the self, became the frame of reference for understanding others (Lieberman, 2013). Participants were able to actively see things from *"the other side"* and gain a better understanding for why others were experiencing certain emotions as highlighted by Danny:

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Understanding others and their fears made me understand why certain individuals

behave the way they do behave. Why they have a wall and there is a certain element

of cheekiness, and I could never understand arrogance, and bossiness… so with the

sessions when we open up to say, this is me, this is my fears, hmm, then I understood

their fears, then it made me understand why they behave the way the behave.

Participants increasingly had an understanding of how other's behaviour was influenced by their perception of threats or their need for rewards. Some threats and rewards that were cited by participants were other's lack of choice in whom they may appoint, the need to be valued and acknowledged, a need for connection and to be heard, management styles, work pressure and deadlines, the work volume and personal circumstances.

The ability to "*go into someone else's world*" as Danny put it, often led to new insights and information which created a cognitive understanding for other's behaviours. The ability to recognise others' feelings and emotions and, in turn, explore the underlying reasons for their observable behaviour, changed how participants thought and felt.

6.2.3.3   *Cognitive and affective change: I think and feel differently*

Gaining a better understanding of others' behaviours, both at cognitive and affective levels, supported a change in the thinking and affective patterns of participants which in turn influenced behavioural changes. Behavioural changes will be covered in more detail in section 6.4. This is an attempt to explore and share the change in thinking and affective patterns which supported behavioural change. Changes relate to openness to different perspectives, increased empathy, and the acknowledgement of the diversity within people.

6.2.3.3.1   Openness to another perspective

The process of exploration to better understand the underlying reasons for others' responses requires and openness to another interpretation, other than the instinctive one as reflected in the X-system. Andy demonstrated this openness to another possible interpretation:

And the same, when relating to people, sitting across the table, and there may be something that I am not happy about in a person's reaction or response or what he is saying, rather than just draw a conclusion, or using my own experiences, or my own views on things or what I've been through to become judgemental of a person, but to consider that there may be another perspective to this.

The majority of the participants increasingly questioned their instinctive assumptions with the understanding that their personal experiences may not be an accurate portrayal to understand the lived experiences of another individual. This required the ability to set aside a personal instinctive reaction to another's response which were often a reflection of own lived experiences.

The thought process of being open to other interpretations, other than one's own, and actively attempting to understand the underlying reasons for other's behaviour, often led to new perspectives and insights of other's behaviour. The revised perspective inevitably influenced how participants thought, felt and behaved towards others. This is illustrated by Nadia's experience of the confrontational relationship she had with a manager:

It is a mannerism, and it is a language barrier, so when he used to say: "No, that is wrong", and I stood back and he is not meaning that, he is actually saying he doesn't understand because in the separate meeting I had, he said that twice, and I said: Tony (name changed) it is not wrong! He says no, no, no, what I mean is I don't understand. It is wrong that I don't know. There was a language barrier that I didn't

know – but taking a step back and thinking what is he actually trying to say and why is

he doing it, changed a whole lot for me.

Being told something is incorrect will, for most people, evoke a negative response, especially if said in a harsh manner. For this particular participant, the tone of voice had resulted in a confrontational relationship evolving with the manager. In this particular case, the manager was from another country, hence the difficulty with the language. Where individuals are viewed as dissimilar this could impact negatively on one's intention to understand the other person (Mitchell et al., 2006). Having the courage to verbalise her understanding of what was being said, led to an alternative interpretation. Understanding the challenges, the manager was faced with, allowed Nadia to operate from a more rational basis, and also led to increased levels of empathy. Her revised understanding led to her making a concerted effort to support and involve the manager in her communication. Having a new perspective and understanding changed the dynamic of the relationship from one which was experienced as confrontational and energy draining, to one that was cooperative and constructive. Numerous examples were cited by participants during the interviews where openness to another way of seeing things led to a new understanding of the challenges others were faced with or the reasons for their visible behaviour.

Openness to another perspective greatly influenced the manner in which participants engaged with others. Understanding that leaders played a vital role in the behaviour of others, as well as the variety of reasons that could possibly exist for others behaviour, resulted in participants understanding the need to remain open to viewpoints, other than their own. There is the insight that operating from an emotional framework had a higher possibility of misinterpreting other's behaviour.

6.2.3.3.2   Empathy: "sharing the journey in some else's head"

The ability to remain open to a different interpretation, often led to increased levels of empathy as already illustrated by Nadia's experience. Whereas participants personalised the actions of others in the past, and responded in a defensive manner, gaining a better perspective of the challenges others were faced with, led to cognitive empathy and the need to assist or ease the difficulties for the other person. Cognitive empathy refers to the mentalising process of where one attempts to understand how others are likely to feel or think in a given situation (Lieberman, 2013). The mentalising process allowed for participants to recognise how others were often also operating within an organisational setting with limited choice and high levels of pressure. Rather than working against the person, participants became accommodating and helpful.

The understanding that the natural tendency of human nature to respond in a defensive manner when put in a corner, as shared by Eddie, led to a greater sense of forgiveness and tolerance towards others. The focus increasingly became one of understanding and reflecting on how to best influence the situation positively as demonstrated by Brenda who shared how she observed that a colleague was negative and *"dropping the balls"*. Whereas in the past she would either ignore this or also be influenced by a negative attitude, she reflected on why her colleague was acting in this manner and realised that she felt threatened. The ability to step into the shoes of another, allowed Brenda to recognise the sense of feeling overwhelmed and lack of coping being experienced by the other person. Rather than judging the outcome, she could sense the frustration of the other person, and extended a helping hand. Understanding the driving emotion of the other person allowed Brenda to reframe her interpretation and provide support.

The ability to better understand what emotions are driving the behaviour of others and having a better understanding of their 'pain' is raised by various participants. A greater

awareness and sensitivity of others' feelings and emotions led to increased understanding of others and empathy.

6.2.3.3.3 Diversity: "OPVs = other people's views"

The ability to acknowledge the diversity of individuals and understand that each individual is shaped by different life experiences and values, also contributed to a better understanding of "*other people's views (OPV's)*", as stated by Barry. Acknowledging the diversity of individuals reinforced the view that opinions and interpretations may differ vastly from one individual to another. This further highlighted the need for participants to be flexible in their approach with individuals, as different needs require different inputs. This thought pattern is reflected by Eddie: "… *if I look at my team, it is about understanding them, getting closer to them, because some of them come from different backgrounds …*" The diversity of individuals was highlighted by a number of participants referring to different elements: the level of experience, the experience of stress and pressure, personality differences, access to resources, personal values, culture, gender and religion.

Acknowledging diversity enabled individuals to not personalise conflicts, but to see them as divergent views. Increasingly participants adapted an objective stance, and moved into the world of others to gain a better perspective of how certain behaviours or messages could be interpreted by others, as remarked by Sarah:

> *So, it is quite interesting because since that you can look at other people and think: OK, they think differently to me, and it just is also takes away the stress, especially if it's a conflict, so you also – just the awareness, that other people have, actually can have completely different views and then you know, maybe there's a different way to approach that person.*

The energy tended to shift away from projecting defensive behavioural patterns, to a more cognitive approach of acknowledging the diversity in people. Accepting the diversity

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of people allowed time and energy to be used to strategise how best to address situations and concerns. The understanding that the fundamental wiring of humans may be similar, but triggers for each individual remain unique (Franks, 2010), created a conscious thought process of reflecting on the differences in interpersonal interactions.

6.2.3.4   *The observable behaviour of the participant*

Openness to exploring another perspective, acknowledging the diversity of individuals linked with cognitive empathy often changed participants' understanding of a person or situation and influenced their resulting behaviour. As Nadia disclosed, gaining a better understanding of others "*changed how I feel and act*". An improved understanding of others led to participants being more aware and sensitive of how their behaviour influenced others. This is a shift into the domain of leadership as the ability to recognise another's emotions and to act on this is critical to leadership (Rubin et al., 2005). There was also an awareness of the need to delay responses when someone else was highly emotional and to reflect on the most appropriate approach. It would appear that having a better understanding of others resulted in cognitive and affective changes, which contributed to behavioural changes of the participants. Section 6.4 will unpack the behavioural changes in more detail.

6.2.3.5   *Summary*

The research aim in this section was to explore the value of acquiring social cognitive neuroscience knowledge by leaders within an organisational setting. Exposure to social cognitive neuroscience provided a new framework or perspective for understanding the self and others. The knowledge was experienced as being non-directive and relied on participants to make sense of it within their own context and environment. Although the audience was fairly mature with reference to their age and experience, gaining this knowledge instigated a learning journey that created increased levels of self-awareness and insight. There appeared

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to be distinctive phases in the process of self-awareness. This journey of self-awareness was experienced as personal and valuable, and contributed to understanding the behaviour of others as well.

Participants developed an affective as well as cognitive understanding of others. They were able to recognise the emotions other were experiencing and explored the underlying reasons for the emotional experience of others. Having this newly acquired insight into others, led to changes in how participants felt, thought and acted. Participants demonstrated an openness to challenge personal assumptions and interpretations of others' behaviour. There was also the awareness of the vast diversity in people and how this could play a role in behaviour. Having a different understanding of others also led to increased levels of empathy. The cognitive and affective changes supported changes in how participants responded to others.

An observation by the researcher, is the highly dynamic and interactive nature of understanding the self and understanding others. Neither happens in isolation but is highly influenced by the others. Increased self-awareness influenced and supported the understanding of others, and in turn understanding others, influenced self-awareness and personal behaviour. Further behavioural changes though appear to stem from a deliberate and intentional choice in how participants behave or respond to situations or people.

6.3 DESCRIBING THE UNDERLYING PROCESS THAT LEADS TO BEHAVIOURAL CHANGE

A further focus of this study was to investigate which aspects influenced the process of leader behaviour change. An understanding of the self and others contributed to behaviour change as reflected in Figure 6.2. From the interviews, gaining knowledge and insight of social cognitive neuroscience appears to have led participants to a natural thought process

that involved making a choice about their personal responses to emotionally provoking situations as well as their behaviour towards others. There was willingness, and indeed an inquisitiveness to experiment with their newfound knowledge. Having acquired new awareness of their potential influence on others' experiences, presented a choice: either to continue in the current manner knowing the possible negative consequences, or make an active decision to change behaviour with possible positive consequences.

6.3.1   Choice and ownership: "…because I want to..."

For the majority of participants, it appeared to have been an active decision to attempt to change their behaviour. Words that were consistently expressed by participants was "I wanted to…" and "choice". Addendum E provides a brief summary of comments that participants made during the interviews with regard to choices.

Gaining this knowledge was also seen as contributing to their levels of confidence to risk a new way of doing things. There was also a strong need for a different experience, as Eddie stated, *"I want to see something different, I want to feel, touch, experience something different, and if I don't make that effort to get that difference, it is not going to happen…"*. The statement by Eddie indicated a need for a different experience and demonstrates a strong sense of ownership and commitment to ensure positive outcomes.

From the data provided, it appears that choice and an internal motivation played a key role in the process of converting what was learnt to actionable behaviour. The researcher though, further explored what drives supported the need to make a choice.

6.3.2   Drivers that contributed to behavioural change

As participants had previous exposure to development interventions, there was active exploration by the researcher during the interviews to gain an understanding of what supported participants' choice to make behavioural changes following this intervention.

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Numerous reasons were cited by participants for making behavioural changes. From the information provided, the researcher identified two themes, which she thought best to describe as personal drivers and organisational drivers. The two themes and the sub-themes are depicted in Figure 6.3.
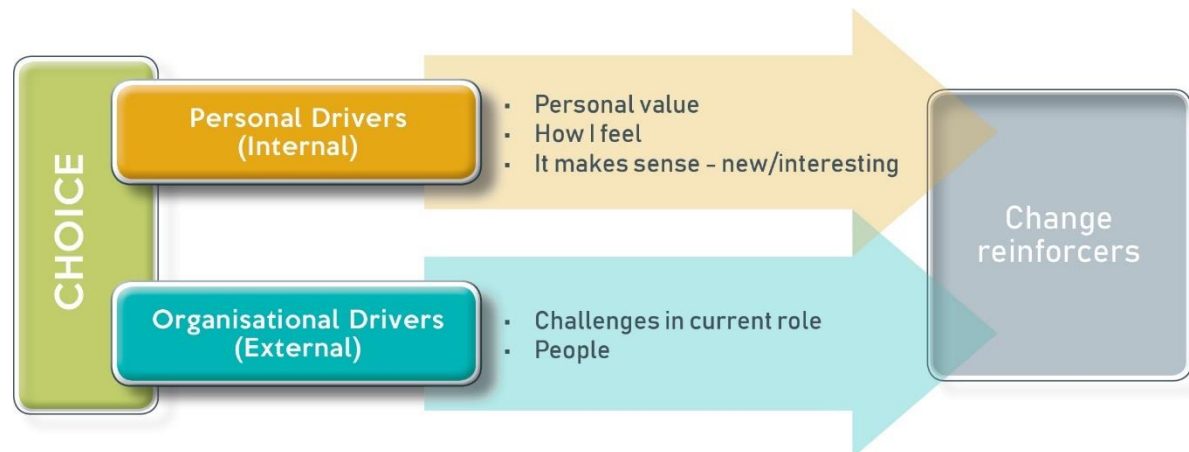
Figure 6.3. Change Drivers

Personal drivers were viewed by the researcher as those things that the participant had internal control over and experienced as unique to themselves and related to personal value, feelings and novelty. The researcher viewed organisational drivers as those things that were unique to the environment that the participant functioned in and was therefore external to the participant. Organisational drivers that were identified related to the role and people. The representation of the personal and organisational drivers is tabulated in Addendum F.

The experience of positive results is associated with reinforcement learning (Bossons, Riddel, & Sartain, 2015; Lieberman, 2013). Reinforcers that were identified were how the participants feel, a sense of control, team support, increased personal effectiveness, a change in work focus and social integration. This also related with the fourth research question, which aimed to explore the impact of behaviour changes on participants and others, and these will be addressed in section 6.5.

6.3.2.1 *Internal drivers: Personal reasons for change*

Drivers that were mentioned by participants and that influenced their need for behavioural change related to the experience of personal benefit, how they felt and novelty. The personal nature of the intervention appears to be the greatest driver for change.

6.3.2.1.1   It IS personal! It is about me

The overwhelming majority of participants cited reasons pertaining to personal value as the driving motivator for changing their behaviour during this leader development intervention. Addendum G provides short excerpts of the interviews that illustrate the personal focus.

Notable were the consistent references to "*myself*" and "*personal*". The value that was derived from attending this intervention was experienced as highly personal and created, as Cathy said, "*a hunger to grow and you internalise it more and then you have more of an investment going forward…*". Previous training that participants were exposed to appeared to have been highly functional and related to specific work outcomes. This intervention was found to personally benefit participants, both within the workplace as well as in their personal lives. Participants consistently mentioned the greatest value that led to behaviour change was gaining a better understanding of themselves and how they could improve themselves.

The strong focus on the self, provided a powerful motivating force for change. Where behaviour is linked to one's sense of self and core values, the subjective value is much greater, and therefore more likely to be successful (Berkman, 2018).

6.3.2.1.2   Affective: How I feel

Being more aware of their feelings and emotions also became a driver for change for participants. Positive affective experiences appear to play a much stronger role in reinforcing change, while negative affective experiences tend to initiate change (Karp, 2006). Positive experiences will therefore be discussed under the section that discusses reinforcers (section

6.5). Some participants referred to how the way they were feeling, influenced their need to change. The current discomfort or pain was illustrated by the following participants:

Akshay: "Well as I said, I had to make a shift, and I was feeling very stressed. And I was feeling very tired when I got home, and spending very less time, and just basically suffered and I didn't sleep."

Charles: "… the emotional stress on my side and the stressful situations on my side become so weary that I feel emotionally depleted….. Hmm, I can't think straight, I can't reason straight, hmmm, things that I would not necessarily fault upon, I know start for fault upon on, it's just little things that just pops up in there."

As demonstrated by both participants, their emotional states and the resulting negative impact provided a strong driver for change. There was an understanding that the current situation was not a healthy one. The impact of stress was being experienced both within the work place and personal life, with little energy and a sense of feeling overwhelmed. The impact of stress linked with lack of sleep was likely to impact on access to cognitive resources, leading to less emotional control, lack of concentration and focus. This was illustrated by Charles who could not reason or think straight. In both cases, the impact of stress was likely to impact on both performance and relationships. Dave referred to the negative impact on relationships saying that "*when you have uncomfortable relationships – you don't feel good*". Eddie also shared how he came to the realisation that he was suppressing and "*bottling*" up his feelings, which then worked against him as he was becoming angry with those close to him. Overall, the current emotional state, and often one of discomfort, led to participants realising the need to make behavioural changes.

6.3.2.1.3   Novelty: The attention grabber

It would be remiss to not take into account the fact that the intervention was experienced as something new and unfamiliar. Some participants mentioned the focus on social cognitive neuroscience was new and fascinating to them. William found that learning about the brain and how the mind worked "*fascinating*". John described the course as keeping his attention and found the content interesting and relevant by creating personal insights into how he dealt with different people and situations. Andy also experienced it as new and found the people-orientation insightful. Akshay referred to the tools that were provided by the intervention as being "different". The intensity of the participants' experiences was evident in the words used by participants to describe their experience: "*fascinating*", "*mindboggling*", "*interesting*", "*it blew my mind*". This indicated a high level of stimulation, and also something that was different to what was expected.

6.3.2.2   *External drivers: the organisational environment*

While the previous section dealt with internal drivers that provided the impetus for change, there was also pressure within the organisational environment that served as an incentive to change behaviour. Challenges experienced by participants related primarily to people and their new roles.

6.3.2.2.1   *A people focus*

Many references (refer to Addendum H) made by participants indicated a motivational drive to focus on people. The need to focus on people appeared to be supported by two underlying motives, i) a need to apply what participants had learnt of people, and ii) a personal value perspective.

A need to apply lessons learnt. Some participants made reference to new insights and learning's related to people and a need to adapt their approach to ensure the desired

outcome. Having a better understanding of people and "learning" provided the incentive to apply the knowledge as shared by Jenny:

> *I've also learnt about it's not just about you, it's about others around you, you know. And sometimes you get too, we get very absorbed in what's happening in our space and we forget that there's a whole world outside of you. And it's important to understand how everybody interacts with each other. So that also was a big learning for me...*

There appears to be a marked shift from a self-centred and primarily a results-driven approach, to one of gaining a better understanding of others and wanting to apply the knowledge. From Jenny's statement above and the statements summarised in Appendix H, there was a clear indication of the 'learning mode' and 'growth mindset' as described by Heslin and Keating (2017). There was a concerted effort by participants to implement that which they had learnt in order to achieve a different result.

A personal value. A different train of thought of some participants appeared to link with personal values. Reference was made to wanting to change people's lives to ensure that they are "*happy*" and "*comfortable*". The need to focus on people appeared to relate to a personal value. There was a need to do good for others and makes others feel good, without any personal gain or apparent benefit. This could link with the increased level of self-awareness and a clarity regarding personal values and self-identity, which created the drive for change. The need to apply learnings as well as live out personal values with specific reference to people provided a strong drive for change.

6.3.2.2.2   *The current role*

Having been in management roles for a number of years, many participants had recently moved into new roles as illustrated in Table 6.1. Statements reflecting challenges with their current roles are summarised in Addendum I.

Moving into a more senior role comes with a bigger team and additional responsibilities. It also impacted on the level of work and the complexity of problems participants are faced with and required a new way of doing things (Jaques, 1989). The lack of understanding this could lead to work overload and increased levels of anxiety of one's ability to meet the demands of the new role. For many participants, the challenges related to managing a bigger team and managing people. In addition, there had been numerous changes in the work environments, impacting on morale, as Akshay said, "*there was a mood that was not really cool in the area.*" The low morale was reflected by staff members regularly going on sick leave, teams operating in a silo fashion, and team members taking responsibility for only that which they deemed to be part of their role. Participants therefore faced a number of challenges that related to a greater level of diversity, legacy of previous managers, low morale, little cooperation and support. This intervention was therefore experienced to be at the ideal time, providing skills that were highly relevant.

6.3.2.3 *In summary*

It would appear as if most participants made an active choice to implement behaviour changes. The need to make a choice was supported by a number of motivational drives.

6.4 LEADER BEHAVIOUR CHANGES THAT ARE MANIFESTED BY PARTICIPANTS WITHIN THE ORGANISATIONAL SETTING BASED ON THEIR UNDERSTANDING OF SOCIAL COGNITIVE NEUROSCIENCE KNOWLEDGE GAINED

The aim of this study was further to identify manifested behavioural changes based on participants' increased knowledge of social cognitive neuroscience. Having a better understanding of the self and others supported participants in their decision to experiment and implement behaviour changes as shared in section 6.3. From the data, behavioural changes

related to three themes: the learning journey, behavioural changes at a personal level and behavioural changes at an interactive level.

As data triangulation and the use of multiple sources contributes to the reliability and credibility of findings and the overall quality of research (Yin, 2014), observations as shared by line managers and employees reporting to the participants will also be shared. Some interviews that were conducted with direct reports (see Table 5.1), were conducted 14 months after the leader development intervention was completed, providing some indication of the sustainability of the behavioural changes as observed by others.

6.4.1   The rocky road to learning: "work in progress"

Based on their insights and understanding, participants attempted to implement behavioural changes at both personal as well as interactive levels. It is clear from participants' feedback that the mastery of new skills is best seen as work in progress. At times, situations were experienced where emotions were described as getting heated and running high. Participants did not "*changed overnight*" and saw the learning curve as a process that required more time, although they did acknowledge a level of improvement. There was also an element of doubt expressed by some participants on whether they were handling certain situations correctly. In summary, although participants actively implemented new behaviours and experienced some success, this should be viewed as a work in progress that requires a longer term orientation before it can be viewed as embedded behaviour.

6.4.2   Personal changes: Emotional regulation

As described in chapter 3, emotional regulation refers to the ability to control the experience of and expression of emotions (Carver & Scheier, 1998; Gross, 1998). It reflects

a level of internal control with respect to how one responds to emotion provoking situations, events or people.

6.4.2.1   *Participants perspective: "creating the balance in your head"*

It needs to be noted that increased self-awareness and an understanding of others led to a natural process of challenging and changing personal thought patterns, which helped to instil behaviour that is associated with emotional regulation (section 6.2.3). Emotional regulation is noted here, as the process resulted in a distinctive change between how participants thought and responded in the past and their current thought patterns and behaviours. An increased awareness of emotions and focus on regulating emotions was raised by the majority of the participants.

When participants were faced with situations or individuals that elicited emotions, they remarked that they attempted to delay their instinctive and natural responses as is illustrated by Shanika's comment:

> *But I do that since the course, I do that a lot now, stop, think about it, relax, calm down and then react. So, I don't find myself in a position where I want to say something immediately, even if I want to say something, I stop myself and I just say is that the right thing to say now?*

The ability to stop and reflect supported Shanika's ability to respond in a rational and appropriate manner. From the interviews it would appear there is an internal thought process which supports the application of emotional regulation strategies.

Self-awareness. Participants shared how their heightened sense of self-awareness supported them in recognising when they needed to apply emotional regulation strategies as noted by Dave,

but for me it's about how, when the emotions start to, first of all it's about identifying

those emotions where before I might not have, now it's there, now it's about saying

oh, I can feel this little thing starting to rise...

Participants were able to recognise and acknowledge when they felt they were "*heating*" up, as William put it or their "*blood levels are rising*", as Eddie stated. Being aware of the 'hot' emotions and having an improved understanding of the reflective and reflexive systems, appears to have provided participants with an alternative manner of responding to situations as observed by Sarah: "*I became aware that I have a choice, so every time I get in a stressful situation, I don't have to sort of stay in that stressful situation with the amygdala part of your brain I can actually re-route it and as soon as I've done that, you know, understand how your PFC works, that's actually where you need to stay.*"

Increased awareness of their emotions and the need to control emotions, supported the application of emotion regulation strategies.

Application of emotion regulation strategies. Experiences shared by participants related with the emotional regulation strategies as described by James Gross (1998). This model by Gross was also shared with participants during the intervention and was elaborated on in chapter 3. Strategies that were used by participants related to situation selection, attention deployment, reappraisal, expectations and breathing as a technique.

Situation selection as a strategy was demonstrated by some participants pro-actively choosing what they got involved in and whom they surrounded themselves with. Some participants were also confronting situations that they previously preferred to avoid. This relates particularly to the courage to conduct conversations that related with development areas and performance issues, clarifying mutual work expectations and management decisions. Timing as a factor was mentioned by a number of participants. As Eddie explained, at times the situation calls for one to walk away and to rather address the issue

later. There was the awareness that, when someone was emotional or in a defensive mode, information was unlikely to be absorbed and required that the matter be addressed at a later stage.

The strategy to *deploy attention* allowed participants to place the focus of attention on that which ensured the envisioned outcome, and not on that which was distracting. Some participants shared how they actively channelled their attention to that which was within their control as suggested by Akshay, *"I just focus on bite-size, look at what is in the now, what I can control…"* An understanding of the potential chain reaction which the activation of personal triggers had, supported participants' ability to direct their attention to the task and what needed to be achieved and away from that which was viewed as personal.

Cognitive change (reappraisal). Significant was the ability of participants to reframe how they viewed a situation during an interaction and their ability to challenge their thought patterns. This often stemmed from increased levels of self-insight and an improved understanding of personal triggers as was illustrated by one participant who realised that her lack of self-esteem led to her misinterpreting some situations. There was also the understanding, as observed by Charles, that one should not be too sensitive and take what is said personally when others are in an emotional state.

To re-appraise or reframe, requires the ability to challenge one's own assumptions, which, as Brenda remarked, could be based on "*untruths*". By attributing a different interpretation to what people were saying, changed their emotional responses (Gross, 1998). Strongly linked with reappraisal as an emotional regulation strategy, was also the ability to *revise expectations*.

Revised expectations. Based on insights gained, participants revised the expectations that they held in general. Expectations became more rational and in touch with reality. Eddie mentioned that he can "*advise people but I can't change people*". Joe carried less

stress, since he realised that he cannot change everyone, and Danny accepted that she cannot change that which was external to her control.

Breathing as a stress reduction technique. During the training intervention, a simple breathing technique was shared with participants. A number of participants made reference to breathing as a technique, that was described as being very helpful. The technique provided them with the opportunity to delay immediate responses and to then engage in a calm manner as suggested by Barry, *"…what I learned was to take a step back, just breath in and out, and then focus on the issue at hand…"*

How I feel. The ability to apply emotion regulation strategies led to most participants experiencing a greater sense of control and confidence. One participant though suggested a different view, saying that although the external expression of how others perceived him had changed, internally he still felt angry when some people did certain things. This would lead one to think that the participant was using suppression as a strategy, which is likely to intensify the experience of negative emotions and could potentially impact on his effectiveness.

How I act. As participants experienced higher levels of confidence and felt in control, this likely supported their ability to access higher-order cognitive functions. This was demonstrated by participants mentioning their improved ability to make hard decisions, to remain goal-focused, to prioritise, be effective at problem solving and overall productivity. The effectiveness of suppression as a strategy, may have some short-term benefits, but is likely to be less effective in the long term.

Based on the above information and the researchers understanding, the emotional regulation process is depicted in Figure 6.4. Visible behaviour is depicted in the above-the-line interactive process, and personal processes are illustrated by the below-the-line activities.
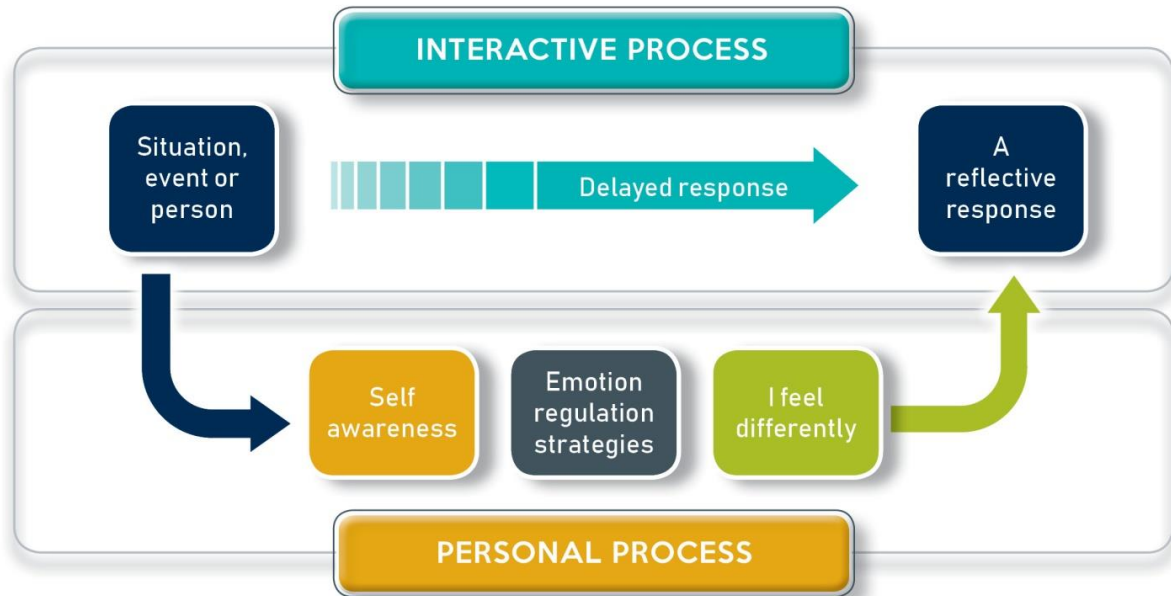
Figure 6.4. The Process of Emotional Regulation

6.4.2.2 *Line managers' perspective*

The operations manager did not observe any changes in the participants within this division. The views are therefore reflective of managers within the finance and human resources divisions and of a participant in a specialist role.

Self-awareness. Managers of participants in the finance, human resource and specialist roles, all referred to observing increased levels of self-awareness in the participants during the interviews.

Emotional regulation and stress resilience. In both the finance and human resources divisions, managers commented on the impact of stress within their respective environments. One finance manager described a participant as having emotional outbursts in the past and another manager referred to "*snappy*" behaviour being demonstrated by another participant in the past. Managers all referred to observing an increased ability in the participants to control their behaviour and deal with pressure.

Participants were also seen to be better at managing expectations, both of themselves as well as those of others. Where there were great workloads, participants were able to prioritise and be firm in setting realistic timelines, which also reduced pressure somewhat.

The human resource manager referred to one participant's increased levels of maturity in receiving feedback. Whereas negative feedback previously elicited an emotional response for this particular participant, her response has changed. The participant demonstrated the ability to reflect on feedback and focus on the key issue in a constructive and calm manner.

The response – a reflective approach. An increased sense of confidence and assertiveness was mentioned by most line managers. Within the human resource division, participants were required to deal with conflict between various role players and need to influence and coach managers at levels more senior to them. The manager noted a change in the level of confidence of participants to deal with difficult situations and individuals.

Managers in the finance and specialist areas also referred to greater levels of confidence observed in participants which was demonstrated by their ability to voice opinions, and confidently making "tough" decisions. This confidence was also reflected by participant's ability to conduct difficult conversations to ensure performance.

6.4.2.3   *The view reflected by direct reports*

Operations division. As interviews in this division were conducted with the direct reports 14 months after the intervention, it provided some indication of the sustainability of behavioural changes. Both participants were experienced by their respective direct reports to being more in control and calmer in their engagement with others, indicating higher levels of emotional regulation.

One participant has been seen to lose his temper in a certain situation, and the other participant is seen to fall back into his old ways when he experienced stress. He is then observed by the direct report to defer to a leadership style that was described as "*it is my way*

or the highway". This was attributed by the direct report to a need for survival in a very tough environment.

Finance division. From the interviews direct reports did not observe any changes, yet they viewed their managers (participants) as extremely calm and in control. The following excerpts refer to two different financial managers:

Well to me, (name removed) has always been in control, he's always been calm from the time I started, if there is a stressful situation, he never imparts that stress on you!

Well he is the most calmest person I know so it is very hard for me distinguishing you know if there was a change in him. He seldom gets angry, I have not seen him angry…

From the above statements made by the direct reports, it would appear that the participants demonstrate high levels of emotional regulation. Even when mistakes were made, the focus was on rectifying the matter in a calm manner. The high levels of emotional regulation protected direct reports to the possible inner turmoil experienced by participants. All the participants were experienced as consistent in their behaviour and presented a calm exterior.

6.4.3   Behavioural changes at an interactive level

From the data generated from the interviews with the participants, line managers and direct reports, some behavioural changes were made at an interactive level. From the data, it is also clear that there were differences in the focus of the various departments.

The behavioural changes that were implemented by participants appeared to stem from an improved understanding of self and others, which was based on their interpretation of social cognitive neuroscience knowledge gained from the development intervention and a conscious choice (refer to sections 6.2 and 6.3). It needs to be noted that during the intervention, participants did not receive any guidelines on what behaviours represented leadership.

The behavioural changes at an interactive level related to six themes as identified by the researcher; a change in leadership style, enabling neuroplasticity for others by developing and coaching, valuing the contribution of others by adapting an inclusive style of communication and giving recognition, strengthening the interpersonal connection by cultivating relationships and creating an environment of trust. The representation of the themes is summarised in Addendum J.

6.4.3.1 *A change in leadership style*

A leadership style provides an indication of what a leader will tend to focus on and how he/she will go about achieving set goals and influences every activity of the leader on a daily basis. It would appear that participants' style of leadership changed from a task focused approach to one that was more people centred.

6.4.3.1.1 *The participant's perspective*

Because a leadership style relates to a mindset, it sets the tone for other leader behaviours, and will therefore be addressed first. It must be stated that not all the participants are in roles where they are responsible for ensuring goal achievement through others, but some are in service or specialist roles, supporting the line managers.

From the interviews conducted with the participants, there appeared to be differences in the leadership styles that was used by participants, prior to this intervention. Within the operations division, all four participants referred to their leadership style as previously being controlling and focused on results. Within the finance department, all four participants referred to their impersonal leadership styles. This was also true of participants within the specialist roles. Some human resources managers reflected that they were inaccessible to others.

Participants also referred to their leaders during the interviews, which the researcher deemed to be relevant, as leaders serve as role models to which one often aspires. Leaders within the operations division were viewed as being results driven with little focus on people, while participants in human resources described their leaders as being "pillars" that exemplified an awareness and understanding of their own behaviour and of others.

Overall, the predominant leadership style of participants was best described as directive, with minimal input of others regarding their views or concerns. Employees were seen as responsible for achieving certain objectives, with little empathy or understanding for the challenges and frustrations that may be faced with. The response of participants to concerns was one of, as Andy said, "*fix-it*" with little to no two-way communication or support. Activities of participants with those reporting to them, was described as being focused on ensuring results. Some descriptive words used by participants to describe their leadership styles were: *fear driven, autocratic, controlling, impersonal, focused on consequence management, instructional, focused on ensuring compliance.*

From the interviews it is clear that the mindset shifted to one of understanding that goals are achieved through people and this required of leaders to understand people and their feelings. This shift in mindset was best illustrated by the following statements:

Charles stated that all his knowledge did not make any difference if, "*I don't connect emotionally, with the person's heart and mind, and that to me you know, is really called for, for behavioural change.*"

Jenny commented, "*… it's (being a leader) about understanding people and understanding how they feel and what you can do to make you know make a difference there.*"

Cathy remarked, *"My style determines their (other managers) reaction…"*

The ability to connect with another's heart and mind at an emotional level, infers a level of understanding of the other person's experience at both cognitive and affective levels. This implies a change from being purely task focused to a more person-centred approach. This change in how direct reports were viewed was a major shift that was evident with most participants. Although the achievement of results remained a priority, the difference in mindset related to how results were best achieved, as Andy remarked, *"... so the position that I'm in right now, I have no direct sort of impact on results, everything that I need to achieve, I got to achieve through people that I lead."*

For participants there was a new perspective that the conduit to achieving results was through people. Dave also highlighted that his own success was dependent on his team's success. The change in mindset had a significant impact on the leadership style.

This transition was demonstrated by Nadia who reflected on her past leadership style and her changed approach. In the past she gave instructions with no support, follow-up or recognition. She now realised it was all '*about people*" who had a need for recognition.

John also shared how his style had changed from one of being a "*control freak*", which led to conflict with his managers to understanding his role to be more of a "*support function*" as his managers understood their responsibilities and could be trusted. John further remarked on his change in leadership style:

> *I try to be, I won't say a softer manager, but I'm more compassionate ... I'm, I'm trying to get – not trying, I am now getting to the point whereby I have realised I am working with people, they are store managers, they do have families, they do have kids, they've got their own problems, and we need to accept that that's part of our business and their lives. If that's not, hmmm, they might have issues at home, if they can't, if I'm not approachable, then they can't talk to me and if they can't talk to me then we don't actually have a good relationship.*

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There was an acknowledgement of the human aspect of employees for both Nadia and John. This change in thinking was also evident with the other participants. Employees were seen more holistically, not only as managers or team members, but also as individuals with families. This was an aspect that did not get a lot of attention before, and the focus of leadership used to be on ensuring direct reports addressed problems that impacted on results. As the focus still ultimately remained the meeting of targets, anything that potentially impacted negatively on this, became important to the participants. Whereas previously there may have been little focus on addressing concerns of a personal nature, the ability to do this, became a measure of the relationship. The implication was that the relationship should be of such a nature that employees felt comfortable to address concerns that did not fall within the realm of working domain with their manager. This expanded the role of the manager to that of a leader who demonstrated an interest in the wellbeing of the employees. It also inferred a level of trust in the relationship as there was a focus on the personal interests of employees.

Participants also demonstrated a conscious awareness of mood contagion. Having an understanding that mood is highly "contagious" participants were actively attempting to lessen the stress within the environment by portraying a positive mood. Akshay referred to how his mood could "*rub off on other people*", both in a positive or negative manner.

In summary, participants reported a change in their leadership style where there was a greater awareness and sensitivity towards others and a need to build relationships based on trust.

6.4.3.1.2   Line manager's perspective

Operations: The operations managers noticed "*marginal*" differences, but no significant changes that he could mention. Interesting is the line manager's style of leadership, which is reflected in his statement, *"... but as long as where I'm sitting, as long as you get the job done, how you do it, what action it takes doesn't really matter to me as*

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long as it gets done." As illustrated by this quote, a bottom-line focus and task driven approach was evident during the interview.

Specialist role. The participant was seen as more confident in her role as manager. This was reflected in her ability to make difficult decisions. Having a diverse team, she was also seen as being better able to manage the diversity within her team and be more empathic.

Finance. A greater level of confidence was reflected in the ability of participants to make decisions.

Human resources. The manager mentioned that a limitation in her ability to provide in-depth feedback was the fact that most of her interaction with participants was telephonically and she did not observe them in interactions with others. She did experience increased levels of confidence and assertiveness in their ability to influence at different leadership levels though. This related to dealing with conflict, conducting difficult conversations, and receiving criticism and feedback.

6.4.3.1.3   *The view reflected by direct reports*

Operations division. The initial leadership style of both participants was described by the direct reports as being autocratic, a dictator, a hard person, a difficult person. Both managers were initially feared as their reputations preceded them. In both cased, the lived experiences of direct reports differed from the perceptions that existed.

For both participants, direct reports experienced a change in their leadership style. The change in the one participants' style was described as being incremental, while the change in the other participant was experienced as radical. The manner in which participants dealt with people changed. As one direct report stated:

> *He sees me and he understands my personality, and he deals with me differently than*
>
> *what he would deal with the next manager … so he never speaks to me in a harsh*
>
> *manner, even if I did something wrong, he would call me and calmly talk about it...*

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This participant is experienced by the direct report as having developed the ability to adapt his behaviour according to needs of others and responded to situations in a calm manner. This was in contrast with past behaviour.

The sustainability of the changes in leadership styles was questioned by one direct report, who shared that the participant "*will be taken out*" if he changed his leadership style, because "*it comes from the top*", referring to the current leadership style which was strongly focused on performance.

Finance division. Participants in the finance division as was noted in the findings, made a concerted effort to implement behavioural changes. In the interviews with direct reports, the overwhelming majority did not notice any significant changes in behaviour. However, further investigation of the interviews revealed that all the managers were held in high esteem by their direct reports. Participants were described by them as being supportive, caring and having good people skills.

From the interviews, it appears that participants are viewed as strong role models to whom direct reports aspired. This could be a possible reason why no changes were observed, as participants were already functioning from a perceived superior level, with no obvious behavioural discrepancies that require attention.

6.4.4 Enabling growth: coaching and developing

As highlighted in chapter 4, learning goes hand in hand with structural changes in the brain known as neuroplasticity. Underlying to the principle of neuroplasticity is the belief that individuals are capable of learning and changing. The greatest behavioural change of participants was a focus on developing and coaching others, which enabled personal growth for others.

6.4.4.1   *The participants perspective*

Although not all participants have people reporting to them, nearly all participants shared a focus on developing and coaching others (refer to Addendum J). A concern for the researcher was to understand whether the focus on coaching and development was new behaviour, or part of the existing organisational culture that was reinforced. The focus of the interviews was not on unpacking past behaviour and comparing it with current behaviour, but rather on the value of understanding neuroscience principles and how this leads to behavioural change. However, given the high presence of developing and coaching as a theme, the researcher deemed it appropriate to explore this question. The data available related to this theme were briefly summarised in Addendum K.

During the session that was conducted with participants in order to share and validate the research findings, participants also confirmed that this reflected new behaviour. There was a change in leader behaviour, which was focused on coaching and developing others in a facilitative manner and on developing management capability. The focus on development extended beyond those that report to participants, to colleagues as well. Delegation was also used as a means to develop others.

Developing management capability. "*Don't just expect a good level of service if you don't give that input*". This statement by John reflected an understanding of the need to develop others. He did this by actively coaching his direct reports in the developmental role they play for others. By actively coaching his direct reports in their leadership roles, a number of employees who would have been dismissed, for non-performance, were saved from dismissal. The impact was positive on both retention and morale. The focus on developing managers and their capability is reported by a number of other participants.

"*Wanting to be more brave*", Akshay "*cross-pollinated*" the teams by exposing the supervisors to the work of other supervisors so that they could work interchangeably. This

has led to the supervisors having greater influence on the bigger teams and an appreciation for each other.

A facilitative approach. Based on the comments of participants, it would appear they are adopting a facilitative approach to challenge and elevate the thinking of others. Whereas William in the past followed a "*you ask me a question, I give you an answer*" approach, his approach changed to facilitate thinking in others. When his managers were confronted with a problem, he would gain their input and thoughts first, after which he supported their thinking and gave them recognition. This facilitative approach was also shared by Andy who would ask team members questions to challenge and encourage their thinking. As a result of the increased openness in communication, participants found that direct reports contacted them more readily for guidance and support. This was a reflection of increased levels of trust and the creation of an environment that was non-threatening.

Delegation. Delegation was also used as a means to provide direct reports with greater exposure and contributed to their development. Barry described how he had delegated specific areas of responsibility to certain managers and made them responsible for the collation and coordination of information. This led to them being more pro-active and they actively sourced information related to their area of responsibility. Cathy and Akshay also used delegation as vehicle through which direct reports could express their voice and less experienced team members could gain greater exposure. This led to greater levels of involvement and effort by team members.

Colleagues. Not only was there more active coaching and developing of participants with their direct reports, but participants also took an interest in guiding and advising their colleagues.

Eddie observed the "*suffering*" of his colleague and played an active role in guiding and advising him. Whereas Brenda previously did not demonstrate an active interest in

assisting her colleague, she is now actively assisted those that needed support or advice. A number of participants shared similar experiences. It would appear that participants picked up on others' pain, demonstrated heightened levels of empathy and exhibited supportive behaviour to others. Participants actively played a greater role in the development of others by providing coaching and support.

6.4.4.2   *Line managers perspective*

No references were made by line managers that indicated a change in behaviour relating to coaching and developing others.

6.4.4.3   *The view reflected by direct reports*

Operations division. Participants were experienced by both their direct reports as having a strong focus on coaching and development. Both participants were perceived as highly knowledgeable in the business and seen as focused on sharing their knowledge with their teams.

One direct report mentioned the role that his manager played in his career progression, by identifying him as someone with potential, and expanding his responsibilities. This particular participant was also seen to expand the responsibilities of the other direct reports and created growth and development opportunities for them. He allocated time for training on both businesses and leadership related matters on a weekly basis. This was something that the direct reports found did not happen in the past. In the past the leadership style was experienced as instructing, rather than developing, as shared by this direct report:

> *(we were) ...not seeing the bigger picture, not knowing a lot about the business, and*
>
> *you know, used to our leaders not teaching us really, just the instruction: "Go and*

do". So he's taken the things off and given you a better view and understanding of

the business.

As reported by this direct report, it would appear that an improved understanding of the business changed the level of thinking for team members. He shared that he had a greater sense of empowerment and ownership.

The focus on developing others was also demonstrated by the other participant who invested time in sharing leadership strategies, business knowledge and motivational sessions. Knowledge was cascaded down to the different levels in the business to create a greater sense of alignment in the leadership style.

Finance Division. Direct reports did not comment on changes, but rather referred to existing behaviour that described participants' as "*willing*" to impart knowledge, to teach, guide and being a "*good mentor*". Participants were seen to actively focus on coaching and developing, which was demonstrated by their willingness to share their knowledge and to invest time in others' development. Team members experienced personal growth as a result of their managers.

6.4.4.4   Valuing contribution - an inclusive communication approach and recognition

A need to prove one's worth and to be acknowledged for one's contribution is supported by many of the systems and structures within organisations, ranging from recognition strategies to hierarchical rank. Being valued for one's contribution activates the reward circuitry leading to feelings of pleasure and happiness. The implementation of recognition strategies and a change in the communication style of participants, reflected an understanding of the need to value other's contributions.

6.4.4.4.1   The participants perspective

Participants placed a higher value on the contribution of others as illustrated by a change in their communication style as well as the implementation of recognition strategies.

An inclusive communication approach. The majority of the participants made active changes in their manner of communication to ensure a higher level of inclusivity and engagement. The style of communication prior to participants attending the intervention was described by them as being one-way with little opportunity for input from others, instructional with little understanding of others challenges in meeting the demands, impersonal and task focused. Participants pro-actively changed their style of communication to be more inclusive and to increase the levels of engagement. Activities were focused on gaining more input regarding others' thoughts, ideas and experiences. This was evident in participants' manner of communication, with whom they were communicating, as well as what they were communicating about.

Various participants shared experiences where they actively guided meetings to increase the level of participation by asking for others' views, experiences and solutions. An approach of enquiry was demonstrated by participants asking questions like "*how do you feel about what I am doing?*", "*what is it that you need from me?*", "*how do you think we will be able to resolve this?*" Participants demonstrated openness to the input of others and were less controlling of what was discussed during meetings.

Participants also shared information with their team members. Akshay shared how they were currently going through a change process and understood the need for increased and open communication to ensure that "*corridor talk*" did not become the primary source of information. He highlighted the need to reduce fear and the need for openness in addressing possible fears directly.

Noticeable was also the courage of participants to confront and conduct difficult conversations. Participants were able to have an "*honest conversation*" in a respectful manner, in order to clarify expectations and address possible conflicts or misunderstandings. The resulting increased levels of engagement was a learning experience for participants, as Andy shared, *"It helped me learn a lot more from the people rather than me just talking at people. Now we talking to people, talking with people, so I think that's been a big change."*

Meaningful was the reference of talking *at* people to talking *with* people. The inference was a shift away from one-way communication to two-way communication. The level of inclusiveness extended beyond those reporting to the participants. John shared how he had increased his circle of communication to include all staff in the stores, where he previously only engaged with his direct reports.

Recognition strategies. There are noticeable differences with the implementation of recognition strategies. All the examples cited reflected the views of those in specialist roles or participants within the finance department.

Participants within the finance division and a participant in a specialist role conducted conversations with their direct reports to gain a better understanding of their needs and what was most valued by them. This led to participants understanding the need of direct reports to be given more freedom, a personal interest to be shown in them and the need for individual contributions to be acknowledged in a personal manner.

There is also an understanding demonstrated by one finance manager that the value of recognition could be influenced by who it comes from. Acknowledging that sometimes there was a need to emphasise the depth of appreciation, Shanika requested senior managers to give acknowledgement to her direct reports. Receiving acknowledgement from a director or senior manager gave more weight and made the acknowledgement feel out of the ordinary and not just normal routine. This understanding also implied a level of maturity to move

beyond self-importance and required a focus on what would be most valued by the recipient thereof. It demonstrated an awareness of another's potential affective experience. It was another indication of the change in her leadership style where she moved away from control to a more strategic focus where she considered the potential benefits of key actions.

Some actions were focused on creating a culture of recognition. Akshay introduced an appreciation / acknowledgement board. The aim of the board was to encourage team members to share their appreciation of each other and express their gratitude for acts demonstrated by colleagues. He said, "*I taught people how to value themselves and value their colleagues."* There was the realisation that, over and above a change in leader behaviour, direct reports also contributed to the creation of new experiences within the division. Having a fairly large team, he saw the potential in creating a culture of recognition and acknowledgment within the bigger team. Acknowledgement was not previously part of how the team functioned.

The absence of recognition strategies within the other departments was noticeable. The researcher did not have the opportunity to follow-up with participants to explore the possible reasons for this difference in divisions.

Being valued for one's contribution and input and receiving recognition, is likely to evoke an approach response, leading to heightened levels of interaction between participants and direct reports. The fact that direct reports were experienced as expressing their thoughts and experiences more freely also reflected increased levels of trust and a sense of safety.

6.4.4.4.2   *Line managers perspective*

Operations: The manager noticed that the one participant was listening more to his people, which he did not do in the past. No reference was made to recognition strategies.

Finances: One manager remarked that all the participants that reported to her were making a concerted effort in their communication style by showing and openness towards others and interacting actively. No reference was made to recognition strategies.

6.4.4.4.3   The view reflected by direct reports

Operations: The one participant was described as an "*open book*" who shared information. Communication was encouraged within the region. There was also evidence of behaviour that focused on gaining input from others incorporating and implementing suggestions. Direct reports experienced information and knowledge being shared freely and timeously, which they find empowering in their role of leading others. Information was shared on both leadership development and business information.

Finance: Managers were viewed as being sensitive and diplomatic in their communication style. One participant made reference to how the manger actively asked and encouraged the sharing of views to improve their effectiveness.

6.4.4.5   The social connection: cultivating relationships

Humans are essentially socially wired, and they have a great need for inclusion and connection. In fact, research (as shared in chapter 4) proved that, where one is excluded, the exclusion creates a great level of pain reflected in the activation of the pain circuitry. In the organisational space, little can be achieved without the collaboration and support of others. Participants demonstrated an understanding of this principle and made a concerted effort to build interpersonal relationships.

6.4.4.5.1   Participants perspective

From the interviews, subtle language indicated that there was a strong hierarchical pecking order within the organisation. As Barry stated: "*What I also found that there's a lot*

of hmm, little social discussions that takes place amongst themselves and when I get there the topic changes. It's a typical "Boss-type" of a - behaviour. You know, ahh, typical: When I see the boss, I keep quiet, ok? Typical."

When referring to a manager, participants typically referred to the "boss". The Oxford dictionary defines boss as "a person who is in charge of a worker or organisation." As a verb it is defined as "giving orders in a domineering manner", that is, to boss someone around. The connotation to the word infers a level of superiority and the need to submit to authority. John also shared how he would previously "*only work with my team management, the rest I will say, is almost beneath me*". There appeared to have been a big hierarchical distance within the operational division. The changed focus to building relationships is best illustrated by the following comment by Jenny:

> *I started relating to people as people first you know, not as a manager and an employee or whatever it is. It was more about interacting with people to say, 'this is me and this is who I am and I want to know more about you', and I spent time getting to know them, their families, their background. And I let them get to know more about me, you know. And even though I've been in the business for ten years, we've never had an opportunity to interact and to truly get to know each other's personalities.*

Changing the lens through which others were viewed transformed an "*employee*" to a person. It changed the dynamic from task focussed and functional to acknowledging the person behind the hands. Despite working together for many years, participants had little knowledge of their colleagues and direct reports beyond the context of their role within the organisation. As one participant elaborated, some team members did not know the names of others in their division which also illustrated an impersonal focus. Participants started

putting time aside to conduct conversations of a more personal of nature as mentioned by Sarah:

> *And hmm, so I do try now make time even if it's, even if I, you know, things need to be done. ... I walk around and talk about arbitrary things, because it is important to them – it's arbitrary to me but it's for them important. Like somebody takes a child to the clinic for the day then I actually find time not to just sign the leave form whatever, but actually talk to him: is everything ok now? So, I'm trying to do that.*

The fact that Sarah referred to certain things as "*arbitrary*" indicated the lack of relevance to her personally. Yet there was a cognitive understanding that others attached a different value to certain discussions, and therefore required her time and attention. Her reference to signing a sick leave form is significant. She made a concerted effort to "*actually talk to him*" and demonstrated an interest in the child's welfare. This inferred that previously little thought was given to what the leave form represented and was seen as a management duty.

Given the work environment, time is a precious commodity. That which is important and urgent is given time and attention. The time invested in direct reports demonstrated the changed value attached to people. This was also consistently mentioned by other participants. Time was set aside to build relationships with people and gain a better understanding of their motivational drives, which is critical in leadership (Bennis, 2007; Kouzes & Posner, 2007). Despite having long tenure, many participants knew very little about their direct reports or colleagues which changed to showing a personal interest in others, as Akshay highlights, "*there is no one size fits all ... I got to build that connection ...it is helping me, because people appreciate it…*"

Participants demonstrated an interest in others beyond the work environment by engaging with others at a personal level and enquiring after family and children, finding

common interests, enquiring after other's social activities and celebrating birthdays. Participants also created opportunities for informal interaction without formal protocol and hierarchy. Barry scheduled sessions with his direct reports where they *"have a cup of coffee and have a discussion and sit and just be friends for five minutes."* Akshay, also made reference to coffee chat sessions, which enabled him to become more familiar with others on a personal basis. He also introduced a range of activities (ice breaker Monday and Bingo Thursdays) where the focus was on having fun and team members could get to know each other better. John stated that it was important that he be viewed as *"human and approachable"*, without the limitations of formal structures. Relationships that are viewed as more equal, rather than hierarchical creates a higher likelihood of finding commonalities and could result in an increased interpersonal connection.

The ability to connect at an interpersonal level did not come with ease for some of the participants. Brenda remarked that as she found it difficult to connect with others and had little need for social interaction, she "*forced*" herself to drink tea and talk with others. Nadia shared her difficulty in making this change as she believed "*work is work*". This internal conflict to display behaviour that was contradictory to the real self was also experienced by Sarah who said that this was not really part of her personality. Some participants preferred privacy and a bigger personal space. Despite their personal preference there was the understanding that they needed to build interpersonal connections and had to know more about others and show and interest in what others valued. Engagements therefore could not be limited to work requirements only, and extended beyond the work environment in order to build relationships.

Despite the internal conflict, the need to invest in cultivating relationships was an insight on which participants were acting. Participants created opportunities to gain a better understanding of others at an individual level, something that had never happened in the past.

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6.4.4.5.2   Line managers perspective

Operations manager: No reference was made by the manager to a focus on cultivating relationships.

Specialists: Whereas the participant avoided dealing with people in the past, she was now seen to show a different level of passion for people as well as empathy.

Finances: One participant was seen to have grown significantly in her ability to deal with people and demonstrated softer skills.

6.4.4.5.3   The view reflected by direct reports

Operations. One participant was reported to conduct sessions to which all the staff in the stores were invited and included. During this session the participant shared motivational and educational video clips and engaged with all staff. Being included by senior management in engagements and development had a tremendous positive impact on employees' morale and demonstrated a focus on building relationships and strengthening the social connection. The direct report remarked that relationships had improved, and employees were motivated to achieve the set goals. As the direct report shared, in his 10 years of being a store manager, this had never happened before.

Both participants were seen to focus strongly on teambuilding and communication. Despite being geographically spread, direct reports were encouraged to communicate and support each other. Whereas past activities were only focused on business, time was set aside for team activities, so that direct reports could get to know each other better. Teambuilding activities were not the norm within the region and had been newly introduced by the participants.

Finances. Although no significant changes were mentioned, direct reports described the participants as caring, supportive, tactful and very good with people.

6.4.4.6   The trust factor: Active listening

Core to leadership is the ability to understand and respond to the emotions of others in an appropriate manner. Being heard is closely associated with a relationship of trust. A focus on active listening with quality attention was mentioned by a number of participants.

6.4.4.6.1   Participants perspective

Many of the behaviours already mentioned were closely linked and ultimately contributed to building an environment of trust. An inclusive communication style was demonstrated by behaviour that was focussed on sharing of ideas, thoughts and experiences. Cultivation of relationships was demonstrated by behaviour that focussed on getting to know employees better. Although both contribute to trust, the researcher deemed it appropriate to list listening as a separate theme, as trust requires an intentional focus on hearing others at a more personal level. More than half of the participants referred to actively listening to others in order to gain a better understanding of their personal experiences and emotions.

The art of leadership entails making time to understand the feelings and emotions of others as noted by John: *"...be in the moment. When people seek your attention, listen carefully and approach it from what you've heard, and what they want you to hear. And not just listen to reply and respond with what you really want."* John demonstrated a sensitivity and consideration for others needs by listening with attention in an intentional manner. Listening came with quality of attention. The comment by John also reflected an understanding that the received message may be different to the intended message as well as the preferred message. The focus on hearing what "*they want you to hear*" inferred a deeper level of understanding that went beyond the spoken word. The ability to listen to others without one's "*own thoughts clouding the message*" was shared by a number of participants. Given the level of "*noise*" in the environment, it takes a concerted effort to be in the moment,

and not to be distracted by other elements as Brenda shared, "*I would be busy with my own thing and listen half, you know?*" One participant reported that his ability to be better attuned to the emotions of others and active listening lead to "*meaningful conversations*", which changed the nature of relationships. The reference to "*meaningful*" conversation possibly reflected a depth of understanding and the need to contribute to others in a well thought out manner.

The ability to actively listen to others influenced leaders perceptions as is illustrated by Shanika,

> *So, previously when you see it, you look at it you think well okay, they don't care because they are going to miss their deadline or this person is getting angry, they don't care, that's how they deal with it. Now when you listen to them, they are so passionate about it, it actually angers them that they can't meet that deadline. So, now I think about it and I give them that time to vent out and tell me, and it makes a difference so that helps a lot.*

For Shanika, behaviour that was previously interpreted in a negative manner was now perceived in a new and positive light. Perceiving others as "*not caring*" and being "*so passionate*", are at opposite ends of the spectrum. Listening to others led to a new perspective for Shanika.

A sense of feeling understood is likely to have a positive impact on team members. This was experienced by William who moved his focus from judging, to one of trying to understand the reasons for certain actions. He found that this led to increased levels of engagement, whereas his previous style led to people switching off, displaying little innovation and adapting a style of waiting to be told.

Active listening was seen by participants as contributing to their ability to demonstrate supportive behaviour to direct reports, which was illustrated by providing direct

reports with the opportunity to vent and express their frustrations and making time to listen to those that were unhappy. One participant also referred to prayer as a means of support.

6.4.4.6.2   *Line managers perspective*

No behavioural changes were mentioned by the managers.

6.4.4.6.3   *Direct reports*

No behavioural changes were mentioned by direct reports.

6.4.5   In summary

There are a number of similarities as well as differences in the divisions and participants, managers and direct reports did not share the same experiences. Changes in behaviour following the leader development intervention, related to both a personal as well as interactive levels and is illustrated in Table 6.5.

Table 6.4. *Behavioural Changes as Perceived by Participants, Managers and Direct Reports*

	Participants				Managers				Direct reports	
	Ops	SR	FD	HR	Ops	SR	FD	HR	Ops	FD
Emotional regulation										
Leadership style										
Coach & Developing										
Communication										
Recognition										
Cultivating relationships										
Trust & active listening										

At a personal level, all participants applied emotional regulation strategies, and this was also experienced by most line managers and team members. At an interactive level, behavioural changes related to six areas: a change in the leadership style, coaching and

developing, an inclusive communication style, recognition strategies, cultivating relationships and active listening.

The operations manager did not observe any behavioural changes. Managers who reported to the participants in the operations division though, did experience some significant changes in the participants' behaviours. Direct reports within the operations division experienced a change in emotional control, leadership style, coaching and developing, communication and relationship building.

Line managers within the finance division noted changes in behaviour relating to emotional regulation, leadership style, communication and the building relationships. While direct reports in the finance division did not note any observable changes, it was evident that they viewed their leaders as role models with good emotional regulations skills, a people focused leadership style, a focus on coaching and development and good relationships. The manager of the participant in the specialist role also observed changes in emotional control, leadership style and relationships. No direct reports were interviewed.

The application of recognition strategies was more prevalent with those participants in specialist roles and the finance division and were not demonstrated by participants in the operations and human resource divisions.

6.5 THE PERCEIVED IMPACT OF BEHAVIOURAL CHANGES ON THE PARTICIPANT AND OTHERS

The experience of a positive outcome after implementing learning and making behavioural changes plays a critical role in reinforcement learning and the repetition of those behaviours, which strengthens new neural pathways. The perceived impact of the behaviour changes as observed by participants, their managers and direct reports, was therefore explored.

Below, feedback is provided on how participants personally experienced the results of the changes, as well as how they perceived the impact of changes on others, with specific reference to employees reporting to them, colleagues and their managers.

6.5.1   Participants experience: change reinforcers

Reinforcers are those things that are experienced as a reward, leading to the same behaviour likely to be repeated. The activation of the reward circuitry is central to learning and re-enforcing behaviour (Bossons et al., 2015; Lieberman, 2013). What is experienced as a reward is a highly subjective matter and relates to what the perceived value is for the individual. From the interviews, it would appear that the experience of positive results by the participants played a role in reinforcing their changed behaviour, as is illustrated in the following excerpts:

Nadia: *"So you'd (the facilitator) say go and do this for this week, and I think once you see a result, you will be encouraged to do it. So, I did ..."*

Shanika: *"Then it just became the norm because people reacted to it positively. So, me specifically with my team when I saw the positive reaction it was working, it just become part of the practice."*

Experiencing a positive outcome, contributed to participants seeing the value in making changes. Based on the data provided by interviews conducted with participants, reinforcers that were identified related to how participants felt, the feedback they received, being socially accepted, an improvement in their work effectiveness, and team support. The five identified reinforcers of change and learning will be discussed in more detail.

Feedback - being valued for one's contribution. The role of feedback in re-enforcing behaviour is a known one. Many of the participants received positive feedback. The source of feedback varied from their line managers, colleagues, team member to family members within their personal domain. Jenny received feedback from her line manager who

said, "*actually you've changed that team you know, they're so much happier and they're so much lighter at heart…*" She also received feedback from a team member who said that, '*I'm so glad that I'm getting an opportunity to be exposed to other things now, you know …and that someone is taking an interest in me*". Receiving positive feedback and being valued for one's contribution reinforced new behaviour and "*makes you want to do more*" as William stated.

Not all participants received feedback, and during the interviews expressed a need for feedback. One team member took the initiative and asked human resources to facilitate a session with his direct reports, so that he could gain feedback from his team. This highlights the need for feedback in the design of any leader intervention and was a shortcoming in the design of this intervention.

Affective – "From loose cannon to calm seas". There was a great level of consistency in how participants expressed the personal benefits they experienced from this intervention on their emotional state. Participants consistently shared that they felt less pressure, experienced increased levels of control, were happier, calmer and more confident.

Prior to the intervention, stress was a great contributor to how participants felt. As Akshay shared: "*Well let's just say I don't feel so tired when I get to at home, in the morning I come here I don't open my laptop with a sense of …the world's ended kind of thingy.*"

A sense of not being control is implied by John, who referred to previously being a "*loose cannon*", Danny, who mentioned that she used to feel "*bulldozed*" and William, who experienced fear and displayed aggressive behaviour. Experiencing less stress implies an increased sense of control, which was described by Cathy being in "*calm seas*". Participants also expressed higher levels of confidence in their work competence and their ability to act in a professional manner and address work concerns.

Being socially connected. The social nature of being human was also illustrated by the impact of others' behaviour on the participants. Many of the participants referred to improved relationships and increased levels of interaction with others.

Examples mentioned was being asked for one's views and experience, others showing a personal interest beyond the work environment and taking the time to engage with the team, people being friendlier and easier to engage with. The perceived value was well illustrated in John's response to a colleague:

> *I mean you leave there, I wanna almost say rejoiced, but motivated to go and work a little bit harder for this person, because she's actually interested in me as a person and my views, whereby in the old days, you would just have done it because you're actually scared of this person. Hmm, I think you achieve more that way.*

The elevated positive emotion experienced by John as a result of a colleague showing an interest in him, demonstrated the fundamental need for social connection and to be valued for one's contribution. Some participants reported that their network of people with whom they interact, including senior management, had increased.

Increased effectiveness (executive functioning). With an increased sense of control, participants described themselves as being more effective within their roles. Although this was not a reflection of the majority, some participants found they made better use of their time. Time was being used to focus on people, to implement plans and generate ideas. One participant also experienced better work-life balance, and another referred to having clearer thinking patterns and an enhanced ability to solve problems and make decisions. Having increased emotional control will naturally lead to higher access of the executive function.

Team support. Less prevalent, although still significant, was the impact of team support. The perceived support of the direct reports appeared to contribute to some participants' decreased stress levels. Within the operations division, direct reports were seen

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to experience a greater sense of belonging and were therefore experienced by participants as contributing more. Within the finance team, direct reports were experienced as supportive and trustworthy. As Akshay said, he does not feel alone in this space anymore. This was also true for human resources. Some participants experienced direct reports as more supportive and trustworthy in delivering their work to an acceptable standard.

6.5.2   The perceived impact on direct reports

The impact on direct reports as perceived by participants will now be shared. In order to increase the reliability, the impact on direct reports as experienced by them personally will also be shared, as well as the observations of the line managers.

6.5.2.1   *Participants perception: The perceived impact on direct reports*

None of the employees reporting to the participants attended the training intervention. Yet, there was significant reference to changes that participants experienced in their direct reports. Without exception, all participants referred to observing changes in their direct reports. Changes related to the following themes: an affective change, growth and development and team dynamics.

An affective change. Participants experienced a positive change in the general mood of those that reported to them. Words that participants used to describe them were happier, more responsive and as having a sense of belonging. Some statements of participants are shared:

Shanika: *"I just find that people are more; they just want to do more. They feel important and they feel like they are adding value to the team and you are relying on them, that they are making your life easier."*

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Andy: *"So they have also realised, and they said to me: You know what, we're enjoying it, we love what we're doing and you could see there is a lot more pride and ownership in what people are doing, just because they kind of felt they belong…"*

Participants noted that direct reports were demonstrating pro-activeness and commitment, which was in contrast to previous behaviours that where the team members were *"waiting to be told"*. Participants also found it easier to gain the commitment to new ideas as there was less "*push-back*" and new ways of doing things was more readily accepted.

Growth and development. Participants experienced their direct reports as growing significantly in their levels of competence.

Akshay: *"… and they come to me, they come to me for wanting to learn … two weeks ago there was a girl form the trade side, she came to one of the accountants and said: Guys, I have finished the job I want to learn on the Expense side. Can you facilitate this?"*

Direct reports were seen to be taking ownership of their own development by pro-actively asking to be exposed to different facets of the business and they shared their learning's with others. They were experienced as asking more questions, which indicated a need for more information, detail and explanations in order to expand their understanding.

Team dynamics. Direct reports in the operations department are geographically spread and are each responsible for their own particular store and therefore work fairly independently. It would appear that changes in team dynamics were more prevalent in the finance and human resources departments. Individuals within these teams are geographically located in the same area, and therefore have more interaction. Within the finance division the work delivery is highly interdependent, requiring a greater need for team coordination. Some comments were shared by participants of the team dynamics within the finance and human resources divisions:

Human resources*: "...so when we got in they didn't function very well as a team. Now there's much more unity between them and so much so that if someone was on leave previously there would be no one to fill in, or she would say, 'actually hold on, let my work accumulate, I'll do it when I get back'. But now, on this instance in this week someone is on leave and guess what? She's trusted someone else to handle all of her work. So, it's built trust within the team, it's gotten everyone to improve their relationships with each other and my relationships with them."*

Finance*: "People are willing to work late, I don't have to ask them, you know they want to get things done, they want to see things through to the end and before it wasn't like that, 16h30 is 16h30, they go home. Lunch time is lunch time; if you want something done you are going to have to ask people ... so we work better as a team now and people are accountable for what they are doing, and they are taking it more seriously ..."*

Where teams functioned interdependently, there appears to be a change in the dynamics with direct reports demonstrating a greater level of commitment and support towards each other to ensure work delivery. Teams were seen to reach out to one another and invested in their colleagues by sharing their knowledge. With the bigger finance teams there was increased cross-pollination with individuals eager to learn from other departments. Some individuals within human resources held weekly sessions that created the opportunity for sharing of experiences and building a learning community.

Although most teams have open-plan offices, interaction tended to be limited. Participants report increased levels of discussion and interactions, which was demonstrated by people getting off from their chairs and engaging with colleagues. Communication was experienced as being at a different level – difficult conversations in order to address problems, both within the work context and personal were conducted in a constructive

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manner. The nature of conversations was not only limited to work functionality, but also on showing an interest in others beyond the work arena and direct reports enquired about other's social lives, family and important events.

6.5.2.2   Line managers perspective

Operations: The operations manager did not make reference to any changes in the team dynamics.

Finance: One manager made reference to the improved morale.

Specialist role: The manager experienced the team as being more focused.

Human resources: The team was seen to have functioned well in the past and no reference was made to any changes in team dynamics.

6.5.2.3   Direct reports: How we view the impact on us

Direct reports made reference to their relationships with the participants, how they felt, their growth and development and team dynamics. Feedback for the operations and finance divisions are is summarised in Table 6.6:

Table 6.5. *The Impact on Direct Reports*

Operations	Finances
Relationships with the participants	
The relationship with particularly the one participant changed significantly with his team members. The direct report referred to how in the past they would turn their back on him when he was in trouble, whereas they would now "circle" and protect him.	Direct reports shared that they respected the participants, because they always treated others respectfully.
Affective	
	Direct reports experienced greater levels of confidence and independence. They described themselves as being happier and the environment being a happier one as well.
Team dynamics	
The focus on team work led to direct reports knowing each other better. There was more personal interaction and consideration towards each other as well as support.	Energy levels and commitment to be at work increased. One participant described the team as functioning like a "well-oiled machine". The improved morale and commitment was reflected by direct reports taking less sick leave, increased retention of staff and team members generally helping each other.
Growth and development	
Direct reports referred to having more responsibilities and the freedom to make decisions which has supported their growth process. Participants have a better understanding of their business.	Direct reports have increased their knowledge of the business, the company and their work area. They were also encouraged to engage with upper level management.

6.5.3 The perceived impact on colleagues

6.5.3.1 *Participants' experience*

Most participants attended the training interventions with colleagues, although those in specialist roles did not have colleagues attending. The nature of the intervention required of participants to share personal information and insights, which contributed to a greater connection. Many participants report that the dynamic in the relationship with colleagues has changed and that there was a greater sense of connectedness and value placed on relationships.

Notable was the extent to which participants provided their colleagues with support. The interactive discussions held during the intervention increased awareness of colleagues'

challenges and resulted in some participants initiating and presenting their support. Where colleagues were geographically spread, there was a greater sensitivity to ensure that they were not excluded from the team. Having a better understanding of the strengths and skills in the team, led to others pro-actively asking for help from colleagues. The ability to help colleagues also contributed to a sense of feeling good and was also reflected in increased levels of trust between colleagues.

Some participants observed their colleagues making behavioural changes. One colleague was experienced as more open and adding value to the team. This led to other team members actively including him in more activities. Team members were also more cognisant of their interdependencies and were more understanding of each other and therefore also more helpful than in the past.

In general, relationships improved between colleagues that attended the training as they related at a more personal level. Eddie shared the change in interaction with his colleagues:

> *So, I see more people being more friendly now, also I see people, some people that were quiet previously, are now starting to open up and talk to people – previously as well, there is one or two colleagues that used to just come out and be very abrupt. I mean abrupt meaning when they talk to people you can just see you know: yes or no. Kind of that. They are starting to have more conversations with people now...*

The change to more friendly behaviour was not only observed by colleagues, but also the bigger team. In general, colleagues experienced each other as friendlier, displayed a sense of humour and more easily initiated "*passage talk*".

6.5.3.2   Line managers' perspective

Operations manager: The operations manager did not make reference to any changes in the dynamics between participants.

Finance: One manager commented that there was still a need for greater collaboration between managers.

The other manager observed that participants were interacting more and supporting each other. Despite her viewing them as having very different styles, they were seen to be working as one team. They were able to have the difficult conversations and address differences before these differences could lead to conflict. Behavioural changes in one participant was also seen to have influenced the behaviour of his colleagues in a positive manner as he is upbeat with a positive morale.

6.5.4   The perceived impact on the relationship with line managers

6.5.4.1   *Participants experience*

In the human resources department, participants reported that they tended to have good relationships with their managers. In of the other departments, some participants were "*knocking heads*". Two participants specifically referred to their relationships with their managers, which was strained and conflict ridden. For both the relationships changed completely, largely as a result of a change in the defensive patterns of the participants, and an openness to engage with their managers in a different way. This led to increased levels of communication and contributed to an atmosphere of collaboration. Relationships were described as being more productive and focused on findings solutions.

Within another department, the manager was experienced as a "challenge", which is evident in the following script as shared by a participant:

> *... the biggest challenge – that's why we're asking you –moods. Let's consider taking*
>
> *our bosses. Because most of the time when we meet, there is one boss in the middle.*
>
> *And we take instructions and you'll act according to the instructions. You know?*
>
> *And we can't teach him say: Hold on Boss! This situation needs us to change back to*

that mode or to be in control of this and control of that. He won't understand this. And that's where the challenge is.

The statement reflected a misalignment where participants had been exposed new knowledge and gained insights, while their manager had not had the same exposure. It highlights the need for development interventions to be more coordinated. Participants started to change their behaviour in response to their manager, by becoming more "*boisterous*" and expressing how they felt. Participants were more comfortable to challenge this particular manager in a respectful manner. This resulted in the manager also making changes. Whereas in the past he was purely task driven, he would now send motivational quotes in the mornings. It would appear that there were subtle changes in the manner of interaction between the participants and this particular manager. Participants felt more confident to express their views in a non-threatening manner.

6.5.4.2   Line managers perspective

Operations: No reference was made to the relationship between him and the participants.

Finance: One manager mentioned that the improvement in how the participants function had taken a lot of the stress off her.

6.5.5   In summary

The impact of behavioural changes made by participant's after attending the leadership intervention was explored from multiple perspectives. An understanding of the personal benefits, as experienced by participants, provided some insight into possible reinforcers of change. Five themes were identified that related to the positive experiences of participant after making behavioural changes: acknowledgement of the changes by others in the form of feedback, feeling more in control and happier, a greater sense of connectedness as

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relationships have improved, being personally more effective, and having increased support from their team members.

Participants shared that the greatest impact on those reporting to them related to their general sense of happiness, the personal growth direct reports had experienced, and a change in team dynamics where members were more supportive towards one another.

The views of direct reports were also gained to explore how changes impacted on them. Direct reports within the operations division shared that they had better relationships and a greater focus on team work. Within the finance division, direct reports also described themselves as happier, more committed and there was a change in the team dynamics. One finance manager also observed an improvement in morale.

Some participants also experienced improved relationships with their managers. Managers though, did not make reference to this, although one manager experienced less stress because of the improved dynamic within the team.

Participants further shared that relationships with their colleagues improved. Relationships were more personal of nature and more supportive. This view was shared by one finance manager who also observed that the team was working better, although the other finance manager believed there could be greater collaboration.

6.6   IN CLOSING

The findings of this case study provided some understanding of how the acquisition of social cognitive neuroscience knowledge contributed to facilitating behavioural change for leaders. The findings attempted to address four research questions:

1. How does gaining social cognitive neuroscience knowledge contribute to the development of leaders within an organisational setting?

2. Why do leaders change and what is the underlying process that leads to behavioural change?

3. How are leader behaviour changes manifested within the organisational setting based on participants' understanding of the social cognitive neuroscience knowledge gained?

4. What is the perceived impact of behavioural changes on the participant and others?

The findings were presented for each research questions and will be explored further in the discussion chapter.

CHAPTER 7: DISCUSSION, LIMITATIONS, RECOMMENDATIONS AND CONCLUSION

This chapter will further discuss the findings which are reported in chapter 6. In this chapter, the researcher will also address limitations of this empirical research, suggest recommendations for further research, and provide concluding remarks.

7.1   DISCUSSION OF THE REPORTED FINDINGS

Given the lack of available research in the practical application of social cognitive neuroscience within the leadership domain, this study had the following objectives: to gain a better understanding of how gaining social cognitive neuroscience knowledge possibly contributed to the development of leaders; to explore the underlying processes that supports behavioural change; to investigate how leader behaviour changes are manifested within the organisational setting based on participants' understanding of the social cognitive neuroscience knowledge that they acquired; and lastly to determine the perceived impact of behavioural changes on the leader and others.

The findings can be encapsulated in a conceptual framework that provides an understanding of a learning and leader development processes, as illustrated by Figure 7.1by the researcher. The findings that were reported in the previous chapter will be explained by means of this model and also compared to research in the literature.
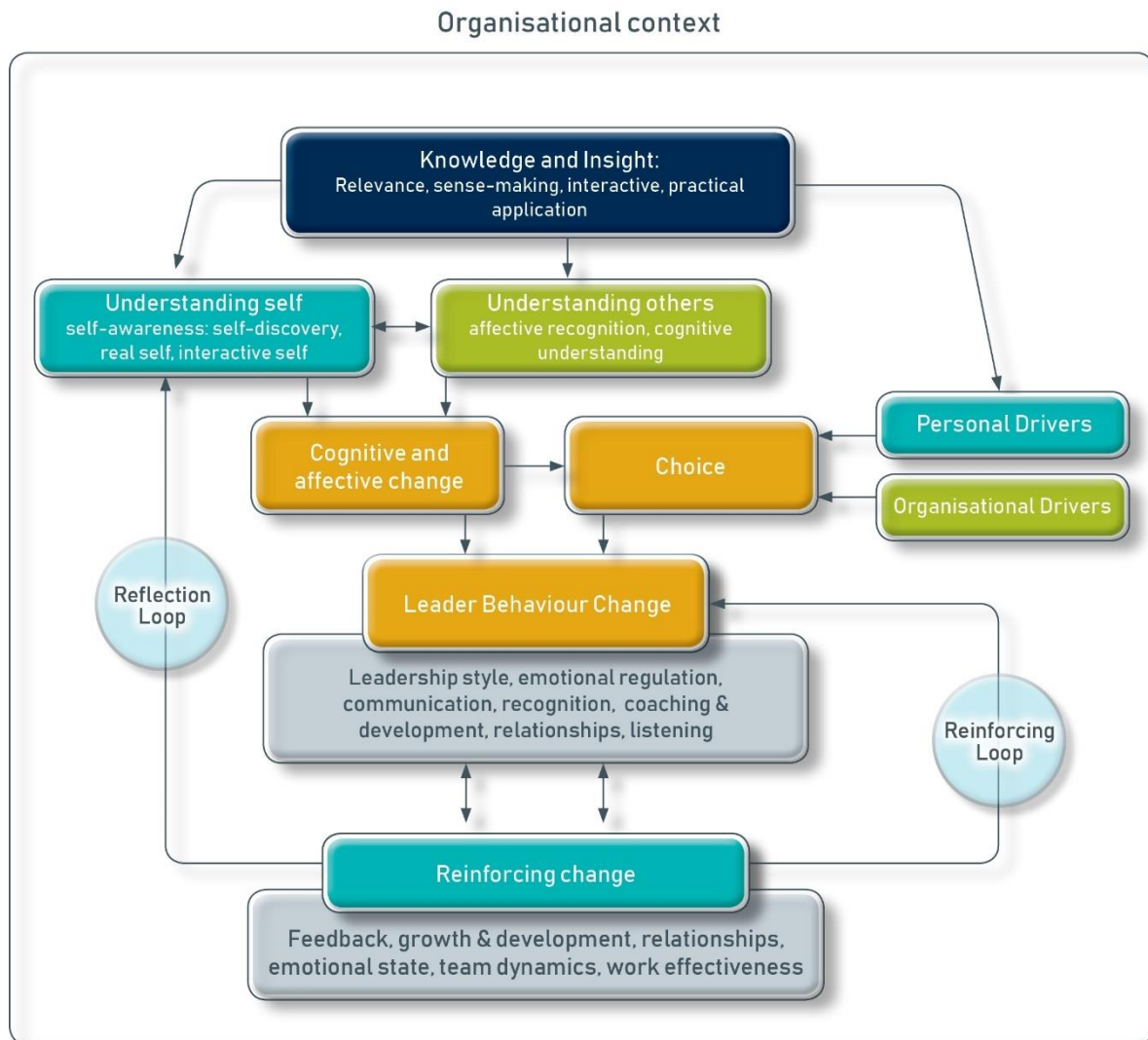
Figure 7.1. A Neuroscientific-based Conceptual Framework for Leader Development and Behavioural Change

7.1.1   Organisational context

The organisational context provides the lens through which the leader views the relevance of knowledge and greatly influences the interpretation and application of knowledge as well as the success of any intervention (van Velsor et al., 2010). While this research yielded some understanding of how social cognitive neuroscience was interpreted and applied by leaders within this particular organisational setting, the uniqueness of every organisation may lead to different interpretations of social cognitive neuroscience. Interpretations may reinforce or affirm a certain way of doing things, may be considered

irrelevant within another context, or could provide new insights and a new way of doing things in still other contexts.

7.1.2   The value for leaders of gaining social cognitive neuroscience knowledge within an organisational setting

Learning for the participants was probably enhanced by being exposed to a new framework that was previously unknown to them, a process of sense-making, the interactive nature of the intervention and the practical relevance and application of knowledge.

The findings greatly support current theory on the learning process, which was described in chapter 4. Exposure to a social cognitive neuroscience was experienced as new, interesting and relevant, which enhanced stimulation and the focus of attention (Posner & Rothbart, 2007; Ratey, 2008).

The process of sense-making required of participants to integrate and interpret the knowledge with personal experiences and interaction. The process of sense-making is also referred to by other authors as meaning making and creation (Zull, 2002), and process of generation and ownership (Davachi et al., 2010) and is seen as integral to the learning process that enables behaviour change (Kandel et.al. 2013; Hendel-Giller et al., 2011)

While most learning theories referred to in the literature review appear to approach learning from a highly individualised perspective, findings in this case study place value on social connection and interaction in the learning process which exposes participants to diverse views and experiences of others, which was experienced as contributing to the learning process.

The lack of an accepted theoretical framework that relates to organisational and behavioural sciences remains a concern. The format that was used by the researcher where reference is made to biological terms may or may not appeal to leaders within an

organisational context. For those leaders who do not prefer biological terms, it does require a simplifying process that could be viewed as following a reductionist approach.

Understanding of the self and increased self-awareness. From the findings, it would appear that gaining this knowledge contributed to better understanding the self and increased self-awareness. Of particular value was an understanding of the reflexive and reflective systems, which directed the attention of participants to their emotive states and cognitive processes, increasing self-awareness. The process of self-awareness is reported to follow a natural progression from acknowledging the blind self, discovery of the self and recognising emotions, acknowledging the real self and understanding the interactive self. Although not defined as a clear process, this framework of self-awareness is supported in literature (Goleman et al., 2002; Goleman, 1995). The need for leaders to have self-awareness is greatly supported in literature (Day & Lance, 2004; van Velsor et al., 2004) and is seen as a pre-requisite to advance development in order to avoid the risk of adapting styles that could be damaging within an organisation (Karp, 2006).

Using the self as an instrument to understand social cognitive neuroscience principles and the experienced personal value of gaining this knowledge supported the learning process, as that which relates to the self is better encoded and remembered (Cozolino & Sprokay, 2006; Franks, 2010; Kandel et al., 2013; Kelley et al., 2002).

The process of self-awareness required time for reflection and maturation of thoughts, which allowed for internalisation of the knowledge (Zull, 2002). Making sense of personal experiences and reflection involves the default network (DFN), which functions best when the mind is in a relaxed state (Lieberman, 2013). Given the organisational culture of this case study, which is described as fast-paced, the opportunity for reflection was unlikely to happen in the work environment. This would suggest that leader development interventions cannot be viewed as 'quick-fix'. Rather, time and patience are required to allow for depth of insight.

Understanding others. When the findings were presented in the previous chapter, the researcher placed emphasis on the dynamic and highly interactive nature between understanding the self and understanding others and holds the view that an understanding of the self and of others cannot be viewed as mutually exclusive. Whereas early theory tended to focus on the leader only, there is increasing recognition in the literature that leadership is based on a relationship between the leaders and those they lead, and there is a need to better understand the complexity of the relationship between leaders and followers and the dynamics that play a role in the relationship building process (Barling, 2014; Bennis, 2007; Karp & Helgø, 2008; Kouzes & Posner, 2007).

From the interviews it appeared that the participants learned more about the interplay between the cognitive and emotional brain systems. This knowledge contributed to their ability to recognise the emotional state of others and to cognitively understand the reason for others' emotions, which influenced their own thought patterns and feelings towards others. This was demonstrated by an openness to different perspectives and acknowledging diversity of others (cognitive change) as well as experiencing empathy (affective change) for others.

The cognitive changes related closely with reappraisal as an emotional regulation strategy, which requires an open mindset. A closed mindset does not allow for the possibility of accessing new or different information but is focused on information that reinforces the existing defensive thought patterns (de Vries, 2006). The need to be open to the intentions and diverse needs of others, plays a critical role in leaders' ability to understand and respond in an empathic or supportive manner, when required (Gutsell & Inzlicht, 2012; Zaki & Ocshner, 2011) as was found in this case study. The nature of the relationship influences the ability to experience empathy (Beckes et al., 2013). The fact that participants are experiencing empathy for others, indicated their ability to better feel others' pain. This could be as result of a better understanding of others and improved relationships.

The ability of leaders to make affective and cognitive changes based on experiences and information is viewed by some as the greatest lever of behavioural change (Karp, 2006), and was also a significant behavioural change reported in this study.

7.1.3 The process that supports behavioural change

The need to gain a better understanding of the personal processes that support learning and behaviour change is supported in the literature (McDermott et al., 2011). Learning and behavioural change cannot be separated, as learning implies the application of knowledge, which results in a change of behaviour (Berkman, 2018; Kandel et al., 2013; Zull, 2002).

Implicit behaviour changes in this study was often the result of changes at cognitive and affective levels, which was supported by an improved understanding self and others, as discussed in the previous section. The view that learning requires a focus on both affective and cognitive processes is supported in literature (Cozolino & Sprokay, 2006; Le Doux, 2000).

Explicit behaviour changes appeared to have been driven by conscious and intentional choice, which was supported by a revised understanding of their roles as leaders as well as a better understanding of how the brain is wired. Increased levels of self-awareness and an improved understanding of others supported the ability to recognise the highly interactive dynamic that existed between leader and direct reports. Increased self-awareness is known to be associated with an increased awareness of how personal behaviour influences others (Karp, 2006).

The freedom to make one's own decisions and having choice has been supported by numerous researches as being linked to the activation of the reward circuitry and supports a sense of control over the environment (Ghadiri et al., 2012; Leotti & Delgado, 2011; Rock, 2009). The sustainability of forced behaviour change is questionable, since a lack of choice

or autonomy has the possibility of evoking the threat circuitry, which will impede learning. Change based on personal insight and which is self-initiated circumvents this threat process (Rock & Schwartz, 2006). Literature also supports the view that, ultimately, ownership of development lies with the learner (Ardichvili et al., 2016; Heslin & Keating, 2017).

Choice appeared to be influenced by a number of drivers as discussed in section 6.3.2 and related to both personal and organisational drivers.

Personal drivers. The motivational drivers predicted the relevance of social cognitive neuroscience knowledge. Social cognitive neuroscience principles were seen to have personal value and relevance, and therefore directed and maintained the attention of participants (Ratey, 2008). The value of personal relevance is supported by Berkman's (2018) thinking that new behaviour is best established by focussing on the self to create behavioural change.

The experience of negative emotion, can lead to the need to take action to avoid the potential negative impact, referred to as avoidance motivation (Elliot, 1999). In addition, emotions are powerful, and have the ability to overrule the cognitive circuitry, providing a strong incentive to change behaviour (Ghadiri, Habermacher, & Peter, 2012).

Organisational drivers. An inherent drive for most individuals is a need to achieve their potential within their profession (Karp, 2006). The knowledge gained was seen to contribute to participants' ability to meet the challenges within their current roles and to lead people and provided the opportunity for testing and application. The process of testing an application is seen as critical in the learning process (Zull, 2002).

7.1.4   Leader behaviour changes

The findings showed a number of behavioural changes (section 6.4) that participants reported, based on their understanding of social cognitive neuroscience. There is a significant correlation between the interpreted behaviour as demonstrated by the participants and the skills required of leaders as suggested by Day and Lance (2004), who suggested that leaders should have skills related to self-awareness, relationship building, team work, communication and developing others. Many of the behavioural changes that participants reported during the interviews related to elements of transformational leadership, and in particular to intellectual stimulation and individualised consideration (Avolio, 2011).

Significant is that the researcher shared social cognitive neuroscience knowledge during the intervention but did not in any way attempt to define traits, behaviours or contingencies that relate to leadership theory as illustrated in Figure 2.2. It would therefore seem that social cognitive neuroscience knowledge supported an understanding of why leadership is required, which was informed by a better understanding of the complexity of behavioural dynamics. It is this understanding that promoted an insight into which traits are ideal, what behaviours are best suited to certain situations as well as the required leadership style.

Emotional regulation. The below-the-line process as depicted in the findings illustrates how increased levels of *self-awareness* contributed to the ability to *regulate emotions* and to change the *emotional experience* for participants so that they could *respond* in a manner that is appropriate to the situation.

Self-awareness was demonstrated by participants labelling their emotions, which is a known emotional regulation strategy. By labelling the emotion, the executive function (ventral lateral prefrontal cortex) is activated leading to less emotional (amygdala) arousal (Tabibnia & Radecki, 2018). Lieberman and colleagues (Lieberman, Eisenberger, Crockett,

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To, Pheiffer, & Way, 2007) refer to this process as affect labelling and view it as the first step in emotional regulation.

Various emotional regulation strategies were applied by participants and related with the model as conceptualised by Gross (1998) - presented in chapter 3. Given the current work environment where further change is imminent, followers are likely to look to leaders for a sense of security and requires of leaders to regulate their emotions. Should leaders demonstrate signs of stress and uncertainty, these are likely to activate the neural pathway that is associated with threat, leading to increased levels of anxiety, inability to focus on the work at hand and the possible misinterpretation of information (Rock & Page, 2009).

Change in leadership style. The leadership style changed from being task focussed with low quality relationships (Barling, 2014) to having a strong relationship focus and collaborative approach. As shared in chapter 3, the nature of the relationship impacts significantly on the neural networks that are activated for both the leader and for others. The lack of a relationships impacts on the level of empathy that one has for others (Beckes et al., 2013) and the ability to feel others pain (Zaki & Oschner, 2012), while creating social pain for those that do not feel understood (Morelli, Torre, & Eisenberger, 2014). Overall, participants changed their leadership style from one that led to avoidance behaviour in others to behaviour that would more likely lead to approach behaviours in others, which could impact positively on problem solving, creativity, memory and relationships (McEwen et al., 2012; Ratey, 2001)

Coaching and development. Coaching and development enables neuroplasticity and is based on the belief that individuals are capable of learning and changing. Neuroplasticity and learning are also highly dependent on the nature of the relationships. Cozolino and Sprokay (2006) referred to the best learning as being "face-to-face, mind-to-mind and heart-to-heart" (2006, p. 12). Learning requires a relationship of trust that focuses on both

cognitive and affective processes. As development of others is done in a facilitative manner, direct reports are encouraged to share their views and ask questions in order to clarify uncertainties. This process creates a state of "safe emergency" as discussed in chapter 3 (Cozolino & Sprokay, 2006), which enhances learning. The investment in others' development demonstrates that others' contributions are valued and is likely to strengthen relationships and also build trust. Participants found the interactive nature of the intervention as important to their learning process. It would therefore make sense that leaders also need to provide their direct reports with the opportunity for interactive engagement in a safe manner.

An inclusive communication style. The change in communication style supported increased levels of engagement. The positive impact of being valued for one's contribution is likely to provide greater access to the executive function, which could enhance a number of higher order cognitive functions like creativity, problem-solving and openness to learning.

Cultivating relationships. From the findings, it appeared that participants gained an understanding of the need to ensure a social connection with others in the workplace and are engaging in activities to cultivate relationships of a more personal nature. The focus on strengthening interpersonal connections and cultivating relationships is central to leadership (Avolio, 2011; Bennis, 2007; Kouzes & Posner, 2010).

Where individuals have little in common, the neural network that is associated with task-focussed or cognitive-based functions is likely to activated (Mitchell et al., 2006). The implication is a task focussed approach with limited empathy for others and a closed mindset, which impacts negatively on supportive behaviour being demonstrated (Gutsell & Inzlicht, 2012). This is likely to lead to teams functioning as silos and team members being focussed on their work delivery with little consideration for others. By creating opportunities for more interpersonal interaction, opportunity is created to discover commonalities and build on similarities, which strengthens the relationship. A focus on building the interpersonal

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connection and conveying a sense of understanding of others, is likely to activate the reward circuitry (Morelli et al., 2014) resulting in increased levels of interaction (Izuma et al., 2008; Wake & Izuma, 2017).

Trust – active listening. Findings illustrated that participants were investing time to actively listen to others and gain a better understanding of others' experiences and emotions so that they could be more supportive. The ability to better understand what team members are feeling is critical for leaders in order to provide team members with the necessary support (Waldman et al., 2011). Being more attuned to the emotions and needs of others increases trust and the ability to access higher order cognitive thinking, which allows for broader attention span, openness to change and creative thinking (Boyatzis, et al., 2012). Trust is associated with the release of the neurotransmitter oxytocin and known to increase levels of engagement, the verbalisation of thoughts and feelings, and team work (Zak, 2018).

Different perspectives. The comparison provided in Table 6.5 indicates to what extent behaviour changes made by the participants are evident to their managers and direct reports.

Significant is the difference of direct reports within the operations and finance divisions. Direct reports within the operations divisions consistently mentioned a number of behavioural differences, while the direct reports within the finance division did not indicate that there were any noteworthy behavioural differences. The extent, to which participants are viewed to have demonstrated certain behaviours prior to the intervention, could have played a role. Managers within the finance division are viewed as having always demonstrated the identified behaviours and therefore no significant behavioural changes were noted. However, the finance managers mentioned that they had gained and experienced significant value and learning from the intervention as they had personal feelings of uncertainty, tension and even confusion that was addressed during the intervention. Direct reports are unlikely to be aware

of this. Insights they had gained during the intervention was reported by them as enhancing their current leadership style. Direct reports in the operations division observed significant changes in behaviour, because the behaviours were not previously part of the leadership style. This raises the question of how leader development interventions are measured and highlights the perceived internal value that may be experienced by a person.

7.1.5   The reinforcing process: Impact on self and others

The findings in section 6.5 reported participants' perception of how behaviour changes had impacted on them personally, as well as on those that report to them, the team dynamics and their relationships with colleagues and their line managers.

7.1.5.1   Participants' experience

As shared in chapter 3, experiencing positive results is likely to activate the reward circuitry and is associated with the release of the neurotransmitter dopamine, and therefore plays a key role in reinforcing learning (Bossons, Riddel, & Sartain, 2015; Lieberman, 2013; Ratey, 2001). Reinforcers of behavioural change were shared in section 6.5.1 and will be further discussed. Reinforcers that were identified were feedback, their emotional state, increased social connection, improved work effectiveness and the support of team members.

Feedback. Receiving personal positive feedback has the potential for evoking feelings of pleasure and happiness (Dixon, Rock, & Ochsner, 2010). Where feedback is unexpected, the neurotransmitter dopamine is also likely to be released (Zak, 2018). As mentioned, dopamine plays an important role in motivation and the need to repeat certain experiences and supports reinforcement learning. Unexpected positive feedback is therefore likely to elicit a strong positive emotional response. The value that is placed on feedback also highlights the social nature of how the brain is wired and the role feedback plays in learning process.

Affective. A lack of control is likely to lead to increased amygdala activity and decreased access to the PFC leading to the inability to access rational, objective thought, and resulting in behaviour that is focused on survival. The level of stress is often associated with the perception of control (Cohen 2002; Medina 2008; Oosthuizen & van Lill, 2008). The need for emotional regulation strategies to enhance a sense of control plays a direct role in the affective state of a leader.

Increased social connection. The support of relationships impacts significantly on a sense of belonging, self-esteem, self-efficacy, mood, and control (Tabibnia & Radecki, 2018). When there is a lack of social support, it may have a significant negative impact, increasing amygdala activity and leading to increased levels of stress and anxiety (Tabibinia & Radecki, 2018).

Work effectiveness. A greater sense of control is likely to impact on those activities that require access to the executive function. The PFC is strongly linked with higher order cognitive functions; amongst others the ability to maintain goal directed behaviour, memory, decision making, planning, and prioritising (Carter, 2010; Cozolino, 2010; Fuster, 2001; Ratey, 2001).

Team support. The relationship between the leader and team members is highly dynamic and interactive as illustrated in Figure 6.2. The mood of direct reports can have an impact on the leader (Tee et al., 2013). It would appear there are greater levels of trust both from the participant to team members and amongst team members.

7.1.5.2   *The view reflected by direct reports*

Gaining a better understanding of the impact that changes had on others, also provided some indication of the value or worth of leadership. The impact of behavioural changes made by the participants on those reporting to them was reported and summarised in Table 6.6.

The behavioural changes that were implemented by participants strongly support the development of high-quality relationships and encourage a collaborative approach where ideas and thoughts are encouraged and shared. High quality relationships are typically seen to be based on trust and understanding, support, information sharing, involvement in decision making and the encouragement of autonomy (Barling, 2014). A collaborative approach encourages greater levels of interaction by both the leader and direct reports to generate ideas and address challenges (de Vries, 2001). The change in leadership style is reported to have had a positive impact on direct reports and, in particular, on improving relationships with the participants, positive feelings, personal growth and development and improved team dynamics.

7.1.6 Change reinforcers

The experience of positive results was seen by the researcher as change reinforcers. Having a better understanding of change reinforcers, can enable organisations to provide the necessary support to ensure the success of leader development interventions. Based on the information as shared by participants, direct reports and line managers of their personal experiences, reinforcers appear to relate to six key themes (see Addendum L): emotional state, valuing contribution, growth and development, being socially connected, an environment of safety and trust, and access to the executive function.

Reinforcing and reflection loops. A limitation of this study was the lack of support for leaders that could enhance the learning process. As highlighted in section 6.4.1, the learning path can be viewed as rocky and is often filled with doubt and uncertainty for the leader. Risking a new way of doing things, exposes one to possible failure. As reported by some direct reports, leaders also fall back in their old habits during times of pressure. It is for this reason that there is a need to provide support for leaders during and after learning interventions where they have the opportunity to further reflect on their leadership style and

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the envisaged outcomes with the support of a coach (Conger, 2010; Van Velsor et al., 2010). This is referred to as the reflection loop in Figure 6.1.

Reinforcing loops (see Figure 7.1) can be viewed as supporting change or learning that can lead to positive results. In this case study, little support was provided to participants beyond the intervention and there was a need expressed by participants for more feedback. Line managers can play a key role in the reinnforcing loop by providing or facilitating feedback and continued support in the learning process (Graham & Robinson, 2002; Van Velsor et al., 2010; Yukl, 2009)

7.2   THE CONTRIBUTION OF THIS RESEARCH

This case study confirms theories relating to the learning process and also builds on a better understanding of the learning and leader development process by suggesting a framework. An improved understanding of the learning and leader development process enables a more coordinated and structured approach to ensure the best outcome for leader development interventions.

In addition, this research provides insight into the value of the social cognitive neuroscience framework within the context of leader development. From the findings it would appear that social cognitive neuroscience provides an alternative lens through which leaders can gain a better understanding of the complexity of human behaviour of both the self and others. Social cognitive neuroscience knowledge supports a process of sense-making and application rather than the enforcement of a prescriptive model. It is this interpretive insight and understanding that empowers leaders to have a better understanding of their role and influence and supports the ability to make behavioural changes and address challenges.

This research also attempted to uncover social cognitive neuroscience principles that may help leaders to develop an understanding of the leadership environment. A framework

for change reinforcers is suggested, which provides leaders with an understanding of which principles and leader behaviours could help to improve behaviours and interactions with others in an organisational context.

Furthermore, this research provides some insight into change management practices. The very personal nature of internal drivers for change and the need for choice, as was discussed in section 6.3.2, suggests a need for greater alignment between organisational profit drivers and the internal motivational drivers of leaders.

7.3   LIMITATIONS

A limitation of this study relates to the lack of more access to the participants in order to further explore and challenge their reports. A session was conducted with participants to validate the results, but this was attended only by representatives of one division. Although the study spanned over seven months, and some interviews with line managers and participants were conducted 14 months after the intervention, the opportunity to expand the study over a longer period would provide insight into the sustainability of changes as well as further possible insights.

A limitation for the researcher was that she was the key role-player in the design, facilitation, data collection and analysis processes. Although measures were taken to limit bias, the subjective nature of qualitative research cannot be denied. Being the facilitator also limited the opportunity for making field notes, as attention was focussed on the audience. Having an external observer may have provided additional information, objectivity and new insights.

As the field of neuroscience and the application thereof within the organisational domain is not established, the researcher is cautious to infer a causal relationship between

gaining the knowledge and behavioural changes. The focus was rather on understanding how this knowledge could possibly guide leaders in their thinking and resulting behaviour.

A further limitation relates to the sample that was utilised to validate findings, with reference to the direct report and line managers. Although the information gained from the sources are invaluable, they cannot be seen as representative. The researcher acknowledges the limitation of being a consultant independent to the organisation and therefore dependent on the gate-keepers to provide access to sources of information.

Finally, the findings and discussions that are reported are relevant to this particular case study which was set within a particular organisational setting. It cannot be assumed that the findings are applicable to another organisation with a different culture, as interpretation of a social cognitive neuroscience may have a different value and emphasis.

7.4 RECOMMENDATIONS

7.4.1 Organisational recommendations

The need for a coordinated approach to leader development is highlighted by this study. Where leaders are exposed to certain principles, which their line managers are unaware of, line managers are unable to support the learning process. The role of line managers is critical in the reinforcing and reflective loops (see Figure 7.1). Should leaders in an organisation share a common framework for understanding their role and identity as leaders, an enhanced understanding of the dynamics that shape relationships and continued support, coaching and feedback, could contribute to embedding a culture of collective learning.

Critical to leader development is insight into the self and increased levels of self-awareness. Increased levels of self-awareness contribute greatly to understanding others as well. It would therefore make sense that leader development interventions should make self-

awareness and insight the cornerstone of leader development. An increased understanding of the self supports and enhances an improved understanding of others. By affecting changes in how leaders think and feel, less effortful behaviour changes are made. Learning and the resulting behaviour change cannot be an enforced and is highly dependent on creating insight for the leader of how current behaviours are impacting on others, as well as the experience of personal growth. By creating increased self-awareness and understanding of others, the access to knowledge and resources and choice combined provide a powerful foundation that supports the learning process and resulting behaviour change.

7.4.2   Research recommendations

Evident from this case study is the role that the organisational culture plays in a leader development intervention. The researcher is cognisant of the fact that research in other environments may lead to different result and interpretations. It is recommended that more empirical research be done to enable more leaders to be exposed to social cognitive neuroscience. As a behavioural practitioner within the sphere of consulting psychology it presents the challenge of better integrating social cognitive neuroscience with that of consulting psychology. It highlights the needs for a greater interactive approach between disciplines. Additional research findings could provide a greater platform from which deductions may be made, and a language and models can be formalised that are meaningful to leaders within an organisational setting.

7.5   CONCLUSION

This section provides the conclusion of the specific research objectives as stated in Chapter 1. A brief summary is provided of both the literature and the empirical aims.

7.5.1   The general research aim of this study

The general aim of this research was to qualitatively explore the value of gaining social cognitive neuroscience knowledge in facilitating behaviour change by exposing leaders to a leader development intervention. The findings of this research support the view that social cognitive neuroscience provides new insight into understanding the self and others, which facilitates behaviour change at both implicit and explicit levels. An enhanced understanding of the self and others leads to cognitive and affective changes for participants, which leads to behaviour changes at an implicit level. Their revised understanding also challenges participants on how they view their role as leaders, leading to a conscious choice to make changes in the way they lead others.

7.5.2   Specific literature aims

This research set out to explore the evolvement of leadership theories, to review social cognitive neuroscience research findings that are relevant to the field of leadership, and lastly to review trends in leader development programmes.

7.5.2.1   *The evolvement of leadership theories*

The literature study aimed to explore the evolvement of leadership theories. From the literature study it is clear that although there are commonalties' in the understanding of leadership as a concept, there is also no single agreed upon definition. The environment in which leadership is set has evolved and changed significantly over the past decades. This is also reflected in the evolvement of leadership theories which focussed on personality, behaviour, situations, relationships and collaboration and now also biology. Views on the true value of leadership were researched as well as possible elements that play a role in leadership. From the literature study it would appear a universal theory of leadership may be restrictive and would not do justice to the diversity of people, the complexity of relationships and organisational cultures as well as the dynamic setting in which they function.

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7.5.2.2   *Social cognitive neuroscience set within the field of leadership*

The aim of this literature study was to explore neuroscience findings that may have relevance for leaders within the context of a social cognitive framework. This related to neuroscience findings that are associated with self-awareness, emotional regulation, insight into others and findings that have relevance at interactive level.

Neuroscience research findings make use of technology to gain a better understanding of neural structures and processes. The application and understanding of social cognitive neuroscience findings for leaders within an organisational setting is limited. There are some attempts at conceptualising findings in a framework or model that relates to organisational and behavioural sciences. The application of the social cognitive neuroscience findings within the leadership domain can be viewed as being in a development phase.

7.5.2.3   *Trends in leader development programmes*

The aim was to gain an understanding of leader development and the current focus and trends within this domain. From the literature review it is clear that development is a life-long journey where various interventions and experiences contribute to learning. Leader development tends to focus on three levels: leading oneself, leading others and leading the organisation and relates to different skills that are dependent on the organisational context and culture.

Various platforms are used for leader development and the need for support in the learning process is highlighted. While there may be various views on the format and structure of development programmes, there is also the awareness that development and ownership of development lies with the leader. A common understanding of the personal learning journey of leaders appears to be an area that requires further exploration and research. There are some theoretical models that describe the learning process. While there

are attempts to measure the success of leader development interventions, it is also clear that this is problematic as the measurable outcomes are influenced by a number of dynamics.

7.5.3   Specific empirical aims

The specific empirical aims were four-fold and will be addressed individually.

Aim 1: To gain an understanding of how gaining social cognitive neuroscience knowledge contributes to the development of leaders within an organisational setting? Gaining social cognitive neuroscience knowledge contributed to leaders having an improved understanding of themselves as well as others. An understanding of social cognitive neuroscience facilitated a process of self-awareness that entailed an acknowledgement of emotions and the exploration of the underlying reasons for certain behaviours being exhibited and emotions being experienced which lead to an improved understanding of the self. Self-awareness also expanded to gaining an understanding of the personal impact one has on others, which can be described as the interactive self.

Having a better understanding of social cognitive neuroscience facilitated increased awareness and understanding of the self, which also provided a frame of reference for understanding others. Participants were able to recognise the emotions of others and cognitively better understand the motives which supported their actions. It is this enhanced understanding of others which led to cognitive and affective changes in participants. Cognitively, participants demonstrated an increased openness to different perspectives and views and were also able to acknowledge the diversity and uniqueness of others. It was often this ability to remain open to different interpretations and views which led to new information and a revised understanding of others' actions and supported greater levels of empathy and supportive behaviour. Cognitive and affective change therefore greatly supported less effortful behaviour change, which is often at an implicit level. A more comprehensive understanding of the neural networks and understanding of self and others

contributed greatly to participants' levels of confidence in their ability to consciously influence and change their behaviour.

Aim 2: Explore the underlying process that leads to behavioural change. An improved understanding of the interaction between the executive and emotional brain systems led to increased self-awareness as well as insight into how certain behaviours and emotions were impacting negatively on others. Having an improved understanding of the workings of the mind led to increased levels of confidence and a conscious decision by participants to make behavioural changes. The conscious decision to implement changes was supported by both personal and organisational drivers for change. Personal drivers that supported the decision to make behavioural changes was the perceived personal value that participants gained from social cognitive neuroscience, their current emotional state, and the need to apply and test new knowledge. Organisational drivers for changes related to challenges inherent to the role and to managing and leading people.

Aim 3: Gain an understanding of how leader behaviour changes are manifested within the organisational setting, based on participants understanding of social cognitive neuroscience knowledge gained. The understanding of social cognitive neuroscience appears to support a leadership style that is strongly focussed on high quality relationships and encourages a collaborative approach where ideas are shared. Participants demonstrated a change in their leadership style, which led to further changes in behaviour that were strongly linked with their understanding and interpretation of social cognitive neuroscience. Behaviours were focussed on minimising a threat response in others and engendering reward responses that would lead to approach behaviours. Behaviours that were implemented were emotional regulation strategies to ensure cognitive and emotional control, a focus on coaching and development which enabled neuroplasiticty for others, an inclusive communication style, and recognition strategies which demonstrated an appreciation for the

contribution of others, were focused on cultivating relationships, which supported the need for social connection, and establishing trust to ensure a safe and supportive environment.

Aim 4: Determine what the perceived impact of behavioural changes is on the leader and others. The study further aimed to explore how possible behavioural changes impacted on participants, their direct reports, colleagues and managers. From the findings, it appears that there are differences in what line managers experienced, and greater levels of consistency in how participants, colleagues and direct reports experienced the impact on them.

The positive impact of changes can be viewed as reinforcers of change that hold neural value for participants and are experienced as being rewarding. Participants received positive feedback from others, which reinforced a sense of being valued for their contribution. Their emotional state reflected a sense of calmness and being in control. Relationships with colleagues, line mangers and colleagues improved and participants' general network expanded, which reflects a need to be socially connected. Participants were more effective in their roles. Their increased effectiveness could be attributed to greater access of the executive function. There was also a positive impact on team dynamics.

The impact on direct reports, as shared by them, was also congruent with what participants shared. This related to a change in emotional state, which reflected a greater level of happiness and confidence, improved relationships, growth and development both personally and professionally and a change in team dynamics, reflecting a greater level of support and commitment within the teams.

7.6   CHAPTER SUMMARY

This chapter provided further illumination on the findings that were shared in chapter 6. The possible contribution of this research was shared as well as the limitations in the

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research design. Recommendations were made for organisations and suggested further

research. Concluding remarks covered the general research aim, specific literature aims, and

empirical research aims.

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ADDENDUM A: BRAIN STRUCTURES

The brain has an extensive network of structures that are highly connected with each other. Neuroscience literature relating to leadership, make the most reference to two structures, namely the forebrain and limbic system. It is therefore on these two structures more information is provided.

Executive function:

Prefrontal cortex (PFC): Much researched, the prefrontal cortex (PFC) is the most evolved part of the brain which is only fully developed in our late twenties. Distinguishing human beings from any other species, we have the largest and most fully developed frontal lobes (Ratey, 2001). It is also the part of the brain that is highly sensitive and requires favourable conditions to functions optimally. Elements that have been known to influence the effective functioning of the PFC, are sleep, exercise, cognitive load, stress (Rock et al., 2012; McEwen, 2000; McEwen, 2007).

The PFC is often referred to as the executive function because of the particular role it plays in guiding our attention; inhibiting behaviours, thought and emotions; conceptual thinking; goal directed behaviour; memory; decision making; planning; insight; learning and understanding other's thinking (Ratey, 2001; Carter, 2010; Cozolino, 2010; Fuster, 2001).

In essence, the PFC is primarily responsible for three core cognitive functions: (a) inhibition and interference control, (b) working memory and (c) cognitive flexibility or task-switching (Diamond, 2013; Hofmann et al., 2012).

Of all the brain structures, the PFC is last to develop and continues to develop throughout life (Cozolino 2010), but is also the first part of the brain to deteriorate in old age. It is highly interconnected with the other brain regions (Fuster, 2001).

The PFC can further be divided into four regions: the orbital, medial, dorsal and lateral regions (Cozolino 2010). The various regions and functions will be briefly described:

The *orbital frontal cortex* refers to the front region of the PFC. This structure is largely involved in emotional experiences, goal alignment, and regulation of emotions (Fishbane, 2007; Fuster, 2001; Ochsner & Gross, 2005). It plays a role in the appraisal of emotional meaning of stimuli and directs responses (Ochsner & Gross, 2005). It has the ability to reduce activity in the amygdala. Damage to this part of the brain influences the ability to make sound decisions, apply, self-control and emotional appropriateness.

The *medial prefrontal cortex* refers to the middle region of the PFC and is a structure unique to human beings. Activation is strongly linked with self-referencing activities as well as when an individual thinks about others, their traits and internal states (Zaki & Ochsner, 2011; Adolphs, 2009; Ma et al., 2014).

The *dorsal prefrontal cortex* plays a key role in regulating and directing our attention, thinking and behaviour (Brann, 2015).

The *ventromedial prefrontal* cortex plays a key role in processing rewards and punishments as well as in the regulation of emotions (Adolphs, 2009). Damage to this part could have a negative impact on relationships as there is an inability to respond appropriately to emotions and emotional memories (Ratey, 2001; Adolphs, 2009).

The *lateral prefrontal cortex* refers to the back and lateral sides of the frontal cortex and is critical in coordinating and directing behaviour, speech, reasoning and planning (Fuster, 2001). The dorsolateral prefrontal cortex is largely responsible for memory, planning and abstract thinking and also plays a role in motor behaviour. The ventrolateral frontal cortex, refers to the front and lateral to the side of the PFC. This structure is also known as the braking system

because it inhibits inappropriate behavioural responses, and it also an area involved in flexibility and the ability to calculate alternative strategies. It enables emotions to be activated that guide our decision-making process (Ratey,2001), a process that is known as the risk-benefit analysis (Brann, 2015).

Limbic system

The limbic system consists of the following structures: amygdala, anterior cingulated cortex, insula, hypothalamus, hippocampus.

Amygdala: The amygdale responds to emotional stimuli and influences neural systems that are central to social and cognitive behaviours (Phelps, 2006). As it is strongly linked with emotion and motivation, it has been called the emotional centre of the brain. Ever active, the amygdala scans the environment continuously, attributing emotional meaning to information and stimuli, be they positive or negative (Ochsner & Gross, 2005). This processing is most often done at a subconscious level and relies on implicit memory of past experiences ((Ratey, 2001). Direct or indirect threats, irrespective of whether they are physical or psychological, result in a strong response from the amygdala (Kverega et al., 2015). It also plays a key role in recognition of facial expressions, particularly in differentiating friend from foe (Adolphs, 2009; Carter & Pelphrey, 2008).

The amygdala's sensitivity to threat or fearful situations, plays a pivotal role in the acquisition, storage, and expression of fear memory (LeDoux, 2000; Bossons et al., 2015; Phelps, 2006). When aroused, the amygdala tends to err on the side of pessimism, leading to possible inaccurate assessments and generalisations (Rock & Page 2009). As it has a network of connections with various brain structures, the amygdala activates the other centres of the brain as well as the hormone system (Phelps, 2006). The hormone system ensures that cortisol is

released, providing the necessary energy to either approach, fight, flee or submit (Rock & Page 2009; Carter,2009) in a threatening situation.

Hippocampus: Shaped in the form of seahorse, hence the Latin equivalent name, the hippocampus is primarily involved in the consolidation of short and long term memory (Brann, 2015; Bossons et al., 2015)

Anterior cingulate cortex: The anterior cingulate cortex (ACC) is a neural structure that mammals have, but that reptiles do not have (Lieberman, 2013).   The ACC is primarily involved in the detection of errors, monitoring of conflict and self-correction (Brann, 2015; Lieberman, 2013).   Where a problem is identified, it sounds the alarm, alerting the brain to discrepancies in expectations and reality.   Having widespread connections within the brain, other regions in the brain are then recruited to ensure focussed attention (Siegel, 2011; Ratey; 2001) and to direct and motivate behaviour (Bossons et al., 2015; Adolphs, 2009).

Various studies have also linked the ACC with sensory events, in particular with the perception, the experience of physical and social pain and the regulation of pain (Tabibnia & Lieberman, 2007).

Insula: The insula plays a role in the experience of one's emotions and the empathic feeling of others' emotions (Adolphs, 2009). As such it influences pain, socio-emotional processing and higher cognitive functions. It is involved in socio emotional processes like responsiveness, recognition of facial expression, mood as well as cognitive functions like multitasking or inhibition of impulses and responses. (Bossons et al., 2015).   The anterior insula has a strong connection with the bodily state and the experience of pain (Zaki & Ochsner, 2011) as well as negative experiences (Tabibnia & Lieberman, 2007).

Hypothalamus: The hypothalamus is responsible for various sensory and movement functions and links the nervous system with the endocrine system. It plays an important role in regulating hunger, thirst, fatigue and sleep. It is also involved in emotional responses (Brann, 2015) and attention control (Bossons et al., 2015).

Nucleus accumbens: Often referred to as the reward centre of the brain, the nucleus accumbens consists of two key structures: the ventral striatum and basal ganglia.

The *Basal Ganglia* is composed of a group of nuclei at the base of the forebrain and it is connected with both cognitive and emotional functions and in particular in identifying patterns (Brann, 2015. As such it plays a fundamental role in forming of habits, reward reinforcement and behavioural decisions (Bossons et al., 2015).

The *ventral striatum* is closely linked with pleasure, motivation, reinforcement learning, fear, addiction, and the placebo affect (Brann, 2015). It is also activated by novelty and the unexpected. The ventral striatum is central to learning which stimuli predicts reward and therefore which actions to repeat (Lieberman, 2013; Bossons et al., 2015), increasing our motivation to act (Bossons et al., 2015). The ventral striatum has strong links with the neurotransmitter, dopamine.

Other structures

Mirror neurons: the term 'mirror neurons' refer to neurons in the brain that have the ability imitate the behaviour of others (Goleman & Boyatzis, 2008). Mirror neurons play a key role in the ability to demonstrate empathy, mind-read and language (Lieberman, 2013).   They are linked to both positive (happy emotions) and negative (anger, fear, disgust, sadness) affect (Boyatzis et al., 2012).

Superior temporal sulcus: The superior temporal sulcus (STS) plays a key role in the processing of natural movement (Carter & Pelphrey, 2008) especially those movements that are linked with a goal orient

ADDENDUM B: INTERVIEW QUESTIONS POSED TO PARTICIPANTS

The following questions were asked to participants:

1. Reflecting on the 5month journey, of what value has gaining more knowledge on the brain specifically been to you?

Referring to the two respective modules the following was asked:

2. What did you find most insightful about this module? Why? How has this helped you?

3. How are you applying this (personally / team)? Can you give examples?

4. Can you think of a situation where you know you are responding differently?

5. What has the impact/result been on yourself and others?

In closing:

6. Thinking of your own journey, why did you make behavioural changes?

7. What changes have you observed in colleagues / others?

8. Overall, what did / did not work for you?

ADDENDUM C: COMMENTS RELATING TO THE VALUE OF GAINING NEUROSCIENCE KNOWLEDGE

The value of gaining neuroscience knowledge	
Andy	"But helps me to put it into perspective, and, and, and understanding which part of the brain that **emotion** is coming from, and why, it's coming from there and helps to put things in perspective..."
Barry	"…it showed you the other **triggers** around your brain function, how your brain functions, and for me that was I think, the key, to understanding what triggers of your different behaviours, your different styles, the way you, you know, how you get cross, or what **emotions** you showed, so from that point of view you know, that's what … So how relevant is that for leaders to know? I think very. Very relevant!"
William	"I think where the "penny dropped" is when we were discussing emotions. And you were telling us, you know, how we can **control our emotions** and hm, how we … how we can switch, you know from your PFC – how we can switch from the PFC to the Amygdale. And that's for me where the penny dropped..."
Brenda	"Understanding the nut *(amygdala)* and why we would behave the way we do and how we could actually, you know, if you are not emotionally intelligent, how you could actually **just act like you feel** – you don't think about it. And then the PFC part is that you put the **executive** in charge you know, you know, you have to control what you're thinking and not just act on what you are feeling. And I think that is very important, because a lot of times you just, and it is also assumptions. Sometimes you act on an assumption and it is not even true.."
Dave	"It makes understand that you've got these conflicting areas of your head that are kind of working against each other in a way and to understand that in order to suppress the one you need to stimulate the other, whether it be through some stress relieving activities that we spoke about or something like that. To understand that you are going to **feel emotion** and it's about how do we deal with that emotion by stimulating another part of the brain."
Cathy	"So I think for me, the first thing I would say for myself, it was being **more aware of myself,** and being more aware of things that **might trigger** me and then understanding

	my responses to that. And for me being able to be aware like that, I could anticipate things going to happen; I could change my response to it, to be more appropriate."
Charles	"Understanding what the PFC is and the functionality thereof is for me significant, for as I never knew it, that **it controls my stuff, my brain**, or most of what happens with my brain. And those are aspects like the amygdala, and both the positive and negative effect that it might potentially have you know, on one's behaviour and one's perceived behaviour by others, so … yeah … it was phenomenal for me."
Danny	"… it helps a great deal in terms of also understanding **the way you behave**. Why you behave the way you behave. And then you now know I am no longer operating from "rational", I'm emotional, or I'm operating from my past and then ja…"
Sarah	*"*I think it's the understanding of how your brain works, that you actually – you become aware. I became aware that **I have a choice**, so every time I get in a stressful situation, I don't have to sort of stay in that stressful situation with the **amygdala part of your brain** I can actually re-route it and as soon as I've done that, you know, understand how your PFC works, that's actually where you need to stay .."
Jenny	"It's more about being aware and being conscious of the fact that you **are wired to respond a certain way an**d not to be alarmed by it. You know, that like you mentioned and you spoke to us about it in a sense that we're human beings and we are naturally negative by nature. And sometimes those responses are the first thing that come up but it's okay. Instead of responding to it, absorb, understand and you can just deal with it differently. And I think that for me was one of the biggest leanings' in that, is to, you know you've just got to know yourself better – not just your personality but rather how you're wired as a human being. And also it helps you understand others better."
Joe	"So for me the biggest thing probably would be: it relates to me being able to be **aware of my own emotions**, you know, we go through today and we're constantly dealing with different people, not realising that your own emotions, sometimes can have such a massive impact on other people. So being more aware of my emotions, has been a massive revelation."

ADDENDUM D: STATEMENTS REFLECTING ACKNOWLEDGEMENT OF THE REAL SELF

Participant	Statements demonstrating acknowledgement of the real self
Andy	"I'm a very – not loud, but I'm a very outspoken person you know?"
William	"I'm a bit rough sometimes."
John	"I'm not the type of person that would say we are here to negotiate or work on a problem..."
Nadia	"I know I react certain ways and I'm very short-tempered, exceptionally short-tempered, it is not a good thing you know."
Akshay	"I don't want to displease somebody."
Eddie	"I'm the kind of person that bottle up a lot of my feelings, and then what I've behaviour was – towards a latter part, it actually works against me as opposed to working for me."
Shanika	"...because I am somebody who is very, I can be a bit hot-headed especially when I'm passionate about something, and generally I just react."
Cathy	"I have those certain things, that criticism I don't take well always…"
Charles	"when people make me stress, or situations get me stressful, I go into isolation, hmm, I distance myself from the world you know…"
Danny	"I'm slow…. I want to analyse, I want to conceptualise, I want to weigh the risk at all angles, and I want to buy in, and I want to engage..."
Sarah	"Cause like I don't have very good like self-esteem – and I know that."

ADDENDUM E: STATEMENTS RELATING TO CHOICE

Participant	Statement relating to choice
Andy	"I had to make the decision: how am I going to make a difference here, you know?"
William	"… at the end of the day, it's not what you go and learn, it's a choice you make. Hmm, you feel if you make a choice in life to say I'm gonna check this, do or die – I'm gonna see where it takes me."
Nadia	".. you can change your reaction to situations, I wanted to see if that was possible.."
Brenda	"… I can do something about it…"
Akshay	"So I wanted to – because anything you must want to …"
Eddie	"And I wanted to understand, to understand what am I doing to myself, how is it effecting, and is that having an effect on other people…"
Cathy	"… how can I, what can I do to ensure that they *(managers reporting to her)* do better?"
Charles	"You decide what is relevant to you and how want to go to work around that and it takes commitment you know?"
Danny	"So that is one thing that I took, I say I will not operate from the nut. Sometimes, it's awkward, but it's taking ownership." "
Jenny	"It's a conscious effort to change your behaviour; it's a conscious effort to understand what it really means and what impact it has on you."
Sarah	"I became aware that I have a choice…"

	Personal drivers			Organisational drivers		
	Choice	Personal benefit	Affective	Novelty	People	Role
Andy	X	X		X	X	X
Barry	X					
William	X			X	X	
John		X		X	X	
Nadia		X			X	
Brenda		X		X		X
Dave		X	X	X	X	X
Akshay	X	X	X	X	X	X
Eddie	X	X		X		X
Shanika		X	X	X	X	X
Cathy	X	X		X	X	X
Charles	X	X			X	X
Danny	X	X			X	X
Sarah	X	X	X		X	X
Jenny	X	X	X		X	X
Joe			X		X	X

ADDENDUM G: STATEMENTS OF PARTICIPANTS REFLECTING THE PERSONAL VALUE

	Personal value
Andy	"This whole course was not about what I can for people, it's about what I can do for myself…"
John	"…working with how I look at myself am I approachable or how I handle things in different scenarios and how you deal with different people with different views when it comes to stressful situations…"
Nadia	"…it was around understanding what made me blind with rage…"
Brenda	"… the course is very personal, and it is very self-knowledge you know. Very focussed on how I can better myself..." "I changed my trips twice, I came on my leave days, because this was not for anybody but me as a person."
Dave	"… this is something that is of interest to me, so this whole EQ thing is of interest to me…"
Akshay	"For me the more important is the take-aways and the output from that. So like example positive, being positive, and that is contagious kind of thing…"
Eddie	"… it is for understanding myself..." "I want to be different, I want to be better"
Shanika	"… in my personal life I tried it on or two times and then it's like, it's actually making a difference, we're are actually changing the entire evening…"
Cathy	"..because it was so personal from the beginning, we were focusing on ourselves first …"
Sarah	"I felt like the course was for me…. you could think about yourself and how you're going to change..."
Jenny	"Because once you start consciously thinking about things and consciously making an effort you start, it starts becoming a part of yourself."

8.1 ADDENDUM H: STATEMENTS OF PARTICIPANTS RELATING TO THE PEOPLE CHALLENGE

	Statements relating to the focus on people
Andy	"Using what I have *learnt*, to have an impact on people… can I get better results out of people?" "I think the question for me was what do …. What impact would I like to leave on people? You know? What impact?" "I want decision makers, I want thinkers, I want people that's out there and they run their business…"
John	"Listening not to respond, but rather to understand" "… in leadership you know, it's good that you've got all the knowledge in leadership, but if you don't know how to utilise it well, then it becomes a problem…"
Nadia	"I think it is about people…I've had to *learn* people are different."
Akshay	"I want to *test* myself in this people arena …"
Eddie	"I want to make people feel comfortable…how can I change people's lives, what can I do to make people's lives easier, what can I do to make people more comfortable. That is my normal personality and this actually announces that – it makes it better.""
Shanika	"The people aspect *(of the bigger team)* was challenging… it was the right time because we had a whole lot of new people coming in and people leaving …" "I don't want people to be unhappy and some of the team they were unhappy with the previous people that they were reporting to."
Charles	"How do I keep most people *happy* most of the time?" "I think by nature, I always want to bring out the best in others hmm …, you know? That's, that's my passion…"
Danny	"So now I *realise*, that you know what? I also have things, that I need from them *(colleagues)*, that I don't have as my strength …"
Sarah	"They're *(people)* all actually very different – so it *made me think differently* about the way I would approach things with them so that was insightful and also with that whole idea in my head that the people have different world views."

| Jenny | "I also *learnt* it is not only just about you, it's about others around you, you know?" |

ADDENDUM I: STATEMENTS OF PARTICIPANTS RELATING TO THEIR ROLE

Role
Andy "I really struggled in the beginning with this position that I am in….so it was difficult in the beginning operating this role."
Brenda "We are management and that is why the course is important for any company is that it doesn't just help you as a person yourself, it actually links it through to your workplace."
Dave "From wanting to be a better boss, persona is what drives me to do it..."
Akshay "I mean the people challenge here I mean having 70 people at that time report to me is a complex relationship…" "I had a big team from day 1. And this was the team that was when I got here, and it was struggling."
Shanika "I had recently taken on a new team, a team and the people aspect of it was challenging because I was used to a small team for like most of the three years that I was here…"
Charles "I had recently taken on a new team, a team and the people aspect of it was challenging because I was used to a small team for like most of the three years that I was here…"
Jenny "…hard work will bring its own rewards *(being promoted),* and you know that wasn't happening…"
Sarah "I really felt that it was something that could help me in my development and to be better at work, ultimately."

	Develop & coach	Communication	Leadership style	Relationship building	Listening	Recognition
Andy	✓	✓	✓			
Barry	✓	✓	✓	✓		
William	✓	✓	✓	✓	✓	
John	✓	✓	✓	✓	✓	
Nadia		✓	✓	✓	✓	✓
Brenda	✓	✓	✓	✓	✓	✓
Dave	✓	✓	✓	✓		
Akshay	✓	✓	✓	✓		✓
Eddie	✓	✓			✓	✓
Shanika	✓	✓	✓	✓	✓	✓
Cathy	✓	✓			✓	
Charles	✓	✓			✓	
Danny	✓	✓	✓	✓	✓	
Sarah	✓	✓	✓	✓		
Jenny	✓		✓	✓		
Joe	✓				✓	

ADDENDUM K: **PAST AND PRESENT BEHAVIOURS RELATING COACHING**

AND DEVELOPMENT

	Past behaviour	Present behaviour
Andy	Directive approach, requiring an action plan, little support or guidance	Facilitative approach, asks questions to stimulate thinking
Barry	Approach instilled fear in others	Spends a lot of time on coaching and sharing knowledge
William	All answers must come from me – I am the resource centre	Facilitative approach, encourage them to think
John		Sees development as part of his role, supportive approach
Nadia	Gives instructions – if you need help, ask for it	
Brenda	She can battle on her own	Willing to guide and advise colleagues
Akshay	Segregated team, each responsible for their own areas	Cross pollinating of teams, encourage team members to learn from each other
Eddie	Focus on ensuring own team is delivering	Willing to mentor and guide colleague
Shanika	Team needs to deliver irrespective of challenges, focus on checking, not adding value	Focus on helping managers to help their teams, building confidence, expanding their broader business knowledge
Cathy	Lack of confidence	Courage to give colleague feedback and influence others
Charles		Focus on developing managers
Danny	Inaccessible, did not want to help, referred them to other departments	Prepared to play the role of a coaching partner
Sarah	Superficial reassurance without real exploration	More in-depth exploration of concerns and focused on resolving concerns
Jenny		Challenges bigger HR team in their thinking, created weekly learning space for her team
Joe	Wanted to help everyone	Boundaries on what he can assist with – plays a guiding role

ADDENDUM L: SOCIAL COGNITIVE NEUROSCIENCE PRINCIPLES, BEHAVIOURS IMPLEMENTED BY PARTICIPANTS AND THE POTENTIAL IMPACT ON OTHERS

SOCIAL COGNITIVE NEUROSCIENCE PRINCIPLE	Behaviours reported by participants	Impact on others	
		Participant	**Direct report**
Valuing contribution	Inclusive communication style & recognition	Receiving positive feedback	More responsibilities
Growth & development (Neuroplasticity)	Coaching & development	Personal growth; a better understanding of self and others, and how to best interact with others.	Understanding of business, personal growth, empowered to lead others
Being socially connected	Focus on cultivating relationships	Investment of time by others, increased engagement, showing a personal interest, increased network, improved relationships with line manager and colleagues	Personal interest in each other, wider network, improved relationships with colleagues and line manager
Safety & trust (team dynamics)	Active listening & building trust	Increased support; improved relationships; the influence of colleagues making changes; a friendlier environment	Greater focus and support for each other; improved morale, greater levels of commitment
Emotional state	Emotional regulation	Feeling in control, happier, calmer and more confident.	Happier and more confident
Executive functioning (work effectiveness)		Better planning & prioritising, focus on people, implementation of plans, creativity, problem solving & decision making	Greater sense of ownership