

**Mentoring Women in the Resources Sector:
A Leadership Case Study on the International
Women in Resources Mentoring Programme
(IWRMP)**

by

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Chapter 1: Introduction

This research project explores leadership and gender equality in the mining sector. Several initiatives have been established to encourage women's participation in the mining sector, by creating an empowering, enabling environment for women in the sector. The International Women in Resources Mentoring Programme (IWRMP) is one such initiative that provides mentoring for women in the resources sector; across continents and cultures. The leadership endeavour that led to the adoption of the IWRMP by the researcher's organisation, SRK Consulting, is the subject of this study.

1.1 Background and Context

The mining sector globally has traditionally been a male-dominated industry. A historical contributing factor to this was the harsh physical conditions underground, and the physically-demanding nature of manual mining work. Further contributing factors to this were the International Labour Organization (ILO) Convention 45 (C045) of 1935 and the South African Minerals Act (Act 50 of 1991), which prohibited the employment of women in underground mining work (Mudimba 2017:23). This meant that women were only allowed to be employed on surface operations of mines; which limited them to administrative or laboratory work; the only exception being geology, which is a technical role.

Globally, countries began to denounce ILO C045, and so began the gradual incorporation of women into the mining industry. In South Africa, the Mine Health and Safety Act (Act 29 of 1996) lifted the legislative ban on women working underground; and the Mining Charter of 2002 stipulates that at least 10% of employees in core mining operations are to be women (Mudimba 2017:23). These two legislative instruments led to an increase in the percentage of women employed in the South African mining industry, as evidenced in the 2018 mining workforce statistics, which show that women fill 16% of top management positions, 17% of senior management positions, and 18% of skilled technical profession positions (MCSA 2019:1). It is clear from these numbers that, despite the enabling legislative environment, the mining industry remains largely male-dominated, throughout all levels of mining organisations.

Gender inequality is also evident in the mining consulting services industry, although to a lesser extent, because much of the work is conducted in an office environment.

The scarcity of women in the mining sector spurred the creation of women's associations (including the South African Women in Mining Association, and Women in Mining South Africa), women's development programs, and bursaries for women in the mining sector. These initiatives attempted to make mining more appealing to women, and to address challenges faced by women. One such initiative, which will be examined in this study, is the International Women in Resources Mentoring Programme (IWRMP). The IWRMP is a mentoring program for women working in the resources sector; which aims to develop women to become leaders in the mining sector, and to retain women in the mining sector. The idea for the IWRMP came from Barbara Dischinger, who founded two women's networks in the mining sector: Women in Mining UK (which she developed from the grassroots from 2006 to 2011) and International Women in Mining (IWIM) (2007 to present). As part of her role as director of IWIM, Barbara developed several programmes and initiatives, including the IWRMP. Barbara understands the value of mentoring as a critical component in any career and decided to create a programme that makes mentoring accessible to women in the natural resources sector. In 2018, in collaboration with Metisphere Ltd, Barbara then created the International Women in Resources Mentoring Programme (IWRMP). Metisphere is a company specialising in organisational psychology; they provide the structured framework, the matching of mentees and mentors, and the training of mentees and mentors for the IWRMP.

SRK Consulting (SRK) (the researcher's employer) became involved with the IWRMP when Sabine Anderson of SRK's UK office (SRK UK) volunteered as a mentor for the programme in its inaugural year (2018), in her personal capacity, i.e. not as a representative of SRK. Later that year, Sabine pitched the idea of the IWRMP at the 2018 SRK Global (the strategic management arm of SRK) practice leaders meeting and proposed that SRK becomes involved with the initiative as a sponsor. The SRK Global practice leaders unanimously accepted the proposal, and two senior employees, Sabine being one, applied to be mentors for the IWRMP. Six SRK practices became sponsors of the IWRMP. Apart from nominating SRK employees as mentee, SRK also decided to sponsor a few mentees employed at other organisations.

Vis Reddy, the managing director of SRK South Africa (SRK SA) decided to adopt the initiative in the South African organisation. At the beginning of 2019, SRK SA nominated a mentee to the programme.

1.2 Problem Statement

Despite the prohibition on women working underground being lifted in 1996 in South Africa, gender inequality persists in the mining sector, with women making up just 12% of the sector workforce overall (MCSA 2019:2). There are several initiatives that enable and encourage women to work in the mining sector, however, there are several factors that continue to make mining unappealing to women; including harassment, cultural perceptions, and facility design. Leaders of mining organisations and mining consulting organisations alike have a role to play in achieving gender equality in the mining sector.

1.3 Purpose of the Case Study

The purpose of this case study is to determine if the IWRMP is successful at improving gender equality in the mining sector, and if its adoption by SRK SA is attributable to leadership capabilities within the organisation. “Improving gender equality” refers to contributing to the achievement of Sustainable Development Goal 5 (SDG 5) (“Gender Equality”) of the United Nations Sustainable Development Goals (SDGs); specifically SDG Target 5.5, which states: “Ensure women’s full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life” (UN DSDG 2019). The specific indicator that is relevant to this study is SDG 5.5.2: “Proportion of women in managerial positions” (UN DSDG 2019).

1.4 Research Question

The proposition of the study is that SRK’s participation in the programme was driven by Sabine’s leadership capabilities, and that SRK SA’s participation in the programme was driven by Vis’s leadership capabilities.

A sub-proposition is that each individual (Sabine and Vis) possesses leadership capabilities that aggregate into a contemporary leadership style (or a combination of styles) as described in the literature.

The research question for the case study is therefore: “How did the leadership capabilities of SRK’s leaders influence SRK Consulting’s participation in the International Women in Resources Mentoring Programme, and hence contribute to the realisation of SDG 5.5.2?”.

1.5 Research Approach

An inductive research approach was employed for this case study; i.e. the researcher collected the data and used the data to reveal the leadership capabilities and matching leadership theory / combination of theories. Simons (2012) explains that building theory from data has the advantage of being grounded in the ‘lived’ experience of participants in the case, which leads to a unique understanding of the case (and potentially to a new theory).

Initially, a scoping literature review was conducted, to provide a cursory overview of the main leadership theories. The researcher then conducted semi-structured interviews and used thematic analysis to analyse the data and look for leadership capabilities.

1.6 Anticipated Outcomes

The researcher anticipates that the leadership capabilities that emerge in the interviews will aggregate into the authentic and servant leadership styles as described in the literature. However, the researcher also expects to identify some capabilities that are unique to women and / or mining.

The researcher also expects that SRK’s participation in the IWRMP will be explained by the leadership capabilities that were displayed by its leaders.

1.7 Contribution/Significance

This study aims to contribute to the body of data available on leadership in mining, and the issues faced by women working in the mining sector. The study also provides meaningful insight into the success of the IWRMP, and the leadership effectiveness of those driving the initiative. The rate of change of gender parity in mining also provides insight into progress on SDG 5.5.

1.8 Researcher Assumptions

The researcher assumes that all participants in the study were open and honest regarding their roles in the IWRMP. The researcher assumes that male and female study participants assign value to gender equality.

1.9 Researcher Perspective

The researcher is a woman employed in the mining sector. Prior to working in the mining sector, she worked in manufacturing. In her work experience, and in her experience as a female engineer, the researcher has observed and experienced matters related to the subject of gender as it pertains to the workplace.

Chapter 2: Literature Review

2.1 Introduction

2.1.1 Purpose

The purpose of this literature review is to study leadership, with a specific focus on female leadership and leadership in the mining sector; from a scholarly, social and technical standpoint. The rationale for the mining focus is that the IWRMP is a mining leadership initiative. The rationale for the female leadership focus is that the creation of, and initial participation in the IWRMP, was driven by women. A secondary purpose is to contextualise the IWRMP within the SDG framework.

2.1.2 Review structure and rationale

The review starts out by defining leadership and moves on to a scoping review of the main leadership theories. The theories were scoped from the oldest theories to more contemporary ones, to understand the evolution of leadership in response to a changing societal landscape. This was used to give the researcher a feel for the defining aspects of each leadership theory, so that the researcher could consider these when analysing interview data to identify leadership capabilities.

The review continues with a cursory overview of the role of gender in leadership. Role expectations of women are discussed, as well as the inherent internal conflict of role incongruity. The acceptance of women as leaders, by male subordinates, is also discussed.

The review moves on to an overview of the history of leadership in the mining sector, and how the face of leadership has changed with the introduction of women into the mining workplace.

The review then contextualises the IWRMP in the SDG framework, specifically as it relates to the gender equality goal, SDG 5. The review concludes with a summary, and a conceptual framework for the study.

2.2 Defining Leadership

Although there is no single, all-encompassing definition of leadership, the majority of scholars agree that leadership is an influencing process between a leader and followers, that is dependent on leader attributes, leader perceptions, and the context of the leadership situation (Day & Antonakis 2012:5). For the purposes of this study, the researcher will adopt the Northouse (2016:6) definition that states: “Leadership is a process whereby an individual influences a group of individuals to achieve a common goal”.

Analysis of knowledge that has accumulated over the past few decades, has allowed scholars to be able to solidify leadership theory somewhat (Day & Antonakis 2012:4). However, leadership is a constantly-evolving construct, as society’s dynamics, challenges and issues evolve; and as such, a single definition is difficult to pin down. Leadership has been conceptualised from three perspectives: as a trait / behaviour, as an information-processing phenomenon, or as a relational phenomenon (Northouse 2016:1).

It is important to make the distinction between leadership and management. It is the opinion of the researcher that this distinction lies in how the leader came to be a leader: i.e. did the leader amass followers using their own influence, or was the leader appointed into a hierarchically higher position, by a third party (i.e. not the followers). A person that has ascended / been appointed into a position of power, may use their power to force or coerce people into following their instructions, and as such, would not be a good leader. In addition, people may be appointed as managers in an organisation, due to their technical capabilities, and not their leadership capabilities; and as such, are not necessarily good leaders.

2.3 Leadership Theories and Categories

Concise summaries of the main leadership theories are presented by Day & Antonakis (2012:3-20) and Northouse (2016:1-17), as the introductory chapters to the textbooks *The Nature of Leadership* and *Leadership: Theory and Practice* respectively. Both chapters consider scholarly literature about leadership over several decades, and both reference the *Leadership Quarterly* journal (LQ) for contemporary sources of leadership literature. Both textbooks contain a chapter on female leadership which, although not a standalone leadership theory, is an increasingly pertinent category in modern leadership, as numbers of female leaders continue to grow.

The main leadership theories are introduced in a chronological sequence in Sections 2.3.1 to 2.3.13, followed by a discussion of female leadership in Section 2.3.14, and leadership in mining in Section 2.5.

2.3.1 Trait theory

The foundation of trait theory is that a person is a successful leader due to certain personality traits, with which they are born, e.g. intelligence (Northouse 2016:19). Stogdill (1948) conducted an influential review whose findings suggest that leadership is not a matter of passive status, nor the possession of a set of traits. Northouse (2016:19) goes on to explain that personality traits play an influencing role in leadership, but that leadership is a combination of traits and the situation.

The respective findings of two meta-analyses described in Day & Antonakis (2012:8), are that intelligence correlates with *perceptions* of leadership; and that objectively-measured intelligence correlates with leadership effectiveness. In conclusion, the trait approach is an important part of leadership theory, but on its own, it is too simplistic to describe leadership.

2.3.2 Skills theory

In skills theory, knowledge and abilities are needed for leadership to be effective (Northouse 2016:43). Following studies in the 1990s which sought to prove that leadership effectiveness is dependent on problem-solving ability; Mumford, Zaccaro, Harding, Jacobs and Fleishman (2000) published a skill-based model of leadership. The model shows the relationship between knowledge and skills and is presented schematically in Northouse (2016:48) (Figure 2-1 below). It comprises three components: “individual attributes, competencies, and leadership outcomes” (Northouse 2016:48).

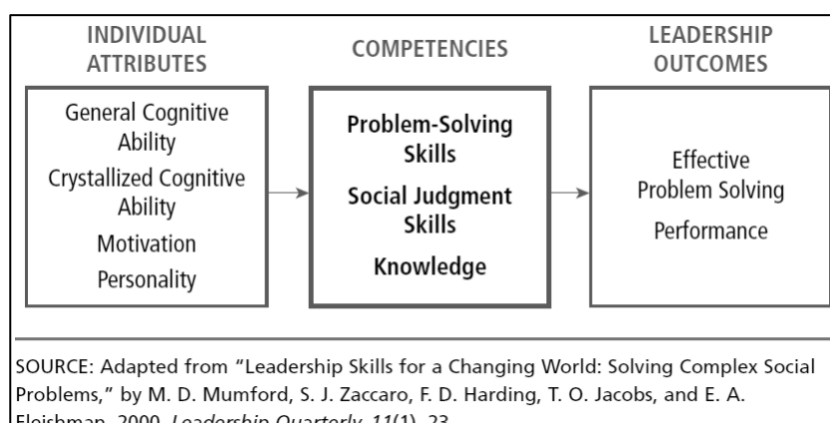


Figure 2-1: Skills-based model of leadership (Mumford et al. 2000)

One of the building blocks of the model is traits / attributes of an individual. The second building block is skills / competencies. The two building blocks added result in effective problem-solving performance (a positive leadership outcome). Certain periods of the researcher's work experience to date, validate the skills model; in that problem solving, intelligence and motivation were critical factors that made up a good leader.

2.3.3 Behavioural theory

Behavioural theory focuses on what leaders do and how they act (Northouse 2016:71). A group of seminal studies, termed "the Ohio State studies", used a leadership questionnaire to identify leader behaviours, and by analysing the results, identified two types leadership behaviours: "initiating structure" and "consideration" (Northouse 2016:71).

"Initiating structure" behaviours are task behaviours, i.e. giving a structure to a set of tasks, and defining responsibilities for those tasks (Northouse 2016:72). "Consideration" behaviours include building trust and respect between people (Northouse 2016:72). Some studies into behavioural theory attempted to identify the ideal ratio between structure and consideration, while others showed that the most effective leaders measured high on both behaviour types (Northouse 2016:72-73).

Day & Antonakis (2012:8) conclude that there is no consistent evidence of a universally-preferred style / behaviour across tasks or situations; however, aspects of behavioural theory were incorporated into other schools of leadership.

In the researcher's experience, behaviours such as defining responsibilities and building trust are important characteristics of good leaders.

2.3.4 Contingency theory and situational theory

Although contingency theory and situational theory may have slight differences, they are both part of the same school of thought that posits that effective leadership is contingent on the situation in which the leadership takes place.

Day & Antonakis (2012:9) summarise contingency effectively in a single sentence, stating that "leadership effectiveness is contingent on leader–member relations, task structure, and the position power of the leader".

Although the premise of contingency theory seems sound, it was also thought to be too narrow an approach, and interest in this theory faded as broader contextual approaches to leadership were developed (Day & Antonakis 2012:9).

The premise of situational theory is that “different situations demand different kinds of leadership”; and to be an effective leader, a person must “adapt his or her style to the demands of different situations” (Northouse 2016:93). The Situational Leadership® II Model (SLII® Model) was developed by Kenneth Blanchard in 1985 and comprises two dimensions: *leadership style* (directive and supportive behaviours) and *development level of followers* (skills and attitude) (Northouse 2016:93-96).

In the researcher’s experience, context sets the stage for leadership, and is a crucial component of leadership, but it does not explain the phenomenon of leadership in totality.

2.3.5 Path-goal theory

Path-goal theory was designed “to explain how leaders can help followers along the path to their goals by selecting specific behaviours that are best suited to followers’ needs and to the situation in which followers are working” (Northouse 2016:116). The leader chooses a leadership style that is suited to the motivational needs of his / her followers (Northouse 2016:116). In the application of this theory, leaders must be able to identify leadership behaviours that are missing in the work setting, and display the missing behaviours. They must also elucidate the path to the goal and remove obstacles on the path to the goal. Leaders must also provide rewards for followers that attain workplace goals. Follower motivation in this theory is as per Vroom’s 1964 expectancy theory of motivation where followers are motivated if a) they believe in their capability to perform their work, b) they believe their efforts result in a desired outcome, and c) they believe that the reward is worthwhile (Northouse 2016:116).

To summarise, in path-goal theory, the leader defines the goal, clarifies the path to the goal, removes obstacles, and provides support to followers. In the researcher’s opinion, this is an exceptionally effective leadership theory, provided that the leader is emotionally intelligent enough to understand follower motivations. The researcher’s personal leadership style resonates with goal theory, because it follows a logical approach to utilising people’s inner motivation, which the researcher sees as critical to leadership.

2.3.6 Information-processing theory

Categorisation theory is a basic information-processing theory, which was applied to leadership in the Lord, Foti and De Vader (1984) paper. In the context of leadership, categorisation theory “deals with three distinct but interrelated areas: specifying the internal structure of leadership categories, showing how properties of categories can be used to facilitate other information-processing tasks ... and explaining leadership perceptions in terms of categorisation” (Lord et al. 1984).

Lord et al (1984) conducted three studies to: a) test Lord’s 1982 theory of internal structure of leadership categories, b) demonstrate the effect of variables such as prototypicality on information processing, and c) show how prototypes could be used to understand leadership perceptions. They found that leaders share common attributes, and that leadership perception depends on the prototypicality of stimuli applied to followers (Lord et al. 1984).

This theory is useful for categorising leadership attributes, and for understanding what a “prototypical” leader looks like; however, it is the researcher’s opinion that contemporary leaders do not necessarily match a particular prototype.

Information-processing theory sparked an interest in studying followers, which are an important aspect of the leadership phenomenon. Interest in leader / follower cognitions continued to grow (Gardner et al. 2010).

2.3.7 Relational theory

Dansereau, Graen and Haga (1975) posited that leadership effectiveness is based on the quality of the relationships between leaders and followers. Relational theory was initially termed “vertical dyad linkage”. Later, the name evolved into “leader-member exchange” (LMX) theory. The Graen and Uhl-Bien (1995) paper studied LMX over 25 years, from multiple perspectives (multiple domains and stages).

All leadership theories up until the development of LMX and transformational leadership (discussed in Section 2.3.8 below) have relied on transactional (i.e. social exchange) obligations (Day & Antonakis 2012:11). Graen & Uhl-Bien (1995) positioned LMX within the transactional and transformational leadership frameworks. They concluded that while LMX may start out as a transactional social exchange, it ends up as a transformational social exchange (Graen & Uhl-Bien 1995).

LMX theory examined the role of followers (and not only leaders), which Gardner, Lowe, Moss, Mahoney and Coglisier (2010) highlighted as a growing interest in leadership theory.

The general consensus on this theory, as phrased in the Ilies, Nahrgang, and Morgeson (2007) paper, is that “high-quality relations generate more positive leader outcomes than do lower-quality relations”. In the researcher’s opinion, this consensus seems to be an observation of an obvious and well-known phenomenon in society: that the quality of relationships influences social outcomes. The researcher agrees that high-quality relationships are crucial in a leadership context.

2.3.8 Transformational leadership

Transformational leadership, also known as charismatic or visionary theory; was a strong leadership paradigm in the first decade of the 21st century. Transformational leadership aims to develop followers to their full potential (Northouse 2016:162-169). Transformational leaders “have a strong set of internal values and ideals, and they are effective at motivating followers to act in ways that support the greater good rather than their own self-interests” (Kuhnert 1994). Transformational leadership comprises four defining factors (the “four I’s”: idealised influence (also known as charisma), inspirational motivation, intellectual stimulation, and individualised consideration (Northouse 2016:162-169). These factors indicate that transformational leadership transcends the prior transactional leadership theories, and like LMX, it focuses on followers, i.e. not only leaders). In the context of the researcher’s experience, good leadership does comprise at least of the four I’s.

2.3.9 Sceptics-of-leadership theory

Rush, Thomas, and Lord (1977) suggested that leaders are assigned attributes based on the leadership theories toward which researchers are biased. Meindl and Ehrlich (1987) proposed that leadership attributes are retrofitted onto a leader to assign causes to organisational outcomes. They went so far as to say that leadership does not exist and is not necessary to achieve organisational outcomes.

The sceptics’ statements have been contested by many scholars in multiple studies. The concept of leadership effectiveness has not been dismissed, and scepticism about leadership effectiveness has resulted in the production of better methodologies to study leadership effectiveness, including an increased focus on followers.

The researcher's experience has shown that good leadership exists, and that it leads to positive organisational outcomes. However, the researcher recognises that leadership effectiveness may be viewed differently from different perspectives, especially in a complex political context (e.g. the success of a president leading a country during his / her term in office).

2.3.10 Responsible leadership

Responsible leadership emerges at the junction between stakeholder theory and leadership (Frangieh & Yaacoub 2017). Other authors place it at the juncture between ethics, leadership and corporate social responsibility (Antunes and Franco 2016), which is more applicable in a business context. It is a complex and constantly evolving theory.

Responsible leaders are positioned at the centre of a network of stakeholders and are viewed as equals; in contrast to top-down leadership hierarchies where leaders are considered to be more important than their followers. Stakeholders (which include businesses, communities, and employees) are demanding to work for and with companies that have a purposeful impact and responsible leaders.

Responsible leaders need to be aware of their stakeholders' culture and expectations. They also need to show continued support for meeting followers' needs. Responsible leaders rely on building and maintaining trustful relationships with stakeholders. In order to be effective, responsible leaders need to understand, build and maintain social capital, which is the social structures and resources, both internal and external to organisations, that facilitate responsible action (Maak 2007).

Responsible leadership resonates strongly with the researcher, because the researcher personally values ethics and sustainable development; and believes that this theory embraces both.

2.3.11 Authentic leadership

The accepted definition of authentic leadership is the one set forth in an article by Walumbwa et al. (2008:94), who defined authentic leadership as "a pattern of leader behaviour that draws upon and promotes both positive psychological capacities and a positive ethical climate, to foster greater self-awareness, an internalised moral perspective, balanced processing of information, and relational transparency on the part of leaders working with followers, fostering positive self-development".

Walumbwa and associates (2008) conducted a literature review and defined a valid construct of authentic leadership, which consists of four components: “self-awareness, internalised moral perspective, balanced processing, and relational transparency”. This leadership theory matches the researcher’s conceptualisation of leaders who truly wish to develop their followers, and work with them, to achieve a common goal. Northouse (2016:200) says that authentic leadership has an explicit moral dimension, which is also an aspect of transformational and servant leadership.

2.3.12 Servant leadership

In servant leadership, the leader initially has the desire to serve, which then develops into a desire to lead (Greenleaf 1970). Servant leaders primarily aim to serve the interests of their followers, ahead of serving their own interests (Northouse 2016:226). In the researcher’s opinion, this type of altruistic leadership is extremely rare, because her experience with leaders is that their own gain is an important motivator of their leadership.

2.3.13 Adaptive leadership

Adaptive leaders prepare followers to adapt to change, and mobilise them. Adaptive leaders also have the ability to mobilise people to solve complex problems. An adaptive leader challenges others to face difficult challenges, providing them with the space or opportunity they need, to learn new ways of dealing with the inevitable changes in assumptions, perceptions, beliefs, attitudes, and behaviours that they are likely to encounter in addressing real problems (Northouse 2016:258).

In the researcher’s opinion, this theory is very similar to path-goal theory, because both rely on understanding motivation and enabling action, to achieve a goal.

2.3.14 Female Leadership

There isn’t a specific theory on feminine leadership, however, certain female characteristics do add a different flair to some of the existing leadership theories. Both Day & Antonakis (2012) and Northouse (2016) contain a chapter on “Gender and Leadership”. There are also a number of articles in the LQ on female leadership, but mostly in the context of business environments, such as how female executives perform compared to their male counterparts. The current primary research questions in the scholarly domain regarding gender and leadership are: “Do men and women lead differently?” and “Are men more effective leaders than women?” (Northouse 2016:398).

Despite the increase in women in the general workforce, and the increase in female university graduates, women are still underrepresented in the upper echelons of business and political organisations. The “glass ceiling” is a term that was coined in 1986 by two *Wall Street Journal* reporters (Carol Hymowitz & Timothy D. Schellhardt) to describe why the gender gap in leadership occurs. The concept of the glass ceiling is the men and women start out on equal footing in an organisation, but inevitably, women hit this glass ceiling that cannot be surpassed, and they cannot progress to higher levels in the organisation.

One theory of why women don't reach the upper echelons of leadership in organisations, is that although there are enough women entering the pipeline, that many of them “leak” out of the pipeline. There are several theories for why the pipeline leaks, but one of them is women choosing to start a family. As soon as women have children, they break the continuity of their career, and lose experience during this time. This is largely due to the disproportionate responsibility women assume for child rearing and domestic duties (Northouse 2016:400). This is changing globally, and in many countries, fathers are being allocated significantly longer periods of optional (or even compulsory) paternity leave, in an effort to divide child-rearing responsibilities. Despite this, women continue to do the majority of the childcare responsibilities and household chores (Northouse 2016:400). Women with children face work-home conflicts, and those who take advantage of workplace flexibility programs are often marginalised, and those who take time off from their careers often find re-entry difficult (Northouse 2016:401).

Northouse (2016:401) explains that mentorship is an important developmental experience, and effective mentorship relationships influence career success. He goes on to add that it is more difficult for women to establish informal mentor relationships than it is for men, and that women receive fewer developmental opportunities than men do.

In terms of leadership, despite gender stereotypes, women do not lead more interpersonally than men do, but they do lead in a more democratic manner (Northouse 2016:402). Studies have shown that men devalue women who lead in a masculine manner, in a masculine role (Northouse 2016:402). Devaluation of female leaders by male subordinates extends to female transformational leaders (Northouse 2016:402).

Another meta-analysis described by Northouse (2016:402-403) states that “women and men were more effective in leadership roles that were congruent with their gender”. In role congruency theory, “agency” is a group of behaviours known as masculine behaviours (e.g. dominance), and “communion” is a group of behaviours known as feminine behaviours (e.g. nurturing). Where there is role incongruity, i.e. where the leader role conflicts with the gender role, women tend to be less effective as leaders (Northouse 2016:402-403). This is another reason for the leaky pipeline described above.

Two leaders in the researcher’s organisation commented on female leadership. Both leaders stated that women have an empathetic leadership style, and that as such, they were more willing to listen to their employees’ concerns than their male counterparts. This ability to listen leads to better communication, and in many instances, better team performance.

2.4 Summary of Leadership Theory Review

Although there is not a globally-accepted single definition of leadership, there are several contemporary theories that can be applied to modern leadership contexts. What is very clear from the literature, is that leaders are under increased pressure to be ethical, responsible, and accountable. Leaders are also expected to consider all stakeholder groups, to respect their followers, and to work toward having a net positive impact on the society that they lead.

2.5 Leadership in the mining sector

There is a lack of scholarly literature on leadership in the mining sector. A thorough literature search was conducted on multiple scholarly platforms, which yielded several theses / dissertations of leadership in *contemporary* mining were found. There are very few publications describing the notorious, but not widely-publicised, autocratic leadership style that was prevalent in mining operations. The researcher therefore used historical accounts to provide a flavour of what a so-called “mining boss” was like. The researcher also spoke to several older employees in her organisation, to provide first-hand account of mining leadership styles.

People who have worked on mines have referred to “mine bosses” or “mine chiefs” (colloquial terms for senior managers in mining) as autocrats. As mentioned in the paragraph above, there are no formal social studies showing this; however, there are historical accounts.

One such example is taken from a history book on Welsh coal miners in America in the late 1800s (Lewis 2009:198), where a miner recalls that: “Above ground, Welsh [mine] bosses might have been respectable citizens who attended chapel regularly, but underground they became crude tyrants who ruled corrupt regimes”. The same miner commented on the way the bosses “strutted about full of their own importance” and that they were surrounded by men who smiled in appreciation while poking fun at the bosses’ behaviour in their hearts. He states: “I have had to listen to a boss in this way but there was no point in my saying anything derogatory, otherwise I would surely feel his displeasure in my work”. Lewis (2009:238) also quotes the *Mine Workers Journal*, who referred to Gomer Jones, a man infamous for his “tyrannical methods as a mine boss”.

A further reference is taken out of another history book on mining at the Lake Superior copper mines in the early 1900s (Lankton 1991), where the author was fascinated by “autocratic mine boss” Alexander Agassiz. He writes about how Agassiz “did not let outsiders – either radicals of reformers – tell him how to run his company ... as a staunch autocrat, he was driven to control events and not let problems get out of hand”. As Agassiz’s labour force got bigger and “potentially more fractious [he and his managers] devised a hierarchy of tactics intended to keep their hegemony intact” (Lankton 1991:200). Another mine boss, Big Jim McNaughton is described as being “[an] autocrat seemingly barren of self-doubts and indecision ... he could get done whatever needed doing using finesse or force” (Lankton 1991:201).

Two leaders in the researcher’s organisation provided valuable insights into mining leadership. One leader described mining bosses in the 1980s and 1990s as autocratic and militaristic. He stated that this leadership style was, in part, due to the extremely high health and safety risks associated with underground mining. He said that everyone involved in underground work is required to be extremely disciplined, and as such, the shift bosses and superintendents ran their crews like military crews.

The other leader worked as a miner when the ban on women working underground was lifted. He said that it was extremely difficult for the male miners to accept that they had to work with women, because they inherently believed that mining is a man’s role. He added that the first women to work underground were exceptionally tough and resilient. The men were not comfortable with seeing women conduct manual labour.

They were even less enthused by the idea of women becoming shift bosses, because in their culture, women were considered subordinate to men. Some men went as far as to offer women assistance with their manual tasks in exchange for sexual favours. Some men even raped women underground. However, as time passed, and more women started working in mining, the resistance to women working in mines decreased.

2.6 Describing the IWRMP

The IWRMP is a structured mentoring programme that provides mentoring to women in the mining sector. Mentors volunteer their time to the programme, and mentees apply for the programme or are put forward by their employers. Mentees are usually identified and sponsored by their organisations. Mentors and mentees are matched manually by the organisational psychologists at Metisphere (IWRMP 2019).

According to their website, the IWRMP “aims to empower and promote the career prospects of women working in the international resources industry by developing productive mentoring partnerships to assist in creating a more diverse and gender progressive industry” (IWRMP 2019).

The objectives of the IWRMP, as taken from its website are to (IWRMP 2019):

- “Enhance global retention and support for women in mining;
- Give programme participants global opportunities to connect and network;
- Provide superior role models to women working in mining in different cultures and global communities;
- Assist women with setting goals, career plans and achieving them;
- Increase participants’ self-confidence and self-assurance;
- Create the pipeline and leaders of tomorrow;
- Reduce cross-cultural barriers;
- Make sure women from all continents are represented and that we have diversity and intersectionality within, strong focus on emerging markets;
- Engage globally recognised industry sponsors to contribute to a mentoring programme that aligns with their values in diversity and inclusion”.

2.7 Positioning the IWMRP in the SDG Framework

The IWMRP can be positioned within SDG 5, the gender equality goal; specifically, within SDG target 5.5: “Ensure women’s full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life” (UN DSDG 2019).

The IWRMP aims to address the imbalance of men and women in the resources sector, by mentoring women to become leaders in their respective organisations. If the programme produces 50 women each year (their target) who are ready to face the leadership challenges that await them, this will incrementally increase the value of SDG indicator 5.5.2, “Proportion of women in managerial positions” (UN DSDG 2019).

As per the UN SDG Knowledge Platform on SDG 5: in 2018, women represented 39% of world employment and only 27% of managerial positions (UN DSDG 2019). It is interesting to note that the percentage of women in management has increased (since 2000) in all regions except least-developed countries (UN DSDG 2019).

2.8 Conceptual Framework

Based on the literature review, and the research question, the researcher defined the conceptual categories for the study. They are: leadership theory, leadership in practice, female leadership, mining leadership, the IWRMP, and SDG 5. The conceptual framework is shown schematically in Figure 2-2.

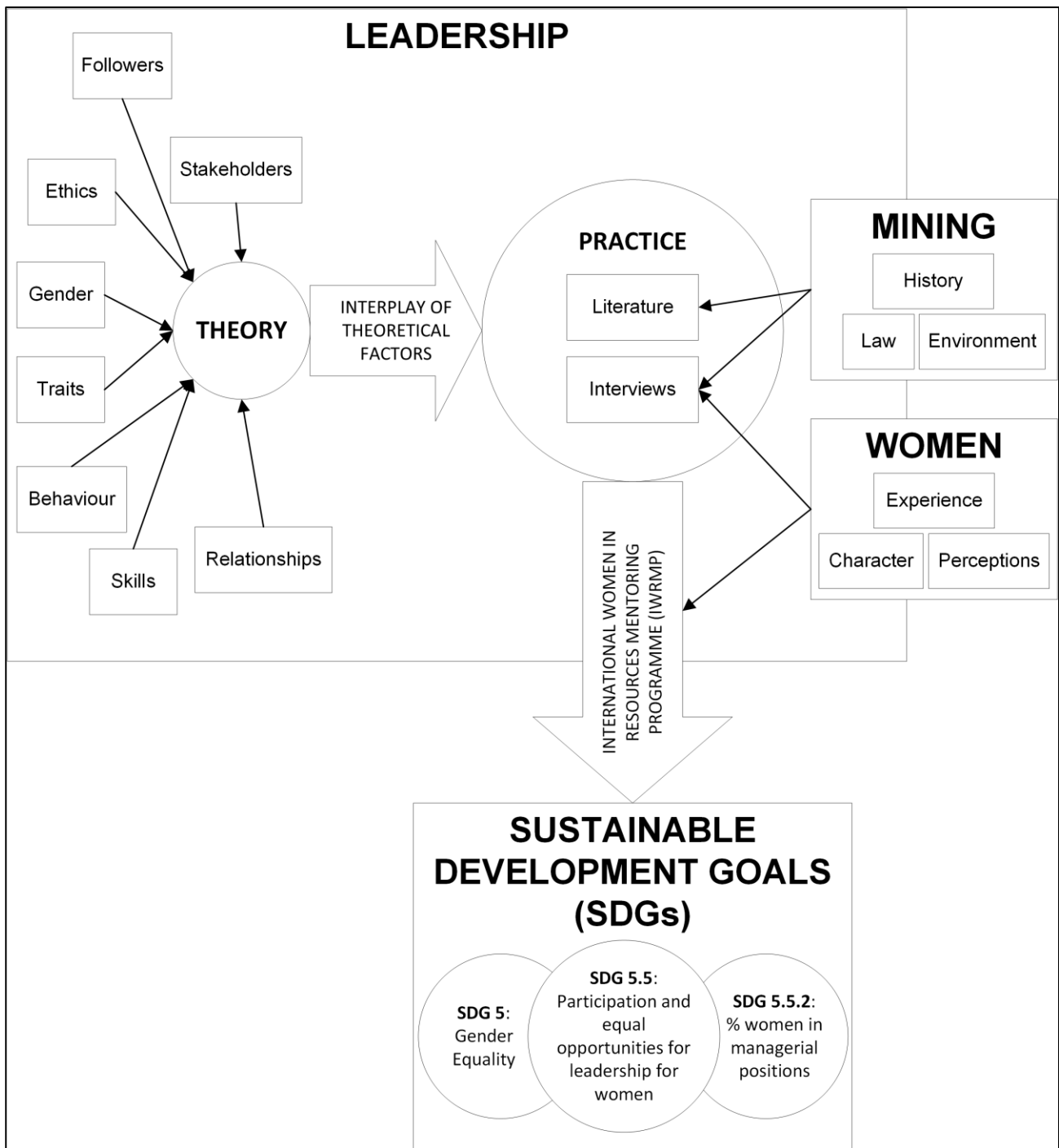


Figure 2-2: Conceptual framework for IWRMP Case Study

Chapter 3: Research Methodology

3.1 Introduction and Overview

3.1.1 Purpose and structure

The purpose of this chapter is to describe the design of this research study and the methodology used to collect and analyse data to answer the research question. This chapter starts out by presenting the research question and moves on to explaining the rationale for using a qualitative research method. The chapter then explains the choice of a case study as a research tool, explains the sampling methodology, and explains the data collection method. The chapter ends with an explanation of the methods used to analyse and interpret data, including the rationale and mechanics of the analysis.

3.1.2 Research question

The research question for the case study is: “How did the leadership capabilities of SRK’s leaders influence SRK Consulting’s participation in the International Women in Resources Mentoring Programme, and hence contribute to the realisation of SDG 5.5?”.

3.1.3 The rationale for a qualitative method

Qualitative methods, as their name suggests, analyse ‘qualities’. Quality refers to the what, how, when, where, and why of a thing, i.e. its essence and ambience (Lune & Berg 2017:12). Using this concept of qualities, qualitative research can be defined as the “meanings, concepts, definitions, characteristics, metaphors, symbols, and descriptions of things” (Lune & Berg 2017:12).

Qualitative research attempts to answer “why” and “how” questions, making it an appropriate method to attempt to answer the research question for this study.

3.1.4 The rationale for a case study as a research tool

Case studies are robust tools for the investigation of complex social phenomena, which can be used in the exploratory, descriptive and explanatory phases of an investigation (Yin 1994:4). Research case studies need to present empirical data rigorously and fairly (Yin 1994:2).

It is the collection and presentation of data that gives case studies their power; in that they have the inherent ability to retain holistic and meaningful data on real-life events (Yin 1994:3).

Case studies can provide a depth of data that transcends other types of studies, because so many observations and interactions are recorded in a case study.

The basis of the decision to frame the IWRMP investigation as a single case study is the following:

- The investigation seeks to explore and explain the contribution of an initiative (the IWRMP) to a group in society (women in the mining sector); i.e. the investigation is an explanatory one;
- The research question is most adequately posed as a “how” question; i.e. a complex question to answer in a social context;
- The initiative is a contemporary one; i.e. it will not require analysis of large volumes of archival data; and
- The investigator has no involvement with, control over, or influence on the initiative (or the responses of the individuals involved with the initiative).

3.2 Research Sample

3.2.1 Sampling method

The researcher employed purposive, targeted sampling to identify key people to interview to gather data on the IWRMP, and leadership capabilities in the context of the IWRMP. The reason for the selection of the IWRMP as an initiative to be studied, is its perceived success in contributing to the achievement of SDG 5.5. The validity of this perception is tested during data analysis (please see Section 3.5).

Four individuals were interviewed as part of this research case study. The rationale behind choosing these people is that they have different roles in the IWRMP and in SRK Consulting, and as such, they were able to give different perspectives on leadership and on the IWRMP. This participant selection strategy lends itself to data triangulation, which will provide richer insight into leadership associated with the IWRMP.

3.2.2 Organisations involved in the initiative

There are two organisations from which research participants (interviewees) were selected; SRK Consulting and International Women in Mining (IWIM). SRK Consulting refers to the entire international organisation which encompasses SRK Consulting (South Africa) (Pty) Ltd (SRK SA) and SRK Consulting (UK) Ltd (SRK UK). SRK (Global) Limited (SRK Global) is the strategic management arm of SRK Consulting, which holds an annual practice leaders meeting, where practice leaders from all SRK's branches meet to discuss progress and develop company strategy.

3.2.3 Study participants: introductions, roles, and contributions to the study

The study includes four participants: Barbara Dischinger, founder and director of IWIM and the IWRMP; Sabine Anderson, principal consultant at SRK UK; Vis Reddy, managing director of SRK SA; and Thumo Neluvhalani, environmental scientist at SRK SA. In terms of their roles in the case study, the participants can be listed as: Barbara Dischinger, founder of the IWRMP; Sabine Anderson, implementor of the IWRMP in SRK; Vis Reddy, adopter of the IWRMP into SRK SA; and Thumo Neluvhalani, SRK SA's first mentee on the IWRMP.

Sabine Anderson (SRK UK) and Vis Reddy (SRK SA) are the two key leaders being investigated in this study, since their leadership capabilities are postulated to be the driving and enabling forces for SRK's participation in the programme. Although not a key leader, Barbara Dischinger's leadership capabilities are an important aspect of the establishment of the IWRMP, and give context to female leadership and the need for mentoring of women in the mining sector. All of the participants were asked for their perceptions of the success of the IWRMP. A detailed description of each study participant and his / her contribution is provided in the paragraphs that follow.

Barbara Dischinger has been working in the mining industry for many years. She initially started the International Women in Mining organisation in 2007 (IWIM), and she decided to start the IWRMP initiative in 2017. Barbara has vast industry experience and was able to provide information and context on gender issues faced by women in the mining sector. She was also a rich data source on all aspects relating to the IWRMP. She provided all the background of the program, and what inspired her to start it, and why she opted to partner with SRK as an organisation.

She explained her perceptions of Sabine Anderson and provided her views on gender equality and leadership in the mining context.

Sabine Anderson is a principal consultant for SRK, based in SRK's UK office in Cardiff. She is the point of intersection between the IWRMP and SRK Consulting. She was introduced to the initiative by Barbara, who is in her professional network, and she thought it a worthy initiative to support. Sabine is the leader responsible for SRK's participation in the IWRMP on a global level. Sabine worked exceptionally hard to achieve SRK's interest in the IWRMP, and to get their buy-in to participate in the initiative as sponsors. This involved a lot of communication with various parties in the organisation, to convince them of the benefits of the programme. Sabine was born in Denmark but was raised in South Africa. She completed her basic education and most of her tertiary education in South Africa; and started her career in South Africa, in the mining sector. Sabine has been in the mining industry since the 1990s and is one of the first (if not the first) women to work underground in South Africa. She has a long, solid career in mining, and provides an important insight into mining in South Africa, issues faced by women in mining, and the importance of mentoring. As such, she is an important source of information for this study. She has a unique perspective on leadership in South Africa, leadership on an international level, and gender issues in the mining sector. Sabine was also able to provide her perceptions of Barbara's character and leadership capabilities.

Vis Reddy is SRK SA's managing director. Vis has a lot of knowledge on SRK SA's history and is a proponent of both gender and racial diversity in the workplace. Vis decided that SRK SA should participate in the IWRMP after listening to Sabine's presentation on the IWRMP at the SRK Global practice leaders meeting. He is a keen adopter of gender diversity and mentoring initiatives, and as such, is an important source of information for this study. Vis was able to provide insight into why he found the programme appealing, and why he thinks the programme is important to SRK SA. Vis also has valuable perspectives on leadership. Vis was also able to provide his perceptions of Sabine's leadership capabilities.

Thumo Neluvhalani is SRK SA's first mentee on the IWRMP. She is a young, diligent environmental scientist who has a lot of potential to become a leader. She provides a different perspective to the other participants in that she is a beneficiary of the IWRMP.

Thumo described the mechanics of the IWRMP and her mentor engagements, and how she has experienced the IWRMP thus far. She was able to provide her perceptions on the leadership capabilities of Barbara, Sabine and Vis. She also provided her views on contemporary issues faced by junior women in the mining sector.

3.3 Research Design Overview

3.3.1 Unit of analysis and unit of observation

The unit of analysis for this single case study is: the perception of the leadership capabilities of SRK's leaders (Sabine and Vis), that enabled participation in the IWRMP. The unit of observation is the interviewees.

3.3.2 Case study bounding

The case study is bounded as follows:

- *Initiative*: The study is limited to the IWRMP initiative.
- *Data sources*: The study is limited to interview data, informal question data, scholarly literature, historical literature, technical information on mining, technical information on the IWRMP, and technical information on the SDGs.
- *Organisations*: The study is limited to IWiM and SRK Consulting (with sub-entities SRK Global, SRK UK and SRK SA).
- *Participants*: The study is limited to the founder of the IWRMP (Barbara Dischinger), the implementer of the IWRMP (Sabine Anderson, SRK UK), the adopter of the IWRMP in South Africa (Vis Reddy, SRK SA), and the first South African IWRMP mentee (Thumo Neluvhalani, SRK SA).
- *Time period*: The study start boundary is the date when the SRK UK office agreed to participate in the IWRMP. The study end boundary is the date of the final interview of this study. However, historical context on the IWRMP and the participants' history is included in the study.
- *Theory*: The study is limited to the theoretical domain of leadership theory, and to the sub-domain of "gender and leadership".

- The study has the following *practical* limitations:
 - It is limited to interviews (Skype interviews for Barbara and Sabine, and face-to-face interviews for Vis and Thumo);
 - It is limited to a brief history of mining leadership;
 - It is limited to brief history of the participants' mining careers;
 - It is limited to a brief history of Sabine's personal background;
 - It is limited to the organisational structures directly related to the IWRMP.

3.4 Data-Collection Methods

3.4.1 Primary data collection

The primary data that was collected is transcribed texts from semi-structured interviews with four key participants, who were introduced in Section 3.2.3.

3.4.2 Secondary data collection

Secondary data was collected from textbooks, websites, and articles pertaining to the categories identified in the conceptual framework. In addition, informal discussions were held with two senior leaders in the researcher's organisation, and a brief Skype call was held with Sabine. Several emails were also exchanged between the researcher and Barbara, and the researcher and Sabine, mainly for clarity on the technical aspects of the IWRMP.

3.4.3 Data management

Each interview was recorded using the Otter application for Android. Otter is a recording and transcription application that automatically converts speech to text, in real-time, while the interview is in progress. The audio files and the text from the interviews is stored electronically on the user's phone and is backed up to a matching web-based profile.

Although the application is not able to do flawless transcription (due to interviewee accents), it greatly reduced the time taken for transcription of the interviews. The user edited the transcripts on the online platform, while simultaneously listening to the audio. Once the transcription was complete, the transcription was downloaded and saved in a Microsoft Word format.

3.4.4 Semi-structured interview methodology

Face-to-face semi-structured interviews were conducted with Vis Reddy and Thumo Neluvhalani, since their place of work is the SRK Johannesburg office. Semi-structured Skype interviews were conducted with Sabine Anderson and Barbara Dischinger.

Before each interview commenced, the researcher introduced herself to the interviewees by stating her background and her interest in the case. The researcher conducted the interviews as informally as possible, i.e. the researcher attempted to conduct the interviews as a conversation, rather than as a stiff questioning session.

The interview questions were prepared prior to the commencement of the interviews. Each interviewee was asked a different set of questions, which were tailored to their roles in the study (founder, implementor, adopter and mentee; as described in Section 3.2.3). This was purposely done so that role-specific perspectives on leadership and on the IWRMP could be obtained, so that data can be triangulated. Some questions overlapped, i.e. were asked of more than one interviewee.

The interviews were conducted in the sequence in which the interviewees are introduced, to allow for adjusting questions slightly for the next individual, based on the previous individual's response, if necessary.

Probing questions were asked if further detail was required from the interviewee while answering the primary questions. Some spin-off questions were also generated in the course of the interview, if the researcher identified valuable data emanating from the answer of a question. Throughout the interviews, the tone of the interviewees was observed to establish their passion for the categories comprising the case.

The questions asked of each interviewee can be seen in Table A1-1 to Table A1-4 in Annexure 1. The third column lists the information that the author would hope to obtain from the question. Probing questions are listed in Table A1-5.

3.5 Data Analysis and Interpretation

The data was analysed using thematic analysis; specifically, open coding. Price (2012) defines open coding as the "intensive process by which data are rigorously analysed for embedded phenomena, patterns, concepts, and themes".

3.5.1 First codes and themes

The transcribed interview texts were examined in detail, line-by-line, in order to familiarise the researcher with the data. As the researcher examined the transcript texts, she assigned codes to key words or phrases that were identified during reading through the transcripts. 235 codes were initially identified. Using the frequency of occurrence of code use, and context of code use, the initial codes were grouped into 20 initial themes. A basic numbering system was used to assign reference numbers to themes and codes. The coding of the transcripts is appended to this study as Annexure 3. A table showing this grouping is presented in Annexure 4 (Table A4-1).

A first review of the themes and codes was done, to establish if:

- a) some of the codes fitted better under themes different from their original designation;
- b) some of the codes could be collapsed / absorbed into other codes;
- c) some of the themes could be collapsed / absorbed into other themes;
- d) theme names were fitting for the theme content; and
- e) if some words / phrases were not significant enough to be classed as codes and could be removed.

The first review distilled the themes and codes were condensed into 16 themes and 219 codes, a table of which is appended as Table A4-2 of Annexure 4.

3.5.2 Main themes and sub-themes

A grouping exercise was conducted to derive sub-themes from the themes and codes. These included looking for similarities, differences, frequency (of words / phrases), sequences, and correlation. The researcher also looked for linkages between sub-themes. The themes and sub-themes can be seen in Table 4-1 (the full grouping and linkage table is presented in Table A4-3 of Annexure 4).

3.5.3 Linking findings to literature and conceptual framework

The researcher identified the primary and secondary findings, and then revisited the literature and the conceptual framework to identify which (if any) of the leadership theories matched the themes and / or sub-themes. A focused search of key literature was conducted, to map the main theoretical pillars against the main themes and / or sub-themes.

The findings are presented in Section 4.2. Throughout the analysis, the researcher attempted to triangulate data, across themes and / or speakers.

3.6 Ethical considerations,

All necessary ethics clearance for this study was obtained from the SRK and from each of the interviewees. All interviewees agreed to having their names disclosed in this case study report.

The researcher is an employee of the organisation; however, the employee is not linked to any of the interviewees in a direct reporting relationship. As such, there is no conflict of interest for the interviewer, and no impact on the validity of the study findings.

3.7 Limitations of the study

The study is limited to the experience and opinions of the interviewees. It is possible that other opinions of the interviewees and/or the IWRMP exist outside the confines of this study.

3.8 Summary

The case study data was gathered using semi-structured interviews, with four purposively-selected interviewees. The data from the interviews was coded using an open coding technique. The codes were grouped into themes, and the resultant themes were analysed for significance. The findings of the analysis will be presented in the following chapter (Chapter 4).

Chapter 4: Presentation, Analysis and Interpretation of Findings

4.1 Purpose

The purpose of this chapter is to present the findings that emerged from the thematic analysis, to discuss the interpretation of the findings, and to discuss how they link to the literature and research question.

4.2 Main themes and sub-themes identified

The thematic analysis yielded 6 main themes and 25 sub-themes, which are presented in Table 4-1 below. The “leader-centric characteristics” main theme was categorised in two different ways. The first categorisation was into sub-themes (as was done for all other themes) and the second categorisation was into characteristics (traits, skills, behaviours, experiences and intrinsic motivation). This allows the researcher to discuss characteristics of the leader, as well as to discuss sub-themes that emerged from the main themes, because each code is classified in two ways (characteristic and sub-theme). The complete table of themes, sub-themes, codes and characteristics can be seen on the analysis spreadsheet presented in Table A4-3 of Annexure 4.

Table 4-1: Themes and sub-themes that emerged from the data

Theme	Sub-theme	No. of instances mentioned
Mentoring	Benefits / power of mentoring	16
	Mentoring non-technical skills	8
Relationships	Senior-junior relationships	4
	Men’s work relationships	5
	Network relationships	5
Leader-centric characteristics: traits, skills, behaviours, experiences and intrinsic motivation	Confidence, competence	36
	Goals and purpose	15
	Passion, persistence, drive, resilience	43
	Giving / service	15

Theme	Sub-theme	No. of instances mentioned
	Emotional intelligence	10
	Authenticity	24
	Achievement / reward as motivation	14
	Work and / or life experience	21
Leadership	Pipeline	9
	Female leadership	9
Organisation (company)	Gender equality	11
	Flexible work practices	10
	Retention	6
Gender equality and tradition	Inequality	44
	Access to mining sector	6
	Patriarchal system	22
	Slow progress	6
	Tradition	9
	Awareness of inequality	9
	Female roles	16

4.3 Links to conceptual framework

The researcher revisited the conceptual framework, to check that no critical themes had been omitted. The researcher satisfied herself that the relevant aspects of the conceptual framework were covered in the study.

4.4 Primary findings of the study

The findings yielded by the thematic analysis are presented in the sub-sections that follow below. The method of identifying findings was two-fold. The first approach entailed assigning significance to sub-themes and codes that emerged during the data analysis, according to frequency of mention. The second approach entailed assigning significance to codes that were deemed to be important points supporting the case (even though they may not have been mentioned many times), using to the researcher's judgement.

Please note that the analysis spreadsheet that is referenced throughout this section is the one appended as in Table A4-3 of Annexure 4.

4.4.1 Finding 1: Mentoring Is a valuable tool for achieving gender equality

The benefits and power of mentoring are mentioned 7 times in the interviews. Mentoring can take different forms; but in the context of this case study, the IWRMP mentoring approach is what is discussed. In the IWRMP, mentoring serves the function of personal and career development for mentees, by guiding them through the social, technical and emotional aspects of their jobs. The IWRMP also allows mentees to develop leadership skills, as the mentors are senior technical professionals, who are also leaders in their respective organisations.

Barbara alluded to her lack of a mentor, and how she felt that it would have been valuable to her career development to have someone to guide her and teach her non-technical skills that could grow her emotional intelligence. Vis gave testament to the power of mentoring by stating that: *“I’ve learned from a lot of people who were my mentors and people that I worked with. And if it wasn’t for them, I wouldn’t have been where I am”*. Thumo also attested to the benefits of the IWRMP by stating that: *“The skills and lessons you learn [from the IWRMP] are amazing”*.

Relationships are mentioned 14 times in the interviews. Historically, most mining workplaces were patriarchal, and male-male relationships were stronger than the relationships that men formed with women, because of the “old-boys’ club” construct, where men had access to senior men in their organisations, simply by being men, but also because they could participate in social activities with male leaders. This was summarised by Barbara as: *“men have access to golf clubs, and the pub and a pint of beer and colleagues”*. Barbara describes these traditional male relationships as *“buddy-buddy and centred on ourselves and not looking out and very [homogeneous]”*. The lack of such relationships for women means that women *“don’t know how to go about [finding a mentor]”*, according to Barbara.

Mentoring (the IWRMP in this case) contributes to achieving SDG 5.5.2 (increasing the “proportion of women in managerial positions”) in the mining sector because it gives women confidence to excel in their jobs and develops their skills and emotional intelligence; and thereby fills the female leadership pipeline.

4.4.2 Finding 2: Traditional gender roles and stereotypes are barriers to gender equality in the mining sector

4.4.2.1 Inequality persists in the mining sector

Inequality was mentioned 44 times in the interviews. This includes mentions of gender inequality in the mining sector, as well as gender inequality in the higher levels of SRK. In the 23 years since the prohibition on women working underground was lifted, South Africa's mining sector has not meaningfully transformed, with women only forming 12% of the total mining workforce (MCSA, 2018), despite the promulgation of subsequent legislation such as the Mining Charter. This is consistent with the researcher's professional experience, as well as the MCSA statistics, which that only 16% of people in executive leadership in the mining sector are women.

4.4.2.2 Men are not aware of gender inequality in the mining sector

What was interesting to note is that male leaders are not cognisant of gender inequality, as mentioned 7 times in the interviews, and demonstrated by Sabine stating that *"I'm sure that if you said that to most guys, they would very strongly disagree and feel so offended, but it's the truth"*.

Vis was cognisant of the fact that it may be occurring without his being aware of it, which shows emotional intelligence. He explained that:

[It's] hard to feel the vibes coming through, because as a woman [you get] a feeling that you might be not wanted here. So maybe, women will notice it more. But I think generally in South Africa, I don't see [that there's] a large element. I'm not saying it doesn't exist, [it] probably does.

4.4.2.3 History has a role to play in gender inequality in the mining sector

There are several generally-accepted facts about the mining sector. The first one is that historically, only men worked underground. The reasons for this are two-fold: a) it was heavy manual labour that required physical strength and stamina, and b) women were expected not to rear children instead of being formally employed. The first reason also resulted in legislation which prohibited women from working underground. Therefore, the only women who would have been employed on mines, while the prohibition was in force, are women in administrative roles or quality assurance roles.

Some of the lack of progress on gender equality can be ascribed to the legacy of prohibition.

Sabine's mother was an influential female figure in the South African mining sector in the mid-1980s, and she actively fought to have the legislation amended, as described by Sabine: "*she helped to have the first South African [law amended] so that I could work underground*". Sabine was one of the first women (possibly the first), to work underground in South Africa. With the lifting of the prohibition in 1996, more women would have pushed to enter the mining sector, due to a professional interest to work in the sector. Examples of such roles are geologists, geotechnical engineers, mining engineers. The first women to work in technical roles on the mines would have been in the vast minority. An informal discussion with a senior leader at SRK explains that men were extremely displeased with the entry of women into technical mining roles, because the leading perception at the time was that mining was "men's work". In the early days following the revocation, men strongly resisted working alongside women, and even more strongly resisted being led by women. As time passed, women infiltrated the mining sector workforce at all levels, and everyone became accustomed to women on the mines. It is not possible, within the scope of this study, to infer how traditional autocratic mining leadership mixed with the more empathetic and democratic style of female leaders; but it can be surmised that female traits and leadership styles would have been incongruent with mining bosses' recruitment and advancement requirements. Sabine had an interest in the mining sector because her parents worked in the mining sector.

Sabine also talks about how it is more difficult for women to advance in their careers in the mining industry: "*to get to the same place as a guy, definitely, we've got to navigate some super difficult channels, [whereas] for guys, it's just much easier*".

4.4.2.4 Misogyny is still displayed in the international mining sector

The international mining sector is still largely patriarchal, and male executives still exhibit misogyny. An example of this was provided by Sabine:

When I was a non-exec director on a [small] listed company, I remember one discussion where one of the [chairmen] of [a] bigger FTSE 100 [company said]: 'I'm not having a woman on my board; what, is she [going to] bring the kids next?'

Sabine mentioned that some clients go so far as to blatantly state that they do not want female consultants to lead their projects; and one project, even though she was the project lead, she “[was not allowed to] present the results. [The client wanted] to see an older man with white hair. That’s what they know and recognise”.

She went on to say that some clients will “shake my translator’s hand, but somehow don’t look me in the eye and say, ‘Hello’”. This year, for this first time in her career, Sabine had a client directly say to her “Oh, do I have to work with a woman?”.

4.4.2.5 Traditional female roles have not changed significantly

Female roles are mentioned 16 times in the interviews. The break that women take for maternity leave, coupled with their disproportionately large caretaker roles (when compared to their male counterparts) makes it difficult for women to become leaders. In SRK SA, some women with children work part-time, due to family obligations, and as such, they lose experience. Both Sabine and Vis mentioned that women are still the ones expected to “rush out to attend to kids” or “do the school run”, which makes it clear that traditional female roles are still being enacted largely by women, in 2019.

Sabine hints at the complexity of traditional gender roles in her statement:

It’s built into our history and part of our DNA, you know, [so a] woman is just not seen as an equal. Subconsciously, we’re not the image and the voice of authority. We are physically weaker, our voices are soft, we have a tendency to throw our toys and cry rather than bottle everything up, so all of [those] by many people [are] just seen as weaknesses.

Thumo also explained that the biggest common issue the mentees on the IWRMP faced is that “[Women] are perceived as being weak, because they have to balance work life and [their] household duties”. Thumo went on to say that this is “used against women”.

4.4.2.6 SRK SA is addressing gender inequality and the female leadership pipeline

SRK SA was historically a patriarchal company, due to its close ties to the mining industry (SRK SA was founded in 1974 as a geotechnical engineering consulting company, to service the growing mining industry). Over the past few years, SRK SA has become increasingly aware of gender inequality in its business, and as such, it has implemented a general recruitment strategy to employ more women.

In addition, SRK has spoken out publicly against gender bias in the science, technology, engineering and mathematics (STEM) fields. Prior to adopting the IWRMP, Vis explained that “SRK was looking at ways in which we can improve gender equality in in our, company, and by extension, [our] involvement in the mining industry”. SRK SA started out by sponsoring the IWRMP, and then nominated a mentee to join the programme in 2019.

In SRK SA, 10% of the partner group are women (stated by Vis in his interview). Currently, the partner group and the executive boards are still predominantly male, but in the past few years, the number of female partners (including those with young children), has increased.

SRK Global, at the board level, is still predominantly male, as explained by Vis:

At the global level, we don't have too many [female leaders] in our company, [occupying] either partner or practice leader position, or [director] on the board. [I] think that's something that [is] quite noticeable [on] the global level. And that's why we have to stop and ask the question, '[Why] is this not the case? Why is it not happening?'”.

Vis is a strong proponent of transformation along gender lines within SRK SA, and his decision for SRK SA to participate in the IWRMP is a testament to the willingness to achieve gender equality in SRK SA. For Vis, it was an obvious choice, and he said he “*didn't need any convincing*” and was “*gobsmacked by the fact that [the practice leaders] even had to discuss [it]*”.

4.4.3 Finding 3: Several leader-centric characteristics emerged from the data

4.4.3.1 The main female leader in the case study is uniquely formidable

Sabine is a strong, confident and resilient woman. She is technically competent and well-respected in the international mining sector, both by men and women, and by senior people and people on lower levels in SRK. She has had to fight for respect, equality and equal rights in the mining sector from the age of 16. Her experiences are unique, and when it came to women working underground, she was a pioneer.

Although she is humble, when asked about how her pitch for participation in the IWRMP was received, she acknowledged that:

I've been here for a long time. People don't often tell me no. I don't think anyone would have dared to come and say anything negative about [the IWRMP].

Thumo has the following perceptions of Sabine: that she is “firm”, that “she knows where she stands” and that “if someone's trying to put her down, she'll be able to stand her ground”. Thumo goes on to say that “it's amazing to see a leader like that in [the mining] industry”.

4.4.3.2 Several prominent traits emerged

Traits were mentioned 102 times in the interviews. Five prominent traits were identified to represent leaders in this study: goal-orientation, generosity (wanting to give), resilience / inner strength, perseverance, and confidence.

There are numerous quotes to validate each trait but inserting them all would be excessive; however, the most powerful quotes that support certain traits are included in this section.

Goal-orientation is shown by Sabine when she mentions that “If I can make a change, then I [want] to do that” and “I really would like to have some positive impact on other women”.

Resilience was shown by Sabine when attempting to become employed by mining houses in South Africa in the early 1990s; she states:

[They] all laughed me out of interviews, because, you know, they thought it was ridiculous for a woman to want to study mining. And, at best, I was treated politely, and at worst, I was just ridiculed and made fun of.

Another description of goal-orientation and perseverance is captured in Sabine's description of Barbara:

Barbara has [put] so much sweat into [the] Women in Mining [idea], so much hard work, she's so motivated to do it. She perseveres, [because] it's not easy; whether it's to raise funds for it, [or] whether it's to get more women on board. I just don't know, women, people, who are that driven to just accomplish something. You know she's a very normal type of person, but there's some grit under there.

Sabine worked hard, outside of her working time, to arrange SRK's participation in the IWRMP, and her perseverance is shown when she states that:

[If] it wasn't for me pushing this as an inside person, we would never have gotten all that funding. And if I hadn't phoned people and chased them. ... [We] became a platinum sponsor purely because I made all those phone calls and kept on top of it.

Vis described Sabine's goal-orientation and confidence in his interview:

I think she's confident, she comes across as a confident person. [She comes] across as somebody who knows her material. And she's got a strong conviction to drive [this issue] around gender equality and getting more women into the mining sector.

4.4.3.3 One prominent skill emerged

The prominent skill that emerged from the analysis is the ability to identify opportunities (this was mentioned 6 times in the interviews).

4.4.3.4 One prominent behaviour emerged

The prominent behaviour that emerged from the analysis is "initiation", i.e. taking initiative or initiating action (this was mentioned 10 times in the interviews). This behaviour is responsible for the creation of the IWRMP, and SRK's participation in the IWRMP.

4.4.3.5 Life / and or work experience emerged as significant

Life and / or work experience is mentioned 26 times in the interviews. The life experiences mentioned by Sabine were the formative ones that shaped her character. Sabine has had to continually fight to be heard and respected as a female leader.

4.4.3.6 Intrinsic motivation emerged as significant

Achievement / reward as intrinsic motivation for leaders is mentioned 12 times in the interviews. Sabine summarises her personal intrinsic motivation well in this statement:

[A] few times in my career, a [client specifically] asked for me to do [work for them]. And you can't buy that. And that's [taken many] years to get to. So that's probably a small little thing that really went a long way. ... That was a big deal. So those little things where you actually recognise and you know that in your professional career you have achieved. You've got recognition from others that you've done well. It's probably the biggest thing that we could have.

4.4.4 Finding 4: There is a lack of women in the leadership pipeline

The leadership pipeline is mentioned 9 times in the interviews. The purpose of the IWRMP is to develop the leadership pipeline, as explained by Barbara: *“it's about positive action. We need to do something to develop women into the pipeline, because there aren't enough”*.

4.5 Synthesis of findings with leadership literature

This section interprets the findings in the previous section, in relation to leadership.

4.5.1 Mentoring is a form of relational leadership

The contents of Section 4.4.1 can be summarised to say that mentoring is about relationships and personal development. In a mentoring relationship, mentors elucidate the path for mentees to achieve a goal. Mentors also impart emotional intelligence skills to mentees. This makes mentoring consistent with relational leadership theory.

4.5.2 Women need certain leader-centric characteristics to succeed as leaders in the mining industry

Although trait, skills and behavioural theories are too simplistic on their own to describe the leadership capabilities that contributed to SRK's participation in the IWRMP, these 'leader-centric characteristics' certainly played a role. This is evidenced by how many times traits, skills, behaviours and experiences are mentioned in the interviews (211 times, collectively).

4.5.3 Authentic leadership contributed to SRK's participation in the IWRMP

The four components of the theoretical model are: "self-awareness, internalized moral perspective, balanced processing, and relational transparency" (Walumbwa et al. 2008).

Barbara, Sabine and Vis strive to improve the personal development journeys of women in mining, in order to give them the best chance of success. They genuinely want to see women succeed in the mining sector. The prominent codes related to authentic leadership that were mentioned in the interviews are:

- Diligent,
- Admirable,
- Optimistic,
- Motivational / encouraging,
- Humble,
- Worried about perception of themselves,
- Having conviction,
- Polite,
- Responsible,
- Being the best version of yourself, and
- Doing the right thing.

There are numerous quotes to validate each code but inserting them all would be excessive; however, the most powerful quotes that support authentic leadership are included in this section.

The intrapersonal approach to authentic leadership states that "authentic leaders exhibit genuine leadership" and "lead with conviction" (Northouse 2016:196). Vis's perception that Sabine "*believes that women should be [in leadership positions] and deserve to be there and on merit, not just because they're women*" shows authenticity. Vis also mentions conviction when he says that Sabine's "*got a strong conviction to drive [this issue] around gender equality and getting more women into the mining sector*".

Sabine's background was filled with struggle to be respected and heard. This further talks to the intrapersonal approach to authentic leadership that states that "a leader's life experiences and the meaning he or she attaches to those experiences [are] critical to the development of the authentic leader" (Northouse 2016:196). This authenticity emerges in Sabine's statement below, when asked about why she wanted to participate in the IWMP:

Because I know how hard it is. [And] I think if I've been around for 30 years, [I'm] pretty strong minded. I've experienced many things. And I think, well, maybe I have something to give, and I'd like to give it. So if I can make a change, then I [want to] do that.

In addition to the above quote, work / life experiences are mentioned 26 times in the interviews. This confirms the importance of formative life experiences in authentic leadership.

Another aspect of authenticity is Vis genuinely believing that women have the same abilities as men, based on his statement:

I think women do [have] different things to offer. And, I think importantly, [the] same things to offer as well. [By 'same' I stress that] I don't see them as being less able to do things that men can do.

4.5.4 Servant leadership contributed to SRK's participation in the IWRMP

The seven behaviours of servant leaders are: "conceptualizing, emotional healing, putting followers first, helping followers grow and succeed, behaving ethically, empowering, and creating value for the community" (Northouse 2016:238).

The beneficiaries of the IWMP are primarily the mentees, and as such, the desire to participate in the IWMP and the actions taken to initiate participation in the IWMP are actions of service to the mentees. This is in line with the behaviours of servant leadership, where the leaders help mentees to grow and succeed, instead of primarily seeking benefit for themselves.

Barbara, Sabine and Vis mention “wanting to give” in their interviews 8 times. This code, along with several other service-related codes, are listed below (in descending order of mention):

- Want to give / want to give back,
- Supportive,
- Share experience(s),
- Contributing,
- Want to help others.

In addition, Sabine and Barbara both want to benefit women in mining, even though they get very little for it (especially Sabine, who works on the initiative outside of work hours). Vis is passionate about the transformation agenda, and he also clearly wants to give back, and to help women succeed. These behaviours resonate with the servant leader behaviours of “putting followers first”, and “creating value for the community”.

Chapter 5: Conclusions and Recommendations

5.1 Conclusions

Mentoring is a valuable tool for developing female leaders. Mentoring facilitates the formation and nurturing of relationships between female mentees and their mentors. Mentoring also enables the transfer of crucial technical and non-technical skills onto mentees (including leadership skills).

The leadership capabilities that contributed to SRK's participation in the IWRMP are primarily capabilities from the authentic leadership theory and from the servant leadership theory. In addition, some capabilities from the trait, skills and behavioural theories contributed to SRK's participation in the IWRMP. Some traits, skills and behaviours contributed as standalone capabilities (i.e., the prominent traits, skills, and behaviour discussed in 4.4.3), and some as components of the authentic or servant leadership theories (e.g. the characteristic of life experience and the trait of wanting to give). The capabilities contributed to Sabine's interest in gender equality, to her deciding to initiate action to participate in the IWRMP, and to her successfully gaining support for the initiative from the executive leaders in SRK. The capabilities also contributed to Vis's interest in gender equality and his decision for the SRK SA office to participate in the IWRMP.

At the current rate of progress on gender equality in the South African mining sector, we will not be able to achieve SDG 5.5.2 by 2030. The mining sector needs to do more to actively and vocally break through gender inequality. Society and the workplace need to evolve to the point where men and women are not held back in their leadership journeys due to family responsibilities.

SRK is addressing gender inequality and the female leadership pipeline. One successful intervention that was implemented to retain women in the South African organisation is flexible work practices. The IWRMP is a more recent initiative adopted to address gender inequality and to develop the leadership pipeline in the organisation globally. The success of the IWRMP is evaluated annually, but feedback from mentors and mentees on the first two years of the programme indicate that it is a resounding success.

5.2 Recommendations

In order to accelerate the progress on gender equality in the mining sector, the researcher recommends that SRK formalises the global work package currently being executed by Sabine into a component of a formal employment portfolio, so that the work is accommodated within working hours. A local gender equality champion should be appointed for the SRK SA office, to coordinate local and global gender equality initiatives.

SRK SA currently has senior technical professionals across the disciplines that it offers, and as such, junior female employees are exposed to high-quality senior employees. However, the mentoring that currently takes place is largely on-the-job technical mentoring. A structured mentorship programme, such as the IWRMP should be considered for all female employees.

SRK SA provides a work environment of flexible work practices. This is an enabler for the retention of women in the mining sector. As such, more companies in the mining sector should adopt flexible work practices.

The researcher recommends that further studies be conducted on gender equality in the South African mining sector, to develop a better understanding of the reception of female leadership into a historically patriarchal sector. The specific aspects that require study are role congruency and the perception of family responsibility.

Men in the mining need to become aware of gender inequality, so that they may contribute to solutions to gender inequality. Although this can be achieved by various communication and education programmes in the workplace and in public society, it is the researcher's opinion there is more merit to initiating gender equality awareness at university level, so that future leaders begin engaging with these challenges before entering formal employment.

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