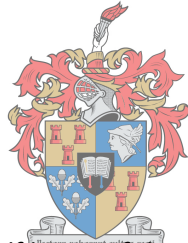# The development of an innovation leadership programme.

By Alicia Eleanor Dean

Thesis presented in partial fulfilment of the requirements for the degree of Master of Commerce in the Faculty of Economic and Management Sciences at Stellenbosch University.

Supervisor: Prof DJ Malan

December 2018

Declaration

By submitting this thesis electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

By: Alicia Eleanor Dean   Date: December 2018

ABSTRACT

Organisations are required to innovate to remain noteworthy competitors in the global marketplace. Many organisations realise this but continuously fail to implement the right practices to support the evolution of an innovation culture. In these organisations, innovation is defined as the responsibility of a select few within the Research and Development or Marketing departments and the latent potential of individuals and teams outside of these departments are never tapped into.

Many companies attempt to further innovation by implementing idea management systems, rolling out training focused on developing creative thinking and other similar skills, and adding innovation to their organisational values. Whilst these are all important, it neglects a key ingredient necessary for successful innovation, namely management. Traditional management practices, rooted in control, predictability and risk aversion, often stifle innovation, which in turn is characterised as unpredictable and risk prone. It is therefore critical that different management practices and styles are adopted for innovation to become part of the organisation's fabric.

Existing innovation training programmes often focus on either the innovation process or creative thinking skills, and few programmes address the leadership knowledge, skills and behaviours required to successfully manage innovation. With this opportunity in mind, the primary purpose of this research project was to develop a training programme to provide team leaders and managers with the necessary knowledge and skills to manage innovation with their teams.

Following a comprehensive literature review, the researcher decided to focus on four broad themes during the development of the training content, each of which represented a module in the training programme. The four modules were (1) the fundamentals and theory of innovation; (2) the nature of creative people and creative work; (3) the role of the work context, and (4) innovation leader behaviours, knowledge and skills. The principles of adult learning were also considered during the development of the programme. The training programme was designed to be interactive and involved the use of group exercises, reading material and video content.

The secondary objective was to conduct a preliminary evaluation of the programme's effectiveness, and the programme was therefore presented to a group of managers within a large call centre environment. The participants, as well as their subordinates, were requested

to complete comprehensive questionnaires both prior to and upon completion of the training programme. The questionnaires focused on perceived organisational innovativeness, the organisation's climate, as well as eight leadership competencies. Statistical analyses revealed that there was a positive improvement from the pre-assessments to the post-assessments, thereby indicating that the training programme was indeed successful in achieving its goals.

OPSOMMMING

Dit is uiters noodsaaklik vir organisasies om innoverend te wees in die hedendaagse globale mededingingsmark om voortgesette mededingendheid te verseker. Vele organisasies besef die belangrikheid van innovasie, maar hul praktyke en prosesse weerspieël dit nie omdat hul dikwels daarin faal om die nodige kulltuur- en praktykveranderinge suksesvol te implementeer. In sulke organisasies word innovasie grotendeels beskryf as die verantwoordelikheid van spesifieke departemente soos Navorsing en Ontwikkeling of Bemarking, en as gevolg daarvan faal hulle om die versteekte talente en potensiaal van individue en spanne in die res van die organisasie te ontgin.

Maatskappye poog om innovasie te bevorder deur stelsels te implementeer om idees te bestuur, opleidingsprogramme aan te bied wat daarop gefokus is om kreatiewe- en soortgelyke vaardighede te ontwikkel en ook om innovasie deel te maak van die organisasie se waardes. Die voorgenoemde is belangrik, maar een van die belangrikste komponente nodig vir suksesvolle innovasie, naamlik bestuur, word nie ontwikkel nie. Tradisionele bestuurspraktyke, wat gebaseer is op voorspelbaarheid, sekerheid en beheer, werk teen innovasie wat gekenmerk word as onvoorspelbaar en hoë-risiko van aard. Dit is juis om hierdie rede dat dit krities is om ander bestuurspraktykte en -style te implementeer vir innovasie om werklik deel van die organisasie se kern te word.

Bestaande innovasie-opleidingsprogramme fokus meestal op die innovasieproses of kreatiewe denke, en min programme hanteer die leierskapskennis, -vaardighede, en -gedrag wat noodsaaklik is vir die suksesvolle bestuur van innovasie. Met hierdie geleentheid in gedagte, was die primêre doel van hierdie navorsingsprojek om 'n opleidingsprogram te ontwikkel om vir spanleiers en bestuurders die nodige kennis en vaardighede te leer om innovasie suksesvol in hul spanne te kan bestuur.

Na afloop van 'n deeglike literatuur studie, het die navorser besluit om die programinhoud op vier oorhoofse temas te baseer. Elkeen van hierdie temas het 'n module in die opleidingsprogram verteenwoordig. Die vier modules was (1) innovasiebeginsels en -teorieë; (2) die aard van kreatiewe mense en kreatiewe werk; (3) die rol van die werksomgewing; (4) innovasie-leiers se kennis, gedrag en vaardighede. Tydens die ontwikkeling van die program het die navorser die beginsels van volwasse leerprosesse in gedagte gehou, en die program ontwikkel om interaktief te wees. Gedurende die aanbieding van die program is van groepoefeninge, leesmateriaal en videos gebruik gemaak.

Die sekondêre doelwit was om 'n voorlopige studie te loods wat die doeltreffendheid van die opleidingsprogram bepaal. Die program is gevolglik aangebied aan 'n groep spanleiers en bestuurders in 'n groot kontaksentrum. Die deelnemers en hul ondergeskiktes is gevra om omvattende vraelyste beide voor en na die aanbieding van die program te voltooi. Die vraelyste het gefokus op waargenome organisatoriese innoverendheid, die organisasie se klimaat, asook agt leierskapsbevoegdhede. Die statistiese analises het getoon dat daar 'n positiewe verbetering was tussen die voor- en nametings, wat 'n aanduiding is dat die opleidingsprogram daarin geslaag het om sy doelwitte te bereik.

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CHAPTER 1

INTRODUCTION AND OBJECTIVES OF THE STUDY

1.1.   Introduction

It is particularly important for businesses to continuously innovate to remain competitive in an increasingly challenging marketplace. The business landscape is characterised by uncertainty, discontinuity and chaos, which requires companies to respond quickly and innovatively to remain noteworthy competitors (Cook, 1998).

The case for innovation can, to a certain extent, be derived from the organisational need for adaptability. Organisations that are able to adapt to the changing business landscape are those who are never satisfied with the status quo and continuously challenge the way in which business is conducted, and critically evaluate the products that are produced and the technologies that are used. In essence, adaptability requires the discovery of new problems and new solutions and thus, the process of innovation (Basadur, 2004).

Unfortunately, it seems that the need for innovation is not always considered with the necessary seriousness and it thus results in innovation being enthusiastically promulgated, only to be implemented with mediocre success. Kanter (2006) argues that these bouts of enthusiasm and its short-lived presence are often linked to management's ability to overcome the challenges that are faced each time attempts are made at implementing innovation. In addition, many organisations unconsciously and unintentionally create practices and work environments that destroy creativity and impede innovative capability. This is mainly due to traditional management practices and mandates such as an emphasis on increasing predictability, control and coordination (Amabile, 1998).

A colloquium hosted by the Harvard Business School drew representatives from organisations such as Google, IDEO and Novartis - companies which are renowned for their innovative capabilities. During this colloquium, management's role in leading innovation and creativity was discussed extensively and delegates mostly agreed that different managerial practices are required to manage these functions than what has worked traditionally (Amabile & Khaire, 2008). This supports the view held by Mumford and Licuanan (2004) that the practices employed for managing day-to-day operations differ from those that will be successful when managing innovation efforts.

In some organisations, there also still exists the perception that creativity and innovation is the role and function of the Research and Development or Marketing departments. However,

creativity and innovation can originate from and impact on any department in the organisation (Baer, Oldham, & Cummings, 2003; Kanter, 2006; Loewe & Dominiquini, 2006). West (2002) also reiterates that various products and processes from a variety of departments and functions can be considered as innovations, especially when they bring about new ways of working, improvements in efficiency and productivity, enhanced communication and work satisfaction, and much more.

Leaders' creative skills, as well as leader behaviour, can influence employee creativity directly, but leaders can also influence employee creativity through their influence on the work context (Shalley & Gilson, 2004). This view is supported by Amabile (1998), in that it is stated that the responsibility to influence and craft the work environment often forms part of leaders' roles. Irrespective of whether leader behaviour influences creativity directly or indirectly through the work context, the role of leaders in enhancing creativity cannot be ignored.

Middle management often poses to be a significant hurdle in enhancing innovation (Barsh, Capozzi & Davidson, 2008). It is stated that middle management sometimes act as a bottleneck that inhibits the course of ideas and flow of knowledge, and that this is due to negative attitudes and the "inability to balance new ideas with current priorities and to behave as leaders rather than supervisors" (Barsh et al., 2008, p.41). It is further stated that managers require new skills in order to create an organisational culture that is more supportive of innovation. These managers could be transformed into innovation leaders, through training that provides them with coaching skills and skills that enable them to facilitate networking and knowledge sharing across departments.

In a survey conducted by Barsh et al. (2008), approximately 94% of the senior executives that participated in the survey stated that innovation is driven by an organisation's people and its culture. Barsh et al. (2008) emphasises three fundamental areas to be addressed for innovation to succeed, namely ensuring that innovation forms an integral part of the business strategy; that the right working conditions are created to tap into existing talent, and that deliberate steps are taken to build an organisational culture that clearly values innovation and builds trust among members. A vital point to be made here is that organisations often must optimise the utilisation of current resources. Very often, organisations aren't aware of the creative talent that exists within the business and this leads to an important assumption that serves as a motivation for the current research project: Managers and team leaders are ideally placed to change the work environment into one that enables the unearthing of latent creative talent, as well as exert an influence on the evolution of an appropriate organisational culture through the facilitation of behaviour necessary of innovative output.

According to an extensive survey conducted, Loewe and Dominiquini (2006) concluded that failure to innovate can usually be attributed to one or more of four root causes. These are labelled:

- Leadership and organisation;
- Processes and tools;
- People and skills;
- Culture and values.

Within each of these aspects, there is a significant role to play for managers and leaders to address an organisation's failure to implement systemic innovation.

Mumford et al. (2004) state that those responsible for leading creative teams require significant levels of technical and professional expertise themselves, as well as considerable knowledge and skill in thinking creatively. It is firstly proposed that leaders will have a significant influence on creativity if the necessary effort is exerted into appropriately channelling the intrinsic motivation of team members, instead of focusing on extrinsic motivation, and secondly, through improving the definition of the creative problem, thereby providing structure and direction for the task to be performed. Managerial behaviours and practices such as providing support, increasing the availability of information, time allocation, encouraging autonomy and deploying appropriate reward practices all exert a positive influence on creativity and innovation (Mumford et al., 2004).

Following the above discussion, individuals, teams and organisations will only be successful at innovation if the work environment is supportive of these efforts. It is also clear that there are many factors that impact on innovation that are within the control of managers and leaders, however the practices required to create the environment differ from those of traditional managers. A business imperative exists for organisations to innovate, and successful leaders will be those who are able to steer organisations towards innovative thinking and enable organisations to be the pioneers of change (Basadur, 2004).

1.2.   Innovation within the South African context

In South Africa, innovation is critical to economic growth, yet many perceive innovation, for example automation, as a potential threat to social progress through a reduction in the need for unskilled or low-skilled labour. A recent study by The World Bank (2017) focused on developing countries, however, suggest that successful innovation generates employment, raises consumption of the poorest households and often serve to reduce cost of living (e.g.

innovation within transportation, technology, electricity, food, agriculture etc.). Whilst results differ per sector, innovation in any sector can have a positive impact on reducing poverty and improving social outcomes. The private sector, from large enterprises to social entrepreneurs, has a very important role to play in addressing the needs of the impoverished. According to the Global Innovation Index (Cornell University, Insead, & WIPO, 2017) South Africa ranks 57th out of 127 countries, yielding many innovations and innovators that have been of global importance over the years. Yet the World Bank (2017) warns that further investment in innovation is necessary to ensure that South Africa does not fall behind. This view is supported in a study conducted by Accenture (Moore & Seedat, 2017) in which it found that investment in innovation is taking a backseat amid economic uncertainties, despite it being more important now than ever for South African companies to innovate.

The World Bank (2017) contends that South Africa's business environment does not compare favourably with that of other fast-growing knowledge economies. External factors, such as the business climate, availability of skills, information and communications infrastructure, as well as internal factors such as employee and founder capabilities, managerial practices and investment in research and development has a significant influence on innovation and organisational growth.

From a global perspective, executives agree that human factors (innovative behaviour and culture, novel thinking, leadership etc.) are critical to successful innovation. Human experience and insights are far more valuable to the innovation process than great technology skills. These executives argue that the most significant people-related innovation challenge is creating the right leadership culture and hiring employees with the right skills (PwC, 2017).

In agreement with the World Bank (2017), this researcher argues that there is significant innovation potential within South Africa. This can be unleashed through specific, focused interventions within organisations, encouraging positive change in both internal and external factors.

1.3.   Research Objectives

Many a creative effort is stifled due to unsupportive managerial practices or misconceptions about the nature of creative and innovative work. It is argued that through a proper evaluation of the literature regarding innovation, one should be able to develop a training programme that will effectively impart the behaviours, knowledge skills and attitudes that leaders require to facilitate innovation within teams.

The research initiating question is whether the existing body of knowledge allows one to develop a training programme for team leaders and managers that will provide them with practices and strategies to demonstrably improve the innovative outputs of their teams.

The overarching goal is consequently to develop a training programme, based on the existing body of knowledge, for team leaders and managers, which will challenge preconceived ideas about innovation; provide them with the necessary creative thinking tools and lastly, provide them with practices and strategies to improve the innovative outputs of their teams.

In broad terms the research study set out to achieve the following overarching goal:

- To develop a training programme to equip leaders with the necessary knowledge, skills and attitudes to effectively facilitate creative and innovative processes, and to effectively manage creative work and -people.

The following objectives have been derived from the overarching goal:

- To develop a comprehensive and practical innovation leadership training programme for leaders based on the current body of knowledge.

- To execute a pilot study where a group of leaders are exposed to the training programme to obtain a preliminary measure of whether the training programme is successful.

The next chapter presents a thorough review of the current literature on innovation and creativity, with the specific purpose to develop a theoretical model on which the training programme content was based.

CHAPTER 2
LITERATURE STUDY

2.1. Introduction

The following chapter presents a review of the existing literature about innovation and creativity, especially insofar as is relevant to the research objectives. This section presents an overview of the relevant concepts and definitions, the innovation process, as well as key theories and factors that influence innovation and creativity in the work environment. Most importantly, the leadership knowledge, skills and behaviours are discussed as these are at the heart of the training programme. The chapter concludes with a derived theoretical model on which the development of the course content was based.

2.2. Defining Creativity and Innovation

Creativity can be defined as "the production of novel, appropriate ideas in any realm of human activity, from science to the arts, to education, to business, to everyday life" (Amabile, 1997, p.40). Oldham and Baer (2012, p.388) define creativity as the "production of ideas concerning products, practices, services, or procedures that are (a) novel or original and (b) potentially useful to the organisation". It is regarded as the starting point for innovation and the purpose is therefore to generate original ideas. Creativity is typically associated with divergent thinking, a process with the purpose of generating as many ideas as possible (Gurteen, 1998). Houghton and DiLiello (2010) emphasise that these new ideas need to be useful and thus aimed at providing potential solutions to problems and/or increasing organisational effectiveness. In summary, for ideas to be considered creative, it needs to be novel, of high quality and relevant or appropriate to the task being performed (Kaufman & Sternberg, 2007). Creativity is more a function of individual ability and is therefore a prerequisite for any organisation wishing to be innovative; however, the mere presence of individual creative skill is not sufficient for successful innovation (Houghton et al., 2010).

Innovation is defined as the implementation of creative ideas (Amabile, 1997; Cook, 1998; Houghton et al., 2010; West, 2002; West, Hirst, Richter, & Shipton, 2004) and it therefore results in the development of new products, processes and solutions in the business context. Innovation is considered a process of convergent thinking (Gurteen, 1998), in contrast to creativity, with the purpose of finding the most creative and appropriate idea and implementing it. As stated in earlier paragraphs, innovation aims to bring about or respond to change, thereby enabling the organisation to be adaptable (Basadur, 2004). Innovation is therefore an

intentional or deliberate attempt at influencing and/or responding to the environment, however unintentional and unplanned innovation may also occur (West, 2002). According to Gurteen (1998) innovation not only leads to the development of new or different products/processes, but also to the development of new knowledge.

Martins and Terblanche (2003, p.67), provide a more comprehensive definition of innovation, as "the implementation of a new and possibly problem-solving idea, practice or material artefact (e.g. a product) which is regarded as new by the relevant unit of adoption and through which change is brought about." This definition encapsulates the requirements of novelty and change that are brought about by true innovation.

Innovation can further be defined according to product versus process innovation and simple versus complex innovation (Friedrich, Mumford, Vessy, Beeler, & Eukbanks, 2010). *Product innovations* are those that result in the development and presentation of a new product to customers. These can range from physical products to services and technologies and are usually aimed at addressing an identified customer need or driven by remaining competitive. *Process innovations* are usually focused inward at improving or developing new manufacturing or service delivery processes, internal operating procedures and policies. Process innovations are often focused on improving internal efficiencies that are not necessarily driven by customer needs and therefore not visible to customers. In order to determine whether innovation is *simple or complex,* factors such as the type of knowledge and technology required, the extent to which the elements of the innovation can be simplified or broken down and lastly the degree of originality are considered.

Just as the creativity of an idea is rated according to originality, appropriateness and quality, West et al. (2004) propose that innovations could also be measured against three criteria, namely magnitude, radicalness and novelty. In summary, magnitude is defined as the size/scale of the innovation, radicalness is determined by the impact the innovation has on the status quo, and novelty implies how "new" the innovation really is.

2.3.   Corporate Entrepreneurship, Intrapreneurship and Innovation

McFadzean, O'Loughlin, and Shaw (2005) conducted an evaluation of prevailing literature and research regarding the concepts of entrepreneurship, corporate entrepreneurship and innovation with the purpose of developing a consistent framework which integrates the current views. Similar to the overlap between definitions of creativity and innovation, there also seems to be an overlap between the definitions of entrepreneurship, corporate entrepreneurship and

innovation. The conceptual differences between the definitions of corporate entrepreneurship and innovation still remain somewhat illusive, yet it is clear that these concepts are very closely related.

From the research, McFadzean et al. (2005, p.356) concludes that corporate entrepreneurship (also referred to as intrapreneurship), can be defined as "the effort of promoting innovation [from an internal organisational perspective] in an uncertain environment". Corporate entrepreneurship thus relates more to the creation and promotion of a specific organisational culture, and the development of an organisation's entrepreneurial ability (Kelley, 2011), whereas innovation is more often defined as the process of implementing novel solutions. One can therefore argue that corporate entrepreneurship is based on innovation and that innovation is a sub-dimension of corporate entrepreneurship (Hayton, 2005; Kelley, 2011).

Intrapreneurs (also referred to as corporate entrepreneurs or innovators) are those individuals that will take new ideas and ensure that they are turned into value-adding and profitable solutions for the business and these individuals require a work context and culture that is supportive of innovation (Pinchot & Pellman, 1999).

Although it is noted that independent entrepreneurship differs in meaningful ways from corporate entrepreneurship, the focus of the current research is however on innovative or entrepreneurial behaviour *within* the organisational context. From the preceding section, and for the purposes of this research, the author will subscribe to the use of the term innovation.

2.4.   Stages in the Innovation Process

Several models exist that depict the different phases in the innovation process. Some describe innovation as two-phased (e.g. Howell & Boies, 2004; Mumford, Scott, Gaddis, & Strange, 2002; West, 2002; West et al., 2004) usually including idea generation (or creativity) as the first and idea implementation (or innovation) as the second. According to Mumford et al. (2002) innovation consists of two sets of processes. The first is concerned with creative thinking and processes underlying ideation. The second is concerned with innovation, and the processes underlying the implementation of new solutions.

Innovation has also been defined as a three-phased process (Carmeli, Meitar, & Weisberg, 2006), the first phase consisting of recognising the problem and generating new ideas. Secondly, the individual seeks support for the idea through engaging in idea promotion. Thirdly, the individual develops a prototype of the idea to be tried and tested.

Another three-phased model was utilised by McFadzean and colleagues (McFadzean et al., 2005). Each of the three phases consists of two sub-processes that need to happen within each phase. The first phase, idea generation, consists of the identification of a need, and the subsequent formulation of ideas. The second phase, problem solution, calls for design and evaluation, as well as prototyping the solution. The third and last phase, implementation and diffusion, has commercial development and manufacturing and marketing as sub-processes. This model proves to be somewhat more comprehensive in explicating the various components of the innovation process.

Roffe (1999) describes a four-phased model of organisational innovation consisting of:

- Idea generation during which new knowledge and new understandings are created;
- Initial application which entails concept testing and prototyping;
- Feasibility determination which requires various financial analyses and potential market; and
- Final application, which refers to the commercialisation of the innovation.

A four-phased model that very closely corresponds to the model presented by Roffe (1991), is that of Majaro (cited in McAdam & McClelland, 2002). The first phase, idea generation, is concerned with developing ideas. The second phase, screening, involves determining whether ideas are compatible with the organisation's goals. During the third phase, a feasibility study is conducted to determine whether the idea is technically and commercially feasible, and the last phase, implementation, involves commercialisation of the new solution.

Basadur (2004) states that the process of creativity is a continuous cycle that aims to replace old knowledge with new knowledge, through engaging in constant problem finding, problem solving and solution implementation activities. The process or formula they present consists of four stages, namely generating, conceptualising, optimising and implementing. This model is represented in Figure 2.1 below. Whilst this process is referred to as a creative process, the model they propose include the implementation of ideas and therefore, for the purposes of this proposal, the process will be referred to as an innovation process.

Basadur (2004) explains that the intention of stage 1 is to seek problems worth investigating. At the end of this stage, a problem has been identified, although it has not yet been clearly defined nor fully understood. The focus of stage 2, therefore, is to define the problem. Teams conceptualise and theorise about the problem to develop new insights that aid in fully understanding the problem at hand. Possible solutions might be contributed during this phase;

however, it is not the focus and should to a certain extent be guarded against. During stage 3, ideas are developed and evaluated. It starts with abstract thinking but ends where these abstract ideas are converted into practical solutions. The focus of this stage is therefore to deliver a good solution to a well-defined problem.
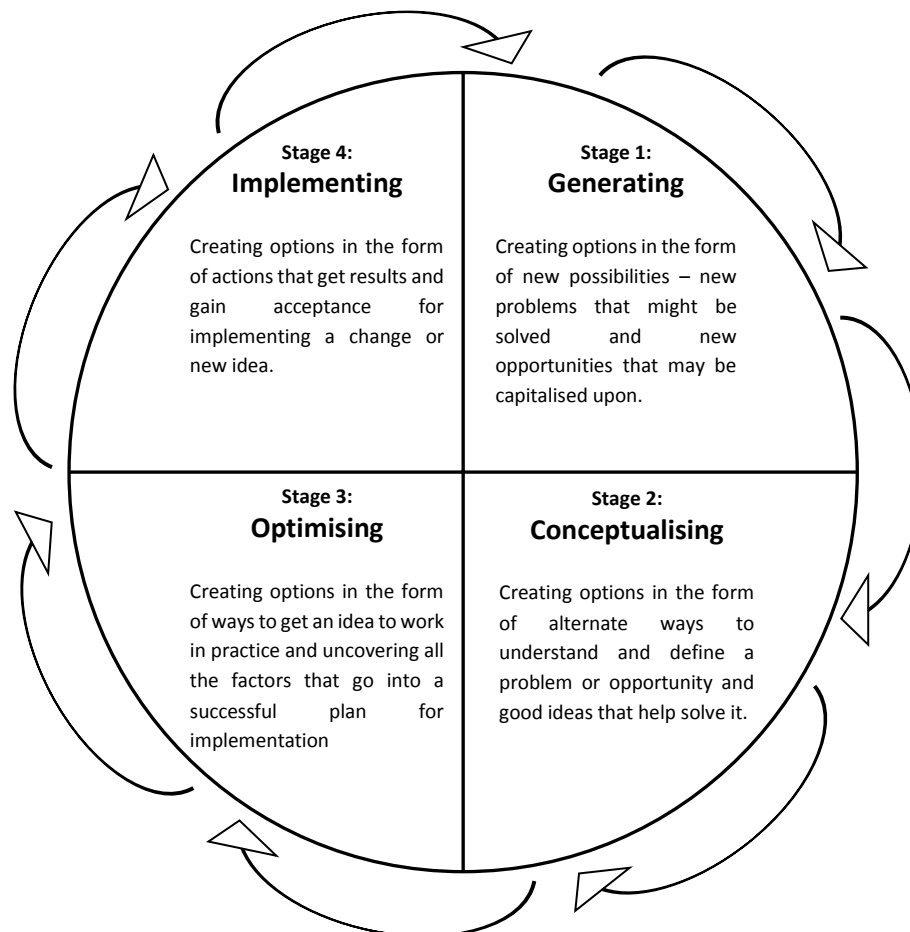
Figure 2.1. The four stages of the innovation process. Reprinted from "Leading others to think innovatively together: Creative leadership," by M. Basadur, 2004, The Leadership Quarterly, 15, p.112. Copyright 2004 by Elsevier Inc.

Lastly, stage 4 is concerned with the implementation of the solution that was identified in stage 3. Creative thinking is still involved in this phase, as various options for implementation are explored and adjustments are made to the implementation plans based on knowledge gained through exposure to the "real world". Ultimately, the end result of this phase is the successful implementation of a solution that works (Basadur, 2004). This model proves particularly useful, as it expands on the activities during each phase, thereby indicating what it is that individuals need to do during each step.

Whilst the different models for innovation are noted, full reviews of these are beyond the scope of this research. It is also important to note that the type of innovation models that organisations deploy can vary significantly from company to company, as each organisation will tend to customise the process to suit the organisation's specific needs.

2.5. Creativity and the Processes Involved in Ideation

Research and theory development have often focused on the 4 P's of creativity, namely **p**erson (those characteristics and attributes specific to the individual, such as personality, intelligence and motivation), **p**rocess (understanding the process of creativity), **p**roduct (the definition of creative outputs) and **p**ress (the climate or environment required for creative performance). These represent different perspectives and can be used to categorise research on creativity (Kaufman & Sternberg, 2007; Torrance, 1993).

2.5.1. The process of creative thinking

In preceding paragraphs, creativity was defined as the generation of novel, yet appropriate ideas. The process of creative thinking concerns itself with the way in which these new ideas are generated. According to Smolensky and Kleiner (1995), the creative process consists of three phases. The process starts by being immersed in the problem; secondly the problem is left to incubate, or simmer, without any conscious focus on solving the problem. Lastly, the solution becomes evident through what is known as the "eureka" moment. In earlier research, Wallas described the creative process as consisting of four stages, namely preparation, incubation, illumination and verification (in Barrett, 1978). It is further contended that, similar to the "eureka" moment described previously, the creative solution has a tendency to arrive at unexpected times, often when the mind is not actively engaged in seeking a solution. This is what has been described as a moment of illumination.

Serna (cited in Kilgour & Koslow, 2009) refers to creative thinking as a process by which one draws from various different mental elements and combines those in order to construct a novel and appropriate solution. Mumford (2000) states that the key to creative thinking resides in one's ability to rearrange existing information and concepts, as well as to assimilate these in new combinations, thereby creating a novel understanding or a new conceptual model.

According to Herrmann-Nedhi (2009, p.9) creative thinking "...is a series of thinking steps that can be learned and applied..." Due to this step-wise process, creative thinking can be taught and therefore almost anyone can be capable of a certain level of creative thought. It is further

stated that each individual has a different thinking preference and will thus attempt to solve problems differently.

Kilgour and Koslow (2009) state that the research pertaining to the improvement of creativity has generally centred around two themes, namely a focus on the social environment and the use of creativity techniques to improve the ideation process. It is further stated that the majority of creativity techniques are focused on producing novelty, but regrettably do not focus on appropriateness, and therefore these techniques do not deliver the desired impact on the business. Techniques geared towards stimulating creative thought often do not work equally effectively on different people, due to different thinking preferences – as stated above. This could potentially be another reason why creative thinking techniques (such as brainstorming) do not always deliver the desired results in the organisational context.

Creative thinking ability is often measured according to four criteria (Kaufman & Sternberg, 2007), namely:

- Fluency (the number of different responses);
- Originality (uniqueness of ideas, not doing what is expected);
- Flexibility (whether a variety of categories of responses were produced) and
- Elaboration (amount of detail added and the extent to which the idea has been developed).

Creativity exercises are sometimes designed in such a way that the individuals engaging in those exercises have the opportunity to practice improving in all four mentioned areas (Williams, 2001).

Creative thinking techniques are often designed around divergent thinking. This implies that individuals are probed and primed to make unusual connections and are stimulated to draw from a variety of experiences and memories to improve originality and fluency. Some techniques based on convergent thinking, requires the individual to search for commonalities between ideas, find related themes and make new connections within the problem domain (Kilgour & Koslow, 2009). Convergent techniques may therefore improve the appropriateness of ideas. None-the-less, the mere existence of these techniques supports the argument that creative thinking is a skill that can be taught or enhanced through exposure to and acquisition of the necessary methods to bring about creativity. The notion that almost anyone can produce a certain level of creative output is supported by Simonton (2000) who provided an overview of research aimed at defining creativity. These include research regarding cognitive

processes, personal characteristics, life span development and the influence of the social context on creative processes.

Whilst there have been many additions to the body of knowledge pertaining to creativity, the following summary provided by Barrett in earlier research, still proves to be very applicable (Barrett, 1978):

- All humans possess an innate ability to create and invent;
- Both conscious and unconscious processes are at work while engaging in creative thought;
- Certain stages within the creative thinking process can be described;
- Creativity can be developed through application of learnt models and techniques.

2.5.2.   Understanding creative people

The research regarding creativity is vast, and spans across several domains of psychology. Many have developed theories to determine whether individuals are predisposed to creativity (similar to many other personality characteristics) whether it is a function of intelligence, or whether it is a skill that can be developed in all individuals. In addition, the impact of life span development and the social context has also been considered as possible routes through which creative abilities are developed and formed (Simonton, 2000). All of the research to date has contributed to the body of knowledge which improves understanding of the creativity construct. Woodman, Saywer, and Griffin (1993, p.296) summarise individual creativity as a function of "antecedent conditions (e.g., past reinforcement history, biographical variables), cognitive style and ability (e.g. divergent thinking, ideational fluency), personality factors (e.g., self-esteem, locus of control), relevant knowledge, motivation, social influences (e.g., social facilitation, social rewards), and contextual influences (e.g., physical environment, task and time constraints)." The componential theory of individual creativity (Amabile, 1997) postulates that a certain level of expertise related to the task being performed (including knowledge and technical skill), sufficient creativity skills and intrinsic task motivation is necessary for someone to be creative.

The following section will aim to provide an overview of factors pertaining to personality, knowledge and motivation, in order to facilitate an understanding of the creative individual. It is important to note, however, that there are multiple complex relationships and interactions between individual attributes, the social environment and the work context – to name but a few (Woodman et al., 1993).

2.5.2.1. *Creativity and personality*

Creative thinking is said to be a function of personality characteristics such as independence, self-discipline, tolerance for ambiguity and risk, as well as resilience, which is the ability to persevere in the face of setbacks and failures (Amabile, 1997). Creative individuals are also said to be unconventional, open to new experiences and have wide interests (Simonton, 2000). Shalley et al. (2004) add autonomy and creative self-efficacy as characteristics descriptive of creative individuals. Houghton and DiLiello (2010, p.232) state that creative self-efficacy, which is defined as a "strong internal belief in one's ability to successfully engage in creative behaviors" forms an integral part of the creative process. Mumford (2000) notes that creative people tend to exhibit a strong need for achievement, self-confidence, openness and flexibility. Imber (2010) conducted a study to determine the predictors of creative performance and according to the study, openness to experience – the tendency to seek new experiences – proved to be the strongest predictor of creative performance. In addition, creative self-efficacy (belief in one's own creative ability), resilience (ability to bounce back after experiencing setbacks or failure and cope effectively with stress), confidence in intuition (trusting one's gut-feel), tolerance of ambiguity (being comfortable in working with vague and incomplete information) and cross application of experiences (the ability to transfer previous experiences into new contexts) were at the top of the list of predictors.

As the above seem to describe a mix of characteristics unlikely to be found easily in one person, it is the author's opinion that research has yet to deliver a comprehensive model of the personality characteristics and traits that are the strongest predictors of creativity. Certain characteristics are mentioned more frequently in literature – such as tolerance for ambiguity, a need for autonomy and openness to new experiences, however further research is required to build a more consistent model.

2.5.2.2. *Creativity and expertise*

There is a definite positive relationship between expertise and creative problem-solving ability. According to the componential theory of individual creativity, expertise is one of the three main factors that need to be present (Amabile, 1997), and it is defined as domain-specific knowledge, such as factual and technical knowledge. An individual's levels of education and training, prior experience and contextual knowledge are also reflected in the level of expertise (Shalley et al., 2004). Mumford (2000) warns that expertise is not the mere accumulation of information and facts, but the assimilation of knowledge, experiences and interpretations. It is also stated that an individual who possesses an adequate level of expertise, will be better able

to produce creative ideas that will be higher in appropriateness. Researchers have, however, found that extremely high levels of expertise could be detrimental to the creative ideation process, depending on the techniques that are used (Kilgour & Koslow, 2009). A certain level of expertise is needed for creative thinking, however the person's ability to use knowledge in unconventional ways will determine whether this will contribute to or inhibit creativity.

Kirton (2003) contends that individuals approach problem-solving in different ways, and that creativity is embedded in the process of problem-solving. As a result, Kirton developed a continuum of thinking or cognitive styles, ranging from adaption to innovation. Cognitive style is defined as a durable characteristic that determines an individual's preferred way of bringing about and responding to change. Individuals who exhibit a more adaptive cognitive style will approach problem-solving in a structured way, are likely to generate fewer novel alternatives, and are often perceived as less tolerant of ambiguity. Innovators, on the other hand, are comfortable with more flexible and unstructured environments, typically generate a variety of ideas and are often perceived as risky and sometimes impractical (Kirton, 2003).

2.5.2.3. *Creativity and creativity-relevant skills*

The second factor in the componential theory of individual creativity is that of creative thinking skills (Amabile, 1997). Creative thinking, which has been defined above as the ability to generate creative thought, is critical for the production of novel ideas. Exceptionally high levels of expertise and intrinsic motivation cannot compensate for a lack of creative ability. For some, creativity might come more naturally, as creative thinking is in part a function of certain desired personality characteristics. Others, however, will be able to acquire creative thinking skills and will be able to deliver a certain level of creative output.

2.5.2.4. *Creativity and motivation*

Motivation determines whether a person will engage in a certain activity and what the reasons are for doing it. Motivation can be defined as either extrinsic or intrinsic. *Extrinsic motivation* is driven by factors external to the individual and the task at hand, such as the attainment of a monetary reward and getting a promotion. The reason for persisting with completing the task therefore does not have anything to do with the actual task itself (Amabile, 1997; Lussier & Achua, 2004). *Intrinsic motivation*, on the other hand, is defined as "the motivation to work on something because it is interesting, involving, exciting, satisfying or personally challenging" (Amabile, 1997, p.39). Individuals who are intrinsically motivated persist in completing a task because they get a sense of enjoyment from doing it, and not with the goal of attaining any

material rewards (Pinder, 1998). This often resides in one's personality – often in the shape of passion for one's work or a continuous sense of curiosity. In short, the presence of expertise and creative thinking ability indicates what is person is capable of doing, however the presence of intrinsic motivation indicates what a person will be willing to do. Intrinsic motivation forms the third and last factor in the componential theory of individual creativity (Amabile, 1997).

Research has shown that the use of extrinsic rewards could be detrimental to individual creativity (Amabile, 1997). The creation of an environment where rewarding practices support and encourage creativity will be discussed in a later section.

2.5.2.5. *Understanding the nature of creative work*

The type of work that will typically call for creativity, are those problems or tasks that require the development of a new solution. Such problems are often characterised as ill-defined, ambiguous, complex and unstructured (Mumford et al., 2002). The problems and challenges businesses face in the modern world of work are usually of a very complex nature. That implies that different forms of expertise will be required by a variety of individuals in order to find novel, yet appropriate solutions. Highly complex problems are unlikely to be solved by one individual working in isolation, and therefore creative work often requires the collaboration of individuals.

Creative work can often be resource intensive, requiring resources such as the availability of time, access to information and people, as well as financial resources that will allow for exploration and experimentation. In addition, creative work is often uncertain and risky, in that the likelihood of an idea reaching full implementation cannot be guaranteed (Mumford, 2000; Mumford et al., 2002). This implies that many resources could have been invested without guarantees of a return. To a large extent, the true organisational support for creativity can be observed in the willingness of organisations to invest without having any certainty of success. In order to gain organisational support, creative work must be purposeful and therefore alignment with business strategy and departmental/functional goals are of utmost importance.

2.5.3. Innovation and the processes involving idea implementation

Whilst creativity concerns itself with the generation of new ideas, innovation refers to the implementation of these. The purpose is to deliver something of value to the organisation. However, due to the nature of creative work, there are many factors that influence the success of implementation. In essence, the author argues that implementation of innovation requires a somewhat different set of skills than the generation of ideas. This opinion is echoed in the view of Amabile and colleagues (Amabile et al., 2008) who states that those who generate

ideas may or may not have the ability and skill to implement those ideas. This presents important implications for management who need to make a decision between developing end-to-end innovative ability within individuals and complementing the creative thinkers with individuals capable of implementing these solutions.

During the current research, the author found that the literature describing the characteristics of creative and innovative people frequently do not distinguish between the concepts of creativity and innovation when illuminating the skills required for either processes. It is therefore difficult to discern whether creative individuals differ in meaningful ways from innovators with reference to personality, motivation, attitudes and expertise. The current project however focuses on determining whether it holds any significant implications for management, and whilst innovation has been defined as inclusive of creativity, as a first step in the process, managers and leaders remain responsible for the end-to-end innovation process.

Whilst the distinction between creativity and innovation is noted, for the remainder of this paper, the term *innovation* will include both the creative and innovation processes, as defined above, except insofar reference is made specifically to creative thinking skills and techniques. Individual creativity alone will not result in innovation and the focus is therefore on enabling individuals, teams and organisations to successfully implement creative solutions – in other words, to innovate.

2.5.4. A summary of the innovation process

For the purposes of the training programme, the author combined insights gained from the various models and processes cited above to arrive at a model that represents the most salient phases of the innovation process. This process is represented in Table 2.1 below which also contains a description of the typical activities associated with each phase. During a later section in this chapter, this process will be used to determine the specific implications for leaders.

Table 2.1

Activities during the various phases of the innovation process

Phase	Sub-Phases	Brief description/ Purpose of Phase	Typical activities associated with each phase
Phase 1: Idea Generation *Identification of opportunities and idea generation*	Need recognition	To continuously scan the internal and external environment. ***Outcome***: A problem or opportunity worth investigating.	• Purposeful search for new information and new knowledge, internal and external to the organisation. • Seeking out or anticipating problems, changes, trends, improvements etc. • Cross functional networking and communication internal and external to the organisation. • Continuous knowledge sharing between the various stakeholders. • Active boundary spanning in order to detect new information and to pass this to the organisation and to build relationships and networks across traditional organisational boundaries.
	Problem definition/ Focus area definition	To ensure that the problem or opportunity is properly understood and defined. ***Outcome:*** A well-defined, well understood problem or opportunity.	• Abstract thinking and conceptualisation. • Identifying causes of problems. • Fact finding to gain an in-depth understanding of the problem. • Deliberately interrogate reality and challenge preconceived ideas and assumptions. • Explore connections between pieces of information. • Identify alternative ways of understanding problems and opportunities.

Table 2.1 (continued)

	Idea generation	To engage creative thinking processes with the purpose of generating ideas. *Outcome:* A variety of ideas that could potentially address the problem or opportunity.	• Deploy creative and divergent thinking techniques. • Utilising new and existing knowledge to generate novel and potentially useful ideas. • Continuous exposure to and search for new information, perspectives and knowledge. • Initial filtering (pre-screening) of ideas according to novelty, appropriateness and quality. • Filtering information and buffering the creative thought process from premature judgment and other organisational politics/influences (i.e. gatekeeping).
Phase 2: Problem Solving *Conversion of ideas into practical*	Concept formulation	To reduce number of ideas through evaluation and combination, in order to arrive at a few possible concepts, worth investigating further. *Outcome:* A small number of concepts that could serve as potential solutions.	• Deploy convergent thinking techniques to reduce number of ideas. • Critical evaluation of concepts for novelty, appropriateness and quality. • Evaluation of concepts against problem definition.
	Design and evaluate	To present and test the concept, and critically evaluate against problem definition and for alignment with company strategy. *Outcome:* A well-defined and appropriate solution that can be prototyped.	• Critical evaluation of proposed solution against problem definition and organisational strategy • Refinement of concept/idea. • Identifying practical implications for implementation. • Idea promotion and coalition building. • Obtaining resources for prototyping.

Table 2.1 (continued)

	Prototype solution	To deliver a well-researched and tested prototype of the solution. **Outcome:** A practical and feasible solution to a well-defined problem that can be implemented.	• Identifying practical implications for implementation. • Conduct feasibility studies (financial analysis, market analysis). • Prototype testing in the 'real world' and refinement or improvement if required. • Deliver a proper plan for implementation. • Promote the idea internally to gain support. • Present the prototype to relevant decision makers. • Obtain resources and approval for implementation.
Phase 3: Implementation *Innovation*	Implementation (depending on type of innovation)	Successful implementation of the solution, resulting in positive change and added value for the organisation. **Outcome:** Innovation	The specific activities during phase will depend on the type of innovation (for example: product versus process; simple versus complex). It also depends on whether the innovation is focused internally or externally. Activities might include: • Cross functional and interdepartmental communication and team work • Coalition building • Introduction of new solution into production • Marketing the new solution (can be internal and/or external) • Project management of the implementation • Evaluation of success of innovation (novelty, radicalness, magnitude) as well as calculation to determine the return on investment

2.6.   An Environment Conducive to Creativity and Innovation

According to Amabile (1997) the generation of new ideas, as well as the subsequent implementation thereof, is greatly influenced by the work environment or work context. The work environment can enable organisations to either become the pioneers of innovation and front runners in the market place, or prevent them from adapting to changing demands, thereby continuing with soon to be outdated business practices. One of the fundamental principles of the componential theory of organisational creativity and innovation is that the work environment influences creativity through its impact on the three components relating to the individual, namely intrinsic motivation, expertise and creative thinking. It is also generally understood that leadership at all levels can exert a major influence on the work environment, and therefore on creativity.

According to Oldham and Baer (2012), the job characteristics, the way in which work is organised and the patterns of social interactions can, in broad terms, define the work context. According to their conceptual framework, two conditions are necessary for idea generation and creative performance, namely exposure and access to new and diverse information, and employee work or role engagement. They highlight certain contextual characteristics (such as job design, goal setting, competition, evaluation, financial rewards, conflict and the social environment) that either enhance or impede creative performance. Woodman et al. (1993) categorised environmental inputs into the innovation process according to *group characteristics* (which include group norms, size, diversity, cohesiveness, task characteristics and approaches to problem solving) and *organisational characteristics* (inclusive of culture, strategy, structures, reward practices, resources and so forth).

Shalley et al. (2004) conducted a review of social and contextual factors, and distinguished between individual-level factors (personality, knowledge, skills etc.), job-level factors (job characteristics, role expectations and goals, resources, rewards, supervisory support and external evaluation of work), work group factors (social context and group composition), and organisational level factors (organisational climate and organisational-level human resource policies). Whilst this distinction proves useful in understanding leader influences, most of the aforementioned practices can, due to the nature of innovative work and the complex interactions between the variables, impact on multiple levels in the organisation. In further support of this statement, work contexts experienced by groups are often a result of group design and management influences. Gersick (as cited in Amabile, 1997) notes that different groups within organisations may experience different work contexts, and different groups can also differ in terms of productivity and effectiveness. It is therefore essential to keep the levels

(individual-, job-, group-, and organisational levels) in mind throughout the following discussion, but more importantly to continuously interrogate the broader implications of certain practices, as the intention should be to establish uniform practices that will rather enable the development and perception of a consistent work context throughout the organisation.

According to the componential theory of organisational creativity and innovation, the work environment consists of three major components, namely the organisation's motivation to innovate, management practices and the availability of resources (Amabile, 1997). The following section will utilise these three major components as a means of structuring the research regarding the work context.

Before proceeding with this section, it is important to briefly refer to the interaction between leadership and the work context/culture. In a later section, the role of leadership in innovation will be discussed at length by means of a leadership-innovation matrix (Tierney, 2008). As part of the matrix, it is clearly argued that leadership has an influence across all levels in the organisation. The directionality of the influence between leadership and culture is a complex one, and as such it might be too optimistic to position the proposed training programme as a means to change organisational culture. Instead, the role attributed to leaders for the purpose of this thesis is one of interpretation. Leaders (both formal and informal, as well as on all levels of the organisation) have the important task of interpreting the organisational culture and relaying this to team members throughout the organisation. It is therefore even more important to ensure that leaders develop a common understanding of the culture, understand the influence of the organisational culture on behaviour, and how their interpretations can affect those reporting to them.

2.6.1. Organisational motivation to innovate and organisational culture

Organisational motivation to innovate is the organisation's attitude towards innovation and whether the importance of innovation is recognised through organisational culture, values and strategy. Barsh et al. (2008) proposed three managerial imperatives that could form the basis for the establishment of an innovative organisation. Firstly, innovation needs to be embedded in the strategic agenda of the organisation. Mumford et al. (2002) reiterate that the success of innovation greatly depends on whether it is supported by senior management. That in turn implies that creativity and innovation must form part of the organisational strategy, which supplies innovation with the purposeful direction it requires. This will enable managers and leaders to select innovative projects based on the competence and direction of the organisation. However, such an innovation strategy needs to be clearly communicated and

understood within the organisation, as well as the gap between the current and future desired state (Martins et al., 2003). Secondly, organisations should tap into existing innovative potential within existing resources through the creation of a work context that will encourage the flow of innovation and the emergence of dynamic networks. Thirdly, deliberate attempts should be made at fostering the right culture, where the contributions of ideas are valued, risk is embraced and managed, and trust is built between organisational members.

Organisational encouragement for innovation implies valuing innovation at all levels in the organisation (Amabile, 1997). This strongly links to the *organisational culture*, which is defined as "what the employees perceive and how this perception creates a pattern of beliefs, values, and expectations" (Gibson, Ivancevich, Donnelly, & Konopaske, 2003, p.31). Given that these beliefs and attitudes are shared amongst organisational members, the impact of an organisational culture can be identified on individual, team and organisational levels. Schein (in Yukl, 2006) distinguishes between underlying beliefs and espoused values, and states that there must be congruence between what people believe (sometimes unconsciously) and what the organisation promulgates as its values.

Martins et al. (2003) state that the organisational culture can influence innovation in two broad ways:

1. Through the socialisation processes whereby newcomers are introduced to the organisation and whereby the individual gains an understanding of the prevailing norms, as well as which behaviours are acceptable. Through this process the individual can make certain assumptions specifically with regard to whether innovative behaviour is encouraged or not.

2. The basic assumptions and beliefs are in turn reflected in the policies, procedures and structures of the organisation, which has a more direct impact on innovative behaviour.

A culture conducive to innovation strongly relates to the concept of an entrepreneurial culture, where risk-taking, creativity, and an active pursuit and exploration of new opportunities are encouraged (Gibson et al., 2003). In addition, the process of innovation is to a large extent a process of continuous learning and a process of knowledge creation. Organisations require an outward focus, thereby allowing new knowledge to enter the organisation. Cummings and Oldham (1997, p.27) concisely states that "most employee behaviour is a function of both the person *and* the place". Therefore, one cannot solely rely on selective individuals to deliver innovative outputs, but the right environment has to be created where that talent can flourish.

West et al. (2004) state that innovation will be enhanced in environments that are conducive to continuous learning and development. Encouraging inquisitiveness, open communication, creative skill development and knowledge sharing will develop and sustain a culture of continuous learning (Martins et al., 2003). Shipton, Fay, West, Patterson, and Birdi (2005, p.119) state that "organisational learning represents a capacity to create, transfer and implement knowledge" and argue that innovation will flourish in an organisation where human resource practices are designed to support organisational learning.

According to Garvin, Edmondson, and Gino (2008), a supportive learning environment provides for *psychological safety* (allowing for the safe expression of individual opinions); it *appreciates individual differences* (taps into constructive disagreement); *fosters openness to new ideas* (creating new ways of doing and taking risks to see if it will work), and it allows time for *reflection* (evaluating successes and failures). Psychological safety and encouragement of risk-taking is highlighted by Shalley et al. (2004) as important characteristics of a culture that supports innovation. It is further stated that an organisation's orientation to avoiding uncertainty, in accordance with Hofstede's cultural dimensions, could be indicative of the organisation's propensity to be creative and innovative. In addition, the organisation's attitude towards mistakes and failures contribute significantly to the perception of whether innovation is valued or not (Martins et al., 2003).

Another very important organisational factor, which has been briefly alluded to, is that *of open communication* (Martins et al., 2003). Open communication require that individuals trust each other, and that personal agendas are set aside in favour of achieving communal goals. Whilst this can be a value that is supported and promulgated at organisational level, communication will impact on each and every process, policy and practice within the business.

2.6.1.1. *Organisational structure*

The organisational structure can also enhance or impede creative and innovative capability. Mechanistic organisational structures, characterised by strong financial and process controls, formalisation and centralisation (amongst others), tend to inhibit creative output, whereas more organic structures will serve to promote open communication, the flow of information and access to information and people (Mumford, 2000; Mumford et al., 2002; Shalley et al., 2004; Woodman et al., 1993). Organisational structure is also reflected in the reporting lines and relationships. More bureaucratic and hierarchical organisations may impede creative performance due to proverbial 'red tape', imposition of authority structures and increased administrative communications (Shalley et al., 2004). Therefore, flat structures contribute to

the quality and frequency of functional communication, which is necessary for innovation. Flexible and flat organisational structures, however, require significant levels of responsibility and accountability from the organisational members, as it typically provides for greater freedom in achieving goals and strategies (Martins et al., 2003).

2.6.1.2. *Management practices*

Management practices are usually defined at a higher level (such as human resource policies, procedures and practices) and filtered down to the rest of the organisation. It is therefore noted that management practices impact on all levels throughout the organisation (job, group and organisational level). Management practices exert a strong influence on the work context, and therefore individual and team creativity. These include goal setting, job design, team composition (or work group design), planning, communication and feedback, social support, encouragement and resource allocation (Amabile, 1997; Amabile, 1998; Williams, 2001). A variety of these factors will be explored in the following section.

2.6.1.3. *Goal setting*

Mumford (2000) also refers to goal setting practices within organisations as an important influence. Goals focus and direct attention and energy – however, goals that are too rigid and specific may inhibit the innovative process. Oldham and Baer (2012) draws a distinction between performance goals and creativity goals. The former serves to focus time and energy on achieving targets, which may detract from time spent on searching for new information and new perspectives. Creativity goals, on the other hand, require employees to deliberately seek new ideas, information and perspectives. The research, however, shows mixed results with regard to the effect of performance and creativity goals on creativity and innovation. It is argued that certain moderating variables, such as participation in the goal setting process and individual responses to goals, may moderate the effect (Oldham & Baer, 2012).

2.6.1.4. *Job design*

Job design is considered a management function through which work is organised, tasks are divided, and authority is assigned. More specifically, job design determines what each person in the organisation should be doing in order to achieve the organisational goals (Gibson et al., 2003; Noe, Hollenbeck, Gerhart, & Wright, 2003).

Hackman and Oldham developed the job characteristics model which proposes that a job needs to provide for skill variety, task identity, task significance, autonomy and feedback in

order for it to be perceived as meaningful work. According to this approach, the extent to which jobs incorporate the aforementioned five characteristics will determine the motivational potential and the psychological meaning derived from doing the work (Cummings & Worley, 2005; Nel, van Dyk, Haasbroek, Schultz, Sono, & Werner, 2004; Shalley et al., 2004). Organisations that wish to compete through innovation, will therefore allow for more flexibility in individual jobs, through broader task definition and allowing greater autonomy in executing the tasks (Noe et al., 2003). In addition, role expectations and goal setting, resources (time, money and people) provided to do the work, and the exposure to external evaluation of work are cited as job-level factors that could improve or impede creativity (Shalley et al., 2004).

Cummings and Oldham (1997) state that job complexity can also encourage innovative performance, as complex jobs provide incumbents with the opportunity to work within several dimensions of a task simultaneously, with more freedom from constraints and controls. Thus, complex jobs require individuals to utilise a variety of skills, seek new information, and continuously interact with other parties internal or external to the organisation, which may in turn improve employee engagement and ultimately, creative performance (Noe et al., 2003; Oldham & Cummings, 2012). In summary, the job itself needs to provide sufficient stimulation for a creative individual to be fully engaged in the job. It should provide enough of a challenge, but not to such an extent that the individual becomes overwhelmed. In summary, jobs can be designed in a way that enhances the intrinsic motivation of the work. Ensuring that the work is sufficiently challenging, allowing for autonomy and variety, as well as non-controlling supervision, will be conducive to intrinsic motivation and therefore innovation (Williams, 2001). An understanding of creative individuals and the nature of creative work will provide a sound basis for job design.

2.6.1.5. *Team composition*

Individual creative behaviour certainly exerts an influence on team creativity, however, the social context, team composition and team processes also present important influences on innovation. Factors pertaining to team processes include the team's approach to problem solving (Woodman et al., 1993). Creative work, as described earlier, often requires interaction with others, within and external to the team. Communication between team members and receiving support for creativity from fellow team members and external parties has a definite influence on creative output (Shalley et al., 2004).

Typical to groups and teams, a set of norms, or common beliefs, develops that govern interaction, communication and other social or interactional processes. It therefore indicates

both implicitly or explicitly which behaviours and attitudes will be accepted within the group (Johnson & Johnson, 2003). It is further stated that the development of norms is an evolutionary process as a result of interaction and communication amongst team members and cannot be implemented or imposed on teams. It should therefore be considered a very powerful force that could greatly influence team innovation, through norms such as open sharing of information (Woodman et al., 1993). Similarly, on an organisational level, the organisational culture will develop in the same way.

Another factor within the social context is that of team cohesiveness. Team cohesion can be defined as "the mutual attraction among members of a group and the resulting desire to remain in the group" (Johnson & Johnson, 2003, p. 104). Cohesiveness has been linked to many positive organisational outcomes such as decreased absenteeism, turnover and conflict. It also influences the team's willingness to persevere, take on difficult tasks and foster a sense of personal responsibility towards the team. Given the nature of creative work, team cohesion could contribute positively towards creative and innovative output. This is however unclear, as some research suggests that group cohesiveness could also have a negative impact on creativity, leading to the proposition that there is an optimum level of cohesion for innovative performance, after which creativity and innovation decrease as cohesion increases (Woodman et al., 1993).

Goal conflict or competition amongst group members is another factor that has potentially negative implications for innovation. The very nature of creative work, as discussed earlier, requires the assimilation of various inputs, ideas and resources, and competition between group members may therefore prevent parties from sharing and exchanging knowledge that could be beneficial to goal achievement (Oldham & Baer, 2012). Two other types of conflict, task and relationship conflict, may also become relevant when evaluating the effects of conflict on innovation. *Task conflict*, which exists due to differing viewpoints, ideas and opinions about the task at hand, may serve to improve creativity and idea generation. However, *relationship conflict*, which results due to interpersonal incompatibilities, may stifle creativity. Support for the notion that task conflict has a positive relationship with creativity remains somewhat unclear, as some studies show positive and others show negligible effects (Oldham & Baer, 2012).

Factors pertaining to the composition of the team mostly refer to team *diversity*. Diversity is considered an imperative for creativity (Amabile, 1997; Walton, 2003) and according to West et al. (2004) there can be differentiated between task-oriented diversity (characteristics that are relevant to the task) and relations-orientated diversity (characteristics inherent to the

person, such as biographical details and predispositions). It is further stated that diversity is not only required with regard to biographical factors such as gender, sex and race, but that diversity in knowledge and discipline, professional orientations and experience is also (and possibly even more) important for creativity and innovation. On the other hand, diversity might lead to increased conflict situations, should it not be managed appropriately. West et al. (2004) does point out that research pertaining to diversity has delivered inconsistent results. It is proposed that innovation will suffer if increased diversity leads to improperly defined goals, which in turn results in a decrease in commitment to goals, and ultimately reduced innovation.

The establishment of cross-functional teams may also enhance innovation on a team and organisational level. Cross-functional teams encourage knowledge sharing, as well as social and technical interaction (Martins et al., 2003). More importantly, it facilitates the flow of communication between individuals who might otherwise have been shielded off due to the typical nature of functional teams. Innovation teams and team roles are discussed in more depth in a later section of this proposal.

2.6.1.6. *Evaluation*

Evaluation practices within the organisation may also serve to improve and shape innovative performance. According to Oldham and Baer (2012), evaluation can be broadly classified as judgemental or developmental evaluation. The former is generally perceived as a critical assessment against a predetermined standard, whereas the latter serves to provide guidance to the individual regarding the improvement of creativity-relevant skills in a non-judgemental manner, thereby improving engagement and openness to suggestions from the evaluator. Similar to the research pertaining to goal setting, research regarding evaluation has shown mixed results. Therefore, one needs to consider the possibility of moderating variables that impact on the relationship between evaluation and creativity.

2.6.1.7. *Recruitment*

Shalley et al. (2004) highlight certain human resource practices that directly impact on innovation and creativity. These include selection and placement procedures that recruit and select individuals on the basis of expertise, intrinsic motivation and creative thinking ability. One needs to take a realistic view where recruitment of team members is concerned. Often, organisations do not have the luxury of recruiting and selecting individuals solely on the grounds of innovative potential and are required to optimise the utilisation of existing talent. In this instance, practices surrounding team composition and team roles will be more important.

However, selection may play a larger role when teams are specifically formed to work on innovation projects. In this case, selection based on factors such as expertise and creative thinking ability might be a higher priority.

2.6.1.8. *Training and development*

Training and development is another human resource policy that by means of its execution could facilitate the development of new knowledge as well as creative thinking ability. Creative individuals value intellectual stimulation and ongoing professional development (Mumford, 2000). The organisation's willingness to invest in training and development can also be considered an organisational factor that could lead to positive perceptions regarding the importance of innovation for the business. Whilst training policies are typically constructed and implemented by the Human Resources Department, such policies should be geared towards building intellectual capital (creativity-relevant skills, technical and professional expertise etc.) that will yield the competencies required for improved innovative performance (Roffe, 1991).

2.6.1.9. *Reward and recognition*

Reward and recognition practices are also of critical importance due to its effects on intrinsic motivation. The use of extrinsic rewards is generally considered a danger to creativity, however, some see extrinsic rewards as an indication of the value an organisation places on the creative task. It is therefore theorised that an optimal mix between intrinsic and extrinsic rewards could be conducive to creative performance (Amabile, 1997; Mumford, 2000).

In a study conducted by Baer et al. (2003), it was found that the effect of extrinsic rewards on creative performance was mediated by job complexity and the employee's cognitive style. As an example, it was identified that employees in complex roles, with an innovative cognitive style (as defined by the Kirton Adaption-Innovation scale), were generally unaffected by extrinsic rewards. However, those who were in simple roles, with an adaptive cognitive style benefited most from extrinsic rewards.

Reward practices should be carefully constructed to ensure that the right messages are sent to organisational members regarding what is valued and encouraged. Extrinsic rewards may reduce innovative capability if it leads to employees exploring less risky, less novel ideas due to a fear of losing out on an extrinsic reward such a bonus, a salary increase or other external awards. Recognising achievement is considered by some to be a more powerful reward mechanism and motivator than monetary rewards (Roffe, 1991). In addition, reward practices

should not only focus on individuals, but should also recognise team efforts (Martins et al., 2003).

2.6.1.10. *Availability of resources*

The availability of resources for innovation also impacts on what the organisation will be able to deliver. Resources generally include human resources, funding, time allocation, systems and processes (Amabile, 1997). The nature of the relationship between resource availability and innovation is a complex one, as a severe lack, as well as an abundance of resources, could impede innovative output. Nohari and Gulati (in Mumford, 2000) established that the relationship between the availability of resources and innovation could be represented by an inverted bell curve. This implies that the availability of abundant resources might stifle the generation of novel solutions just as much as a severe lack of resources would do. Time is an important factor, as creative work often requires the exploration of alternative methods of doing things and is therefore more time consuming than following tried-and-tested ways (Shalley et al., 2004). The willingness of management to invest resources in innovation surely sends a strong message regarding the organisations motivation to innovate, and whether it is supported or not.

2.6.2.   Innovation teams and team roles

As discussed earlier, one avenue at the disposal of leaders, through which creativity and innovation in teams can be improved, is through influencing group composition. The following section expands further to illustrate that different approaches exist to the definition of the roles individuals can assume within teams. Within the realm of innovation, one can argue that innovation teams will differ from traditional functional teams.

Whilst the right mixture of domain expertise, creative-thinking ability and intrinsic motivation is required for an individual to be creative, it can be argued that successful innovation teams should also have adequate representation of certain team roles – in other words, that the individuals within the team each have a certain functional and team role to fill.

Belbin (2010) differentiates between the roles individuals fill from a *functional* versus *team role* perspective. An individual's functional role is the role to which the person has been appointed, and it sets out a selection of job demands and duties to be filled by the individual through applying requisite knowledge, skills and experience. On the other hand, the team role refers to the way in which the person relates to others, behaves and contributes to the team, which

is influenced to a great extent by the individual's personality. Table 2.2 presents the nine team roles defined by Belbin (2010).

Table 2.2

Belbin's Nine Team Roles

Team Role:	Description:
Plant:	Creative, imaginative, unorthodox. Solves difficult problems.
Resource Investigator:	Extrovert, enthusiastic, communicative. Explores opportunities, develops contacts.
Coordinator:	Mature, confident, a good chair person. Clarifies goals, promotes decision-making, delegates well.
Shaper:	Challenging, dynamic, thrives on pressure. Has the drive and courage to overcome obstacles.
Monitor-Evaluator:	Sober, strategic, discerning. Sees all options. Judges accurately.
Teamworker:	Co-operative, mild, perceptive, diplomatic. Listens, builds, averts friction, calms the waters.
Implementer:	Disciplined, reliable, conservative, efficient. Turns ideas into practical actions.
Completer Finisher:	Painstaking, conscientious, anxious. Searches out errors and omissions. Delivers on time.
Specialist:	Single-minded, self-starting, dedicated. Provides knowledge and skills in rare supply.

Note. Reprinted from Team roles at work (2ⁿᵈ ed). By R. M. Belbin, 2010, Oxford, UK. Butterworth-Heinemann. Copyright (2010) Butterworth-Heinemann.

Morris (2007) provides a more simplistic typology of three roles that need to be filled throughout the organisation for an innovation culture to emerge. These are:

1. *Creative Geniuses*, who are responsible for generating new ideas that can be developed into value-adding and innovative solutions. It is proposed that anyone in the organisation can be a creative genius, provided that they are given the opportunity and the right environment in which to operate. These individuals are those who identify opportunities for innovation within the internal and external environment, through seeing things as they could be, and not just as they are.

2. *Innovation Champions*, who assist the creative geniuses in overcoming obstacles typically faced in promoting ideas and gaining resources to prototype and experiment

with. Innovation champions are often great networkers that have the necessary ability to challenge the organisational bureaucracy, promote, support and drive innovation in the organisation.

3. *Innovation Leaders* have the ability and authority to influence core structures and basic operations within the business, thereby ensuring that the organisation's strategy, policies and practices are aligned to support and further innovation throughout the organisation. It is their responsibility to ensure that the support and expectation for innovative behaviour is permeated throughout the business.

2.6.3.   Leadership and innovation

The current study proposes that leaders can exert a significant influence on individual, team and organisational innovation as many of the factors that impact innovation fall within their control. Leaders are required to facilitate certain behaviours and processes, as well as translate the organisational culture to followers. Many authors have provided advice, proposals and guidelines for leaders and managers to improve team innovation (Amabile, 1997; Amabile; 1998; Amabile et al., 2008; De Jong & Den Hartog, 2007; Mumford et al., 2002; Shalley et al., 2004., Waldman & Bass, 1991; Woodman et al., 1993).

Mumford et al. (2002) provides three reasons for why the leadership of innovative teams differ from leadership in other domains. Firstly, innovation leaders need to be capable of giving direction and creating structure for what is considered a naturally unstructured and ill-defined task. Secondly, innovation leaders cannot rely on position power, pressure to conform, or commitment to direct the work. Traditional influence tactics relating to control and measurement will prove ineffective due to the risky, unpredictable and uncertain nature of innovative work. Innovative individuals respond to autonomy, intrinsic motivation and independence as driving forces. Lastly, innovation leaders are required to manage the inherent conflict between innovation and organisational demands.

This requires of team leaders of creative efforts to acquire a different set of skills in order for them to successfully manage innovative people, processes and outputs. Leaders need to have a thorough understanding of creative individuals and how to motivate and encourage them. A new perspective needs to be promoted with regard to the actual role of a leader within an innovation team. Indeed, the leadership challenge for the 21st century will be to guide and lead teams and organisations in the quest to become the leaders in innovation and the drivers of change (Basadur, 2004).

Tierney (2008) proposed a model, the leadership-creativity matrix, to explicate the relationship between leadership and creativity. For the purposes of this study, the model will be referred to as the leadership-innovation matrix, as the author is of the opinion that this model can be equally applied to the entire innovation process. As defined earlier, creativity is seen as the first phase within the innovation process and is therefore encapsulated and implied in the broader reference to innovation.

In the matrix, *facets of leadership* (traits, behaviours and relations), *levels of leadership* (individual, dyadic, group and organisation) and *leader influences* (capacity, motivation and cognition) are incorporated, which results in 36 possible ways in which the relationship between leadership and innovation can be viewed (see Figure 2.2).
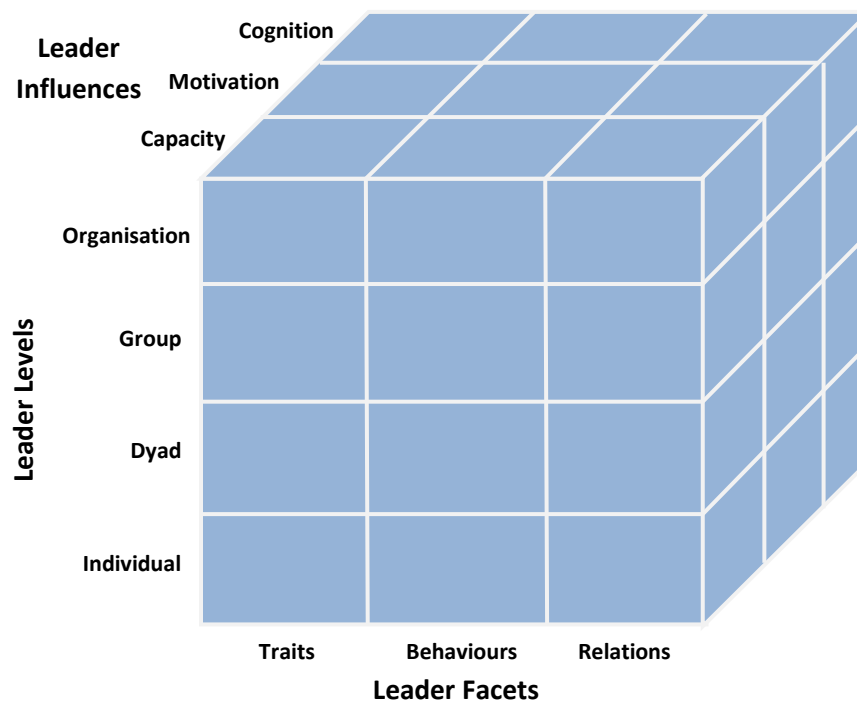
Figure 2.2. The Leadership-Innovation Matrix. Reprinted from "Leadership and employee creativity (p. 97)," by P. Tierney, 2008, New York: Lawrence Erlbaum Associates. Copyright (2008) by Lawrence Erlbaum.

- *Levels of leadership:* Leadership influences and manifests at all organisational levels (individual, dyad, group and organisational), although the impact on innovation differs. This impact could be direct (such as reward practices defined at supervisory level) or indirect via organisational practices and culture. Leaders never operate in isolation and the ideal

for organisational innovation would be for all levels of leadership to be aligned to the overall strategic agenda.

- *Facets of leadership*: The Leadership-Innovation matrix proposes that leader's personal characteristics (general and emotional intelligence), behaviours or actions and relationships with organisational members may all contribute to the success or failure of innovation.

- *Leader influence:* According to the Leadership-Innovation matrix, the relationship between leaders and innovative performance can be mediated through a number of variables, including cognition, motivation and capacity.

The leadership-innovation matrix provides valuable insights into the relationship between leadership and innovation. The following section will explore some of the components of the Leadership-Innovation matrix, however the format has been adapted to address two major components – namely leader knowledge and skills, as well as leader behaviours that influence innovation. Note that for the purposes of this paper, the term *leader* will be used, and will refer to all individuals in roles responsible for managing or leading teams.

2.6.3.1. *Leader knowledge and skills*

Mumford et al. (2002; 2004) argues that those who wish to lead successful innovative teams require four sets of skills:

- A certain level of expertise, as well as sufficient creative thinking ability;
- Transformational leadership skills;
- Planning and sense-making ability; and
- Social skills.

2.6.3.2. *Technical expertise and creativity-relevant skills*

Various studies are cited that prove the importance of technical expertise (knowledge about the task being performed) and capacity for creative thinking for successful innovation in teams (Mumford et al., 2002; Mumford et al., 2004; Tierney, 2008). This also holds true for those who wish to encourage and promote innovation within teams.

A leader's own level of expertise is considered one of the most powerful influence tactics within a leader's control, and it enables the leader to represent the group on a technical level, improves communication with team members, enables the leader to mentor and coach younger team members were necessary and effectively determine the needs of the team (Mumford et al., 2002). Mumford, Hunter, Eubanks, Bedell, and Murphy (2007), provide three

reasons for the importance of expertise. Firstly, expertise is required for planning and allocation of resources. Secondly, a leader that lacks expertise may lack credibility in the eyes of followers. Lastly, expertise is required in order to provide direction and feedback critical to project progression. Leaders who possess the requisite level of expertise can influence task-specific knowledge and expertise of team members through providing them with the necessary training and developmental feedback (Tierney, 2008).

It is further noted that leaders might not always have the necessary expertise due to the increasing complexity and highly technical nature of modern day creative problems (Mumford, et al., 2002; Mumford et al., 2004). In such instances, leaders should adopt a consultative approach as a supplementary measure.

As per the componential theory of individual creativity (Amabile, 1997), *creative-thinking skills* are required for individual creativity. In addition, one can argue that leaders require a certain level of creative-thinking ability in order to successfully manage innovative efforts. Specifically, these skills are required for leaders to guide the ideation process but are also required during evaluation and refinement of ideas (Mumford et al., 2007). Leaders can facilitate the development of creative thinking skills, through guiding employees through the different phases of the creative problem-solving process, thereby encouraging employees to think creatively (Tierney, 2008).

2.6.3.3. *Leadership style*

Leadership style has also been evaluated in order to determine which leadership style is the best suited for innovation teams. Transformational leadership has received much attention in the literature, however, research has shown mixed results with regard to the effect it has on innovation (De Jong & Den Hartog, 2007; Mumford et al., 2002; Oldham & Baer, 2012). Theoretically, transformational leadership is important in environments that are characterised as being dynamic and unstable, and where the need for continuous change is high on the strategic agenda. In such environments, leaders are typically required to be flexible and innovative in order to respond to the continuous change (Yukl, 2006). Given the current understanding of the work context required for innovation, it makes sense that transformational leadership behaviours will impact positively on innovation.

Transformational leadership is characterised by four types of activities, namely idealised influence; intellectual stimulation; individualised consideration and inspirational motivation. In short, the leader is able to present and communicate an exciting vision that is modelled

accordingly; the followers identify with, trust, respect and admire the leader to the extent that they will do more than what is generally expected; the leader continuously creates awareness of problems and provides intellectual stimulation; and lastly, the leader provides encouragement and support to team members through coaching and feedback (Yukl, 2006). According to Oldham and Baer (2012, p.404), "by challenging the status quo and encouraging novel approaches to problems, energising followers via the articulation of a compelling cause, and mentoring and developing them, transformational leaders may not only provide the informational impetus for creativity but also foster a deeper engagement in the task". This summarises a significant component of leader characteristics and behaviours required within an innovative environment as discussed in the preceding sections.

In earlier research, Waldman and Bass (1991, p.170) emphasised that leadership does not always have to be formal or assigned leadership, but that "it can also be informal as a consequence of one's personality, motivation, and ability independent of one's position". They further distinguish between nurturant leadership and persistent leadership, as important for innovation. Nurturant leader behaviour is defined as behaviour that supports the development and cultivation of new ideas, but also encourages followers to seek new information and different perspectives. Persistent leader behaviour is defined as those behaviours that motivate followers to remain optimistic and enthused during the innovation process and focuses on internal and external group relations. During the innovation process, the persistent leader shields creative individuals from external pressures and politics that can demoralise teams and individuals, but also builds the necessary ties and coalitions external to the team to gain support for new ideas. Behaviours such as boundary spanning and gatekeeping by the leader also fit in with nurturant and persistent leadership. (Waldman & Bass, 1991).

Amabile, Schatzel, Giovanni, and Kramer (2004) also state that supportive leadership, which entails a mixture of both task- and relationship-oriented styles is conducive to innovation and creativity. The effects of participative leadership have been shown to contribute to individual innovation and others have investigated the effects of the quality of the relationships between leader and team member, as proposed by the leader-member exchange (LMX) theory (De Jong & Den Hartog, 2007). A high quality LMX relationship is characterised by the willingness to do more than what is expected by the leader and to engage in more difficult tasks on the side of the employee. In addition, high LMX relationships provide greater support for risk taking, supervisory encouragement and resource provision (Tierney, 2008). High quality LMX relationships has also shown to positively influence employee engagement and provide

employees with access to more information – the two components highlighted by Oldham and Baer (2012) as necessary for creative performance.

Whilst uncertainty still remains with regard to the effectiveness of a particular leadership style, Mumford et al. (2004) provided a summary of literature that highlights conditions that moderate leader effects. These conditions include subordinate creativity; work-group processes, such as goal clarity and support for innovation; the control a leader has over rewards; job characteristics, such as complexity and challenge, and organisational culture.

2.6.3.4. *Planning and sense-making ability*

Planning and sense-making ability is important for various reasons. These relate to the leader's ability to create structure where there is none and to clarify ill-defined goals. Leaders need to read the environment and identify potential problems, solutions and consequences of these. During certain stages of the innovation process, the leader might be required to take on a project-leading role which requires the ability to plan according to project progress, and not according to highly specific deliverables. Plans and goals need to be defined in broad terms if it is to support innovation (Mumford et al., 2002; Tierney, 2008).

2.6.3.5. *Social skills*

A leader's sense-making ability will be futile if the leader does not possess the necessary social skills to communicate and coach team members (Mumford et al. 2002). The need for social skills is twofold: Firstly, the leader's social skill will aid in the management and motivation of a team that, due to the nature of creative work, is continuously facing challenging and stressful goals and multiple setbacks. Thus, leaders must be able to encourage followers and build commitment to the innovation process. Secondly, social skill is required in order to create a context in which innovation projects can flourish, and this may imply the management of organisational politics, as well as building a powerful network within the organisation (Mumford et al., 2007). Basadur (2004) highlights that team leaders of creative efforts need to act as process leaders or coaches, thereby facilitating the creative process through encouraging team work, modelling required behaviour and process skills and allowing team members the freedom and autonomy to find solutions and devise implementation plans by themselves.

2.6.3.6. *Communication style*

The leader's communication style also impacts greatly on whether innovation is stimulated or stifled within the team. Leaders often need to be able to communicate the organisational vision and translate the organisational culture in an effective manner. This depends to a large extent on the leader's communication style and ability. According to Thacker (1997), a consultative and/or team-oriented (supportive) communication style, as opposed to a directive communication style, positively impacts on the process of innovation. It is further stated that team leaders can be trained to apply a supportive communication style through experiential training, where they are exposed to both supportive and directive communication styles.

2.6.3.7. *Leader behaviours*

The literature review thus far has provided an overview of the characteristics of creative and innovative individuals, the nature of the work and factors that impact on the work environment, as well as a brief section focused on the characteristics a leader needs to have in order to manage innovation successfully. The following section focuses on the research pertaining to leader behaviour.

As stated earlier, an organisational culture conducive to innovation and organisational learning is required if organisations wish to innovate. The leader's role in this instance is to interpret the organisation culture and ensure that the right messages are conveyed to those required to deliver innovative outputs. Leaders also need to understand how they influence perceptions about the organisational culture, and Schein (as cited in Yukl, 2006) identified five primary and five secondary influence mechanisms leaders can use to influence the organisational culture. The primary mechanisms include:

1. The things leaders pay attention to (e.g. what they comment on, enquire about, measure, praise and criticise) sends a message regarding what is important, and those things they do not pay attention to sends a message regarding what is not important.
2. How leaders react to crises, and whether their reactions support the organisation's espoused values.
3. Leaders' own actions, and therefore their role modelling behaviour, determine what employees perceive as important or not.
4. Criteria used for the allocation of rewards send a message regarding the behaviours the organisation values.

5. Criteria used for decisions regarding promotions, recruitment, selection, dismissals etc.

The secondary mechanisms relate to the design of systems and procedures; the design of organisational structure; the design of facilities; stories, legends and myths told throughout the company and lastly, formal and/or public statements (Yukl, 2006).

Mumford et al. (2002, p.719) highlight three contradictory demands that leaders of innovative teams face: "First, leaders must reduce stress and ambiguity, while simultaneously maximizing challenge and risk-taking. Second, leaders must encourage exploration while ensuring timely production of a viable product. Third, leaders must encourage individual initiative, while promoting integration of group activities." As a result of these seemingly unrealistic expectations, Mumford et al. (2002) proceeded to categorise the leader's influences according to leading the people and leading the work.

Amabile et al. (2008) stated that the role of the leader consists of ensuring that the right people are engaged in the process through encouraging participation, collaboration and diversity. Secondly, to ensure that the processes serve their purpose through facilitating creative work, the hand-over to the implementation team and removing hurdles presented by bureaucracy. Thirdly, stimulate motivation through providing the necessary challenges, support and encouragement. Lastly, bringing it all together through creating a shared purpose.

Team innovation is a function of the individual innovative capability of the members it comprises of, but also a function of the environment in which it exists. Many of the factors that influence innovation on individual level will therefore impact on team level innovation. Leaders must promote diversity (both task- and relations-oriented diversity), through the recruitment and selection of individuals from diverse educational and experiential backgrounds, as well as encouraging team members to gain exposure to a variety of sources of information.

Leaders need to provide employees with sufficient intellectual stimulation, through providing access to information and other individuals within and external to the organisation; define objectives and tasks broadly; encouraging the exploration of a wide variety of information and so forth (Mumford et al., 2002). Knowledge acquisition is an important part of the innovation process, through the enhancement of individual expertise (Shipton et al., 2005). In addition, team level factors relate to interactional and social processes – or the group dynamics - within teams. Leaders can aid intellectual stimulation through allowing and guiding constructive controversy and disagreement; encouraging information sharing within the team and allowing

the team access to information and other valuable knowledge resources. This also requires interaction with sources of information external to the team (Mumford et al., 2002). Leaders should therefore not only encourage team members and support efforts of continuous learning, but also need to stimulate the diffusion of knowledge amongst team and organisational members (De Jong & Den Hartog, 2007). This is often achieved through encouraging informal and cross-functional communication.

A leader's challenge is not necessarily to motivate individuals, but rather to channel the naturally occurring intrinsic motivation, thereby leading the person to apply that energy to the goal at hand. A possible way of achieving this is through involvement. Involvement in itself has a significant influence on motivational aspects, such as job satisfaction and organisational commitment. There are several ways in which involvement can be encouraged: allow individuals to select the projects and tasks that most interest them or provide them with work that matches their interests and expertise; encourage participation in defining the creative problem; and provide them with challenging goals (Mumford et al., 2002). Ensuring that individuals' skill sets, and interests are matched to the task is an important aspect of providing individuals with sufficiently challenging work that will require them to stretch their abilities, but not overwhelm them (Amabile, 1998). Often creative ideas require buffering from judgement, as premature criticism could be detrimental to individual intrinsic motivation and creative output.

In addition to intrinsic motivation, the work context must also encourage engagement in innovative endeavours. The leader's willingness to provide supervisory encouragement, rewards and recognition for innovative efforts can lead to higher creative self-efficacy on the part of the individual (Tierney, 2008). Amabile et al. (2004) stated that team members have both perceptive, as well as affective (emotional) reactions to leader behaviours. This notion is important as employee innovation can be considered a function of the perceived work environment, an area in which a team leader has significant influence through the relationship with the subordinate.

Support and supervisory encouragement is important for individual and team innovation. Mumford et al. (2002) distinguish between idea support, work support and social support. A leader with the requisite expertise is able to guide the individual and the idea into a more appropriate form through providing careful yet informative feedback. This is referred to as *idea support*. *Work support* is given through ensuring that sufficient resources are allocated for the completion of a task, and *social support* can be fostered through building individuals' creative self-efficacy (Mumford et al., 2002). Supervisory encouragement is about providing

individuals with the sense that their work is important to the team and the organisation; that successes, as well as attempts at innovation, are recognised and learning from failures is encouraged (Amabile, 1998; Tierney, 2008; Williams, 2001).

A number of research projects has focused on the cognitive processes underlying creativity. One recent trend indicates that employees consider a variety of factors when deciding whether or not to engage in creative work. In this process, leaders are in a position to influence employee perceptions about innovation and even the organisation's orientation towards innovation (Tierney, 2008).

Individual perceptions play a major role in whether individuals will perceive an environment to be supportive of innovation or not. Autonomy and freedom are strongly related to the perception of supervisory support, and Amabile et al. (2004) refer to this as the "autonomy syndrome". Effective leaders are able to adjust levels of control and supervision in accordance with the individual's knowledge, skill and competence to function autonomously. Providing autonomy does not entail leaving all the decisions up to the individual. Instead, the focus is on allowing individuals the freedom to choose *how* they will attempt a task, instead of allowing full autonomy as to *what* needs to be done (Amabile, 1998). This will require leaders to effectively delegate tasks and assignments to team members (De Jong & Den Hartog, 2007).

2.6.3.8. ***Summary of leaders' knowledge, skills, attitudes (KSA's) and behaviours***

The preceding literature review was focused on providing a thorough overview of research and literature that describe those factors that impact on innovation within organisations. These ranged from attributes of creative individuals and teams, attributes of leaders required to manage innovation teams and processes, the nature of creative and innovative work, as well as the work context or organisational culture. From this review, it is evident that the relationships between the various factors are highly complex and that several factors are at play at any given point in time. In addition, the relationships between variables are not always direct or linear. The last section was focused on identifying the relationships between leadership and innovation, and specifically those practices and behaviours that are in the control of leaders, both formal and informal.

As cited earlier, Mumford et al. (2002), categorise the leader's influences on the innovation process according to leading the *people* and leading the *work*. It is therefore argued that leaders need to possess the right KSA's and exhibit the right behaviours to ensure that outputs are managed through the various phases of the innovation process, but also to manage

individuals and teams responsible for producing innovative results. This will, however, require the right organisational context, and leaders are in an ideal position to influence the context as well. As such, it is essential to review the role of leadership from two different, although overlapping, perspectives:

1. The KSA's and behaviours required to manage the individuals, teams and organisational context. These are considered global requirements for successful innovation that can be applicable at any stage of the innovation process. Table 2.3, which indicates all the global KSA's and behaviours, has been created based on the author's summary of the preceding literature review.

2. The KSA's and behaviours required during specific phases of the innovation process. Table 2.4 presents this author's summary of these specific KSA's and behaviours, based on the preceding literature review. This is an expansion of Table 2.1 that was presented earlier.

Table 2.3

Global leader KSA's and behaviours

Knowledge Requirements (What leaders need to know)
• A thorough understanding of creative and innovative processes, people and practices
• Understanding of organisational culture and the dynamics of the work environment/context
• In depth understanding of management practices conducive to innovation as opposed to traditional management practices
• Technical and professional expertise
• Divergent, convergent and other thinking techniques
• Organisational knowledge (understanding of the organisational culture, structure and controls)
• Knowledge of team roles required for innovation

Skill and Ability Requirements (What leaders need to be able to do)
• Creative thinking ability
• Coaching skills and the ability to provide informational and developmental feedback
• The ability to enhance intrinsic motivation and tap into innovative potential of individuals and teams
• Interpersonal and cross-functional communication skills
• Social skills and networking abilities
• Goal setting and problem definition (sense-making) skills
• Ability to plan and create structure
• Ability to manage a team, identify individual strengths and assigning team roles
• Ability to recruit and select the right individuals
• Ability to develop team members' creative skill and task relevant expertise
• Ability to delegate in accordance with individual strengths and interests
• Ability to manage debate and disagreement, as well as induce constructive controversy

Attitudes and Behaviour (How leaders need to do it)
• Supportive behaviour that encourages risk taking and exploration
• Receptive to diversity and the promotion thereof in all areas (physical, intellectual, knowledge, social etc.)
• Willingness to loosen control in favour of independence, autonomy and empowerment
• Affinity towards team building and team integration
• The willingness and tenacity to influence organisational perceptions, culture and processes in favour of furthering organisational support for innovation
• Willingness to act as an innovation role model (modelling behaviours that are expected from others)

Personal Attributes (What leaders are like)
• Self-aware and intrinsically motivated
• Transformational leadership style
• Tolerance for risk-taking, ambiguity, uncertainty and change
• Open to experience and new ideas

Table 2.4

Leader behaviours required through the different phases of innovation

Phase	Sub-Phases	Brief description/ Purpose of Phase	Leader behaviours required to facilitate innovation through the different phases
Phase 1: **Idea Generation** *Identification of opportunities and idea generation*	Need recognition	To continuously scan the internal and external environment. ***Outcome***: A problem or opportunity worth investigating.	• Communicate a clear and compelling vision • Communicate expectations of behaviours relevant to this phase and in accordance with team roles • Create an awareness of new problems, challenges and perspectives • Encourage team members to search for information and new knowledge through exploration and boundary spanning • Provide access to resources (information, people, time etc.) both internal and external to the organisation • Encourage and facilitate cross-functional and interdepartmental communication • Facilitate knowledge sharing/diffusion of knowledge and information • Delegate and assign tasks according to team roles or individual interests/competencies • Act as gatekeeper through interpreting and communicating new information and messages to team • Act as role model – share own knowledge, contribute new information, communicate openly • Challenge team members' thinking, assumptions and behaviours (interrogate reality) in order to generate new perspectives
	Problem definition / Focus area definition	To ensure that the problem or opportunity is properly understood and defined. ***Outcome:*** A well-defined, well understood problem or opportunity.	• Guide team through sense-making process, and provide structure • Encourage and manage creative controversy and creative thinking • Facilitate fact finding and reality interrogation • Encourage exploration of new perspectives (alternative views) and provoke thinking • Challenge what is known or assumed • Encourage diverse inputs and team participation • Create a sense of mutual purpose and excitement/energy to tackle the problem • Define assumptions for implementation (perceived and real constraints) • Identify possible resources required for next steps • Ensure all team members buy into and thoroughly understand the problem definition

Table 2.4 (continued)

	Idea generation	To engage creative thinking processes with the purpose of generating ideas. ***Outcome:*** A variety of ideas that could potentially address the problem or opportunity.	• Communicate expectations of behaviours relevant to this phase and in accordance with team roles • Educate team members about the nature of the ideation process and the nature of creative thinking • Develop team members' creative thinking abilities through application of appropriate techniques • Facilitate divergent thinking through application of appropriate techniques • Ensure that all ideas are captured in raw form • Ensure that all team members contribute ideas and participate in ideation • Actively discourage judgment of ideas during idea generation • Continue to provide access to information, data, materials (sources for ideas) to stimulate creative thinking • Create an environment where everyone feels comfortable with contributing ideas (psychological safety) • Provide the physical space, time and resources for idea generation, incubation and cross-fertilisation of ideas • Continuously remind the team of the problem definition, to ensure a focused ideation process • Generate high energy levels through motivating and encouraging team members • Draw from team diversity (expertise, creative thinking ability, individual strengths and interests) • Provide creative geniuses with enough freedom to unleash creativity • Nurture fragile ideas that has potential
Phase 2: Problem Solving *Conversion of ideas into practical solutions.*	Concept formulation	To reduce number of ideas through evaluation and combination, in order to arrive at a few possible concepts, worth investigating further. ***Outcome:*** A small number of concepts that could serve as potential solutions.	• Facilitate convergent thinking through application of appropriate techniques • Identify patterns (underlying themes) in ideas, data, research • Deliberately combine ideas in unusual ways to enrich ideas • Provide developmental and informational feedback to team members • Maintain team members' energy levels throughout the evaluation of ideas • Reiterate vision/problem definition • Evaluation of ideas against problem definition as a screening/filtering mechanism • Where required, obtain inputs from experts external to the team (especially where problem is highly technical/specialised) • Contribute own organisational knowledge about previous attempted solutions and obstacles faced • Manage and stimulate creative controversy • Evaluate concepts against constraints identified in problem definition phase • Embark on coalition building (internal/external) and early promotion of ideas (planting seeds, and creating urgency for change) – networking and influence (important for subsequent phases)

Table 2.4 (continued)

Design and evaluate	To present and test the concept, and critically evaluate against problem definition and for alignment with company strategy. *Outcome:* A well-defined and appropriate solution that can be prototyped.	- Championing ideas/promoting ideas in the organisation to gain buy-in - Manage early stages of change internal and external to the team/ organisation (overcoming resistance and creating urgency to change) - Identify and secure resources required to prototype the idea (next phase) - Build internal and external coalitions in support of the vision, and encourage team members to do so as well - Facilitate networking and interdepartmental communication - Assign tasks in accordance with team roles and individual strengths - Critically evaluate concept design against problem definition and for alignment with organisational strategy - Encourage constructive disagreement, in order to arrive at the best possible solution - Encourage practical thinking (i.e. how can we make this work) without losing enthusiasm for the concept - Encourage persistence and perseverance - Provide continuous developmental and informational feedback - Contribute own organisational knowledge about previous attempted solutions and obstacles faced - Where required, obtain inputs from experts external to the team (especially where problem is highly technical/specialised) - Depending on the organisation's approval processes, coach team to present (pitch) final solution to the necessary stakeholders for approval and resource allocation
Prototype solution	To deliver a well-researched and tested prototype of the solution. *Outcome:* A practical and feasible solution to a well-defined problem that can be implemented.	- Secure and allocate appropriate resources to prototype - Task assignment in accordance with team roles and individual preferences - If prototyping is conducted by another department, ensure that the original concept is preserved through strategically placing idea champions amongst the prototyping team (ensure that the concept does not get lost in translation or watered down, but rather enhanced or improved further in this phase) - Act as project leader or delegate this responsibility to an appropriate team member - Identify practical implications for implementation, and production/manufacturing during prototyping stage - Facilitate and/or conduct feasibility studies (financial analysis, market analysis) - Provide resources for "real world" testing of prototype, and ensure feedback is obtained from testing - Ensure that prototypes are refined and improved where necessary - Provide coaching and feedback to project leader - Encourage team to learn from failures and setbacks - Continue to gain support for solution internal and external to the business (championing) - Manage change processes (overcoming resistance and providing solutions) - Consult with experts where required - Obtain approvals where required (in accordance with internal decision-making processes/authority) - Depending on the organisation's approval processes, coach team/ project leader to present (pitch) final solution, (with a prototype and testing feedback) to the necessary stakeholders for approval to proceed with implementation.

Table 2.4 (continued)

Phase 3: Implementation *Innovation*	Implementation (depending on type of innovation)	Successful implementation of the solution, resulting in positive change and added value for the organisation. ***Outcome:*** Innovation	The behaviours required by the leader will depend on the type of innovation: • Project management of the implementation phase – or assign project manager • Ensure open communication to implementation team, and proper handover/knowledge sharing • Ensure that the knowledge that was gained throughout the prototyping phase is shared with the implementation teams • Support implementation and act as change agent within the organisation • Recognise and reward teams that contributed throughout the innovation process • Measure success of innovation (novelty, radicalness, magnitude), and return on investment • Encourage teams to celebrate successes and learn from failures (encourage learning environment/culture)

2.7.   Conclusion

From the preceding literature review, it is evident that there are many factors that contribute to the overall success or failure of innovation in organisations. As a leader or team manager responsible to facilitate innovation within teams, it is important that the leader has a full understanding of all these factors, and that the requisite skills are developed over time to improve innovation outputs.

The following theoretical model, depicted in Figure 2.3, has therefore been derived from the literature by the current researcher, which served as the basis for the development of the programme's content.
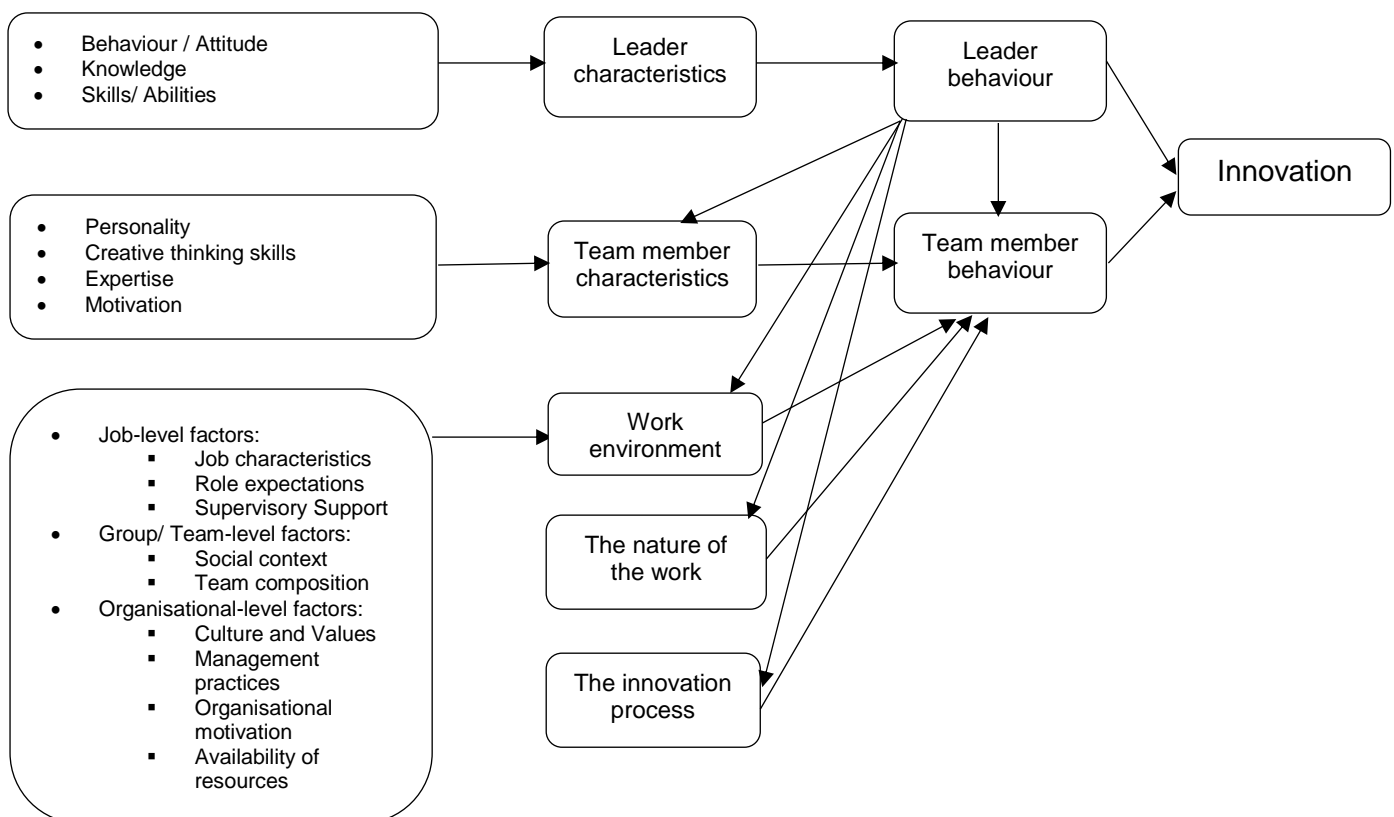
Figure 2.3. Theoretical model inferred from the literature review

In the next chapter, the research methodology is discussed for both the development of the training programme as well as the preliminary evaluation of the training programme.

CHAPTER 3
RESEARCH METHODOLOGY

3.1.   Introduction

The focus of the study was firstly, to develop the programme and secondly, to conduct a pilot study to determine whether the training programme achieves its objectives. The researcher therefore had to define the research methodology on two levels – firstly for the development of the programme, and secondly for the pilot study, and such is described in detail in this chapter.

3.2.   Methodology for Development of the Training Programme

The following section describes the methodology followed for the development of the training programme. This includes the rationale and focus of the training programme, the underlying principles subscribed to during the content development, as well as the procedural steps that were followed in assimilating the programme.

3.2.1.   Rationale and focus of training programme

As discussed in preceding sections, the management of creative individuals and innovative teams requires a different set of skills than those required for the management of operational or traditional teams.   A training programme was therefore developed to equip leaders/managers with the necessary tools and techniques to facilitate innovation within their respective teams.

As described above, the organisational (and team) culture plays a significant role in whether innovation will become an embedded organisational competency, or whether it will be short-lived. Whilst the reverse is also true, it can be argued that leader behaviour can greatly influence the organisational culture. Therefore, the training programme may be utilised as a vehicle through which to induce the necessary cultural change in organisations. It could, however, be considered idealistic to claim that the proposed training programme will induce change to the full extent required for sustainable and continuous innovation, as it will be an arduous task without the required organisational support. Thus, organisational support for innovation is an essential ingredient that will, to a large extent, determine the effectiveness of the training and the subsequent cultural change. It is consequently argued that those organisations that have identified the need for innovation, that have committed strategically to

furthering innovation and that are willing to invest the necessary resources in developing innovative capacity will benefit most from the training programme.

The training programme focused predominantly on those who operate within a leader/manager capacity within the organisation and who are responsible for managing a team.

The preceding literature review, as well as further research within the existing body of knowledge served as the theoretical basis for the training programme.

3.2.2.   Underlying principles for programme development

The training programme was deployed within the business context, and therefore the principles of adult learning were taken into consideration. The andragogical model is based on several assumptions about adult learners (Knowles, 1990; Rothwell, 2008):

- Adults are driven by *a need to know why* they are required to learn something before they will engage in the learning process.

- Adults are *self-directed* learners that take responsibility for what they learn, their decisions and lives.

- Adults enter the learning environment with a wealth of *existing knowledge and experience* which they have accumulated over time that can have both positive and negative consequences for the adult learning experience. As experience develops, certain mental models and habits form, which may result in the individual resisting new information and ideas. On the other hand, sharing experiences within the learning environment can greatly enhance the richness of the learning process.

- Adults' *readiness to learn* is influenced by the real-life situation in which they find themselves. This holds important implications for the timing of training delivery, however, there are ways to induce adult readiness.

- Adults' *orientation to learning* is influenced by the perception of whether the training programme will enable them to perform or cope better with real-life situations.

- The *motivation to learn* is predominantly influenced by internal pressures, such as a desire for increased job satisfaction, personal development, self-esteem and so forth.

3.2.3. Steps in the development of the programme

The programme development consisted of three broad phases, namely planning, content development and subject matter expert evaluation.

3.2.3.1. *Phase 1: Planning*

The goal of the planning phase was to create an overarching framework within which the content development would take place. Proper planning allowed for certain practical considerations to be taken into account, such as the programme structure, duration, target audience, as well as the possible challenges to be faced with the application of the programme in an operating business environment.

3.1.1.1.1 Defining the programme goal and objectives

Rothwell (2008) states that learning can be focused on improving *knowledge* (through sharing information, facts and concepts); focused on *skill* (know-how and practical awareness) or focused on changing prevailing *attitudes and behaviour* (including opinions and beliefs). Carliner (2003) states that three aspects of Human Performance Improvement (HPI) are important for training programme development. Firstly, training programmes must lead to measurable improvement in behaviour; secondly, training should address the gap between current and desired performance; thirdly, a performance gap might be due to lack of motivation or resources, in which case the delivery of a training programme will not produce the desired results.

In broad terms the research set out to achieve the following overarching goal:

- To develop a training programme to equip leaders with the necessary knowledge, skills and attitudes to effectively facilitate creative and innovative processes, and to effectively manage creative work and -people.

The following objectives were specifically identified for the development of the training programme content. These were based on the theoretical framework that was derived from the literature review:

- To create an understanding of the innovation process, relevant concepts and definitions.

- To develop an understanding of the characteristics of creative people and the nature of innovative work.

- To develop an understanding of the impact of the work environment on innovation, and the role of leaders in creating the desired environment.

- To create an understanding of the leader characteristics required to manage innovation within teams.

3.1.1.1.2   Defining the programme structure

The starting point for the development of the programme assumes that all participants attending the course have different cognitive styles, frames of reference, opinions and different approaches to learning. The programme was therefore constructed in a way that served the inherent nature of the subject. Just as traditional management practices are not successful for managing innovation, traditional learning experiences cannot be successful in achieving the defined programme objectives as stipulated above.

The programme consisted of several modules, each focused on achieving specific objectives (i.e. module objectives) that aim to address the overarching programme objectives, as stated earlier. Module objectives were broken down into specific learning outcomes that were highlighted at the commencement of each module. The module content was built around achieving the specific learning outcomes.

The programme content was supplemented with interactive learning experiences, drawing from the use of individual exercises, case studies, discussions, video material and role plays. In addition, the participants were given practical assignments that they must complete. The practical assignments were discussed, and participants were requested to share their experiences of the assignment.

Each module requires specific learning materials that were based on the selection of exercises, and the specific content of the module. Learning materials included workbooks, presentation slides (including a projector and screen), hand-outs (such as case studies, articles, and exercises), stationary (such as sticky notes, pens and pencils, paper, flip-charts, etc.). Each module was also complemented with a reference (resource) list to provide participants with additional sources of information for self-study.

From the aforementioned discussion, each module was to be built around a similar framework, consisting at least of the following:

- Module Objective
- Learning Outcomes

- Required learning materials

- Theoretical content

- Application exercises (in-session)

- Practical assignment (between modules)

- Reference / resource list

Table 3.1 provides a brief overview of the structure of the programme, mapping the themes and practical elements to the overarching goal and sub-goals of the training programme.

Table 3.1

Framework for Programme Structure

Overarching Goal	Objectives	Themes/ Content	Practical application/ Skill Development
To equip leaders with the necessary knowledge, skills and attitudes (KSA's) to effectively facilitate creative and innovative processes, and to effectively manage creative work and –people.	• To create an understanding of the innovation process, relevant concepts and definitions.	• The organisational imperative for innovation. • Literature overview, concepts and definitions. • Understanding the processes of divergent and convergent thinking. • How to redefine a problem/opportunity. • Techniques that can be deployed to generate ideas. • The innovation process and typical activities associated with each stage.	• Exercise to illustrate creative thinking. • Discussion of examples of innovations. • Critically evaluating the work environment to identify a problem or opportunity that could benefit from an innovative solution.
	• To create an understanding of the nature of creative people and creative work.	• The theory of individual creativity. • Understanding the characteristics and attributes of creative people, and how to motivate and engage them. • The nature of creative /innovative work.	• Discussion about attributes of known innovators / creatives. • Illustration of a brainstorming exercise.
	• To develop an understanding of the impact of the work context/environment on innovation.	• Understanding the job-, group- and organisational level factors that influence innovation. • The arterial model of innovation. • Understanding how traditional management practices differ from those required for innovation. • An overview of management practices that inhibit or promote innovation.	• To identify current practices and environmental factors in the workplace which are inhibiting or promoting innovation.
	• To create an understanding of the importance of the leader's role, as well as the global and specific leader behaviours necessary to facilitate innovation in teams.	• Understanding the global KSA's required by leaders throughout the entire/across all phases of the innovation process. • An introduction to the KSA's required by leaders that are specific to the various phases in the innovation process.	• Identify current leader behaviours in the workplace which are inhibiting or promoting innovation. • Evaluate own management style and determine whether this is conducive to innovation/creativity. • Identify own behaviours that are promoting or inhibiting innovation.

3.1.1.1.3 Determining the programme duration

To optimise the learning experience through practical application, and to minimise the disruption to the workplace, the training programme was designed to be facilitated in weekly 2 to 3-hour sessions, where each session focuses on a specific module. Upon completion of all the modules, participants were given practical assignments to complete during a practical application period (duration of approximately 3 weeks). Upon completion of the practical application period, a further 2-hour workshop was facilitated with the key focus on reviewing material and discussing the practical application.

3.1.1.1.4 Target audience and group size

As comprehensively explained in the rationale of the study, this programme was specifically aimed at team leaders and mid-level managers due to their potential influence on the variables that affect successful innovation within organisations. This was a central consideration during the design of the training programme.

A further consideration was to design the material with an ideal group size between 10 and 15 participants per session, depending on support from the relevant organisation from which participants were recruited. The purpose with establishing the ideal group size was to ensure that the groups were small enough to encourage member participation, but also prevent the formation of sub-groups, except when required for practical exercises.

3.2.3.2. *Phase 2: Developing the programme content*

During the content development phase, each module was developed in accordance with the structure defined above. This process resulted in the development of a facilitator's guide, a learner workbook and a comprehensive set of supplementary materials (including Power Point slides, handouts etc). Tables 3.2.1 to 3.2.5 each provide a summary of the respective modules and their contents.

Table 3.2.1

Summary of Introductory Module Content

A. Introduction – the Innovation Imperative and the Innovation Leader	
Module Overview	This module served as an introduction to the role of leaders in managing innovation in teams. It set out to convey the importance of innovation for organisational competitiveness, as well as the critical role that team leaders need to play in furthering innovation in organisations.
Practical Exercises	▪ Case studies: The participants were divided into smaller groups, and each group was provided with an article about a well-known organisation that is either succeeding or failing at innovation. Within their groups, they were required to identify the reasons why these organisations are either succeeding or failing at innovation.
Resources Required	▪ Power Point presentation for introductory module, consisting of 8 slides. ▪ Printouts of the various case-studies: 　○ The story behind Tesla's success (Wu, 2016). 　○ The internet didn't kill Blockbuster, the company did it to itself (Baskin, 2013). 　○ A look back at why blockbuster really failed and why it didn't have to (Satell, 2014). 　○ Motorola brand to cease to exist (Gibbs, 2016). 　○ 10 Reasons why Motorola Failed (Anderson, 2008). 　○ How Starbucks CEO transformed a small coffee bean store into a massively successful worldwide brand (Sun, 2016). 　○ 12 Hot business lessons from Starbucks CEO Howard Schultz (Rampton, 2014). 　○ Google's secrets of innovation: Empowering its employees (He, 2013). 　○ Google reveals its 9 principles of innovation (Leong, 2013).

Table 3.2.2

Summary of Module 1 Content

Module 1: The Fundamentals and Theory of Innovation	
Module Objective	To create an understanding of the innovation process, relevant concepts and definitions.
Specific Learning Outcomes	1. A high-level understanding of relevant definitions, concepts and literature. 2. An understanding of the innovation process and the typical activities associated with each stage.
Resources Required	▪ Power Point Presentation for module 1, consisting of 15 slides. ▪ Pre-drawn board game path, cut into four sections. Dice and pawns to play the game. ▪ Colourful pens, crayons or pencils
Content Overview	During this module, participants were presented with a theoretical foundation for innovation and creativity. This involved exploring the definitions of these concepts, and typically how creativity and innovation is measured. Participants were presented with a simplified innovation process, highlighting the major and sub phases, as well as the typical activities associated with each phase.
Practical Exercises	▪ Team Board Game: To illustrate the concept of creativity, participants were divided into four smaller groups. Each group was given a section of a blank board game (similar to snakes and ladders) and asked to design their piece of the game including the move consequences of each block. ▪ Group Discussion – examples of innovation: Several examples of innovative products were discussed, and participants were asked to evaluate each innovation against the measurement criteria for innovation. ▪ A Problem Worth Solving: Participants were requested to identify a few problems or opportunities within the work environment, which could benefit from a creative solution.
Homework and Reading	After completion of this module, participants were asked to: ▪ Identify a need or a problem that could benefit from creative thinking. ▪ Read: How you define the problem determines how you solve it (Markman, 2017).

Table 3.2.3

Summary of Module 2 Content

Module 2: The Nature of Creative People and Creative Work	
Module Objective	Objective: To create an understanding of the nature of creative people and creative work.
Specific Learning Outcomes	1. Understanding the theory of individual creativity. 2. Understanding the characteristics and attributes of creative people. 3. Understanding the nature of creative / innovative work.
Resources Required	▪ Power Point presentation for module 2, consisting of 19 slides. ▪ Colourful pens, crayons or pencils. ▪ Internet connection for video. ▪ Paper or allocated space in workbook for idea generation exercises. ▪ Paperclips. ▪ Post-it Notes.
Content Overview	During this module, the componential theory of individual creativity is discussed, and the various components thereof explored in more detail. The module also presents the typical personality characteristics that have been linked to creativity. Secondly, the module focuses on understanding the nature of work that lends itself to creativity and innovation.
Practical Exercises	▪ Group Discussion - well-known creative people: During this exercise the group discussed various well-known creative people, as well as their individual characteristics. ▪ Video – The Surprising Habits of Original Thinkers: The group watched this video by Adam Grant (2016). ▪ Ideation exercise: In accordance with the principles of brainstorming, each participant was given a paperclip and asked to think of as many possible alternative uses for that paperclip.

Table 3.2.4

Summary of Module 3 Content

Module 3: The Role of the Work Context	
Module Objective	To develop an understanding of the impact of the work context/environment on innovation.
Specific Learning Outcomes	1. Understanding the job-, group- and organisational level factors that influence innovation. 2. Understanding the difference between traditional management practices and those required for innovation.
Resources Required	▪ Power Point presentation for module 3, consisting of 19 slides. ▪ Colourful pens, crayons or pencils.
Content Overview	During this module, the focus is on understanding the impact of the work environment on creativity. This included a discussion of the componential theory for organisational creativity. Organisational motivation to innovate is explored in detail, including the impact of managerial support, organisational culture, availability of resources and management practices such as goal setting, job design, team composition, recruitment and selection, evaluation, training and development, as well as reward and recognition practices. The arterial model of innovation is presented as a means to convey the impact of the various organisational layers on the flow of innovation within organisations.
Practical Exercises	▪ Group Discussion – Identifying supportive and unsupportive aspects of the organisation or team's culture. ▪ Group Discussion – Evaluating management practices and discussing whether these practices are inhibiting or encouraging innovation.
Homework and Reading	▪ After completion of this module, participants were asked to evaluate the existing management practices within their departments or teams, and to consider the practical changes that could be made for these practices to be more supportive of innovation.

Table 3.2.5

Summary of Module 4 Content

Module 4: The Role of the Leader – Behaviour, Knowledge and Skills	
Module Objective	To create an understanding of the importance of the leader's role, as well as the global and specific leader behaviours necessary to facilitate innovation in teams.
Specific Learning Outcomes	1. Understanding the leader knowledge, skills, attitudes and behaviours required throughout all phases of the innovation process. 2. Understanding the leader behaviours specific to each phase of the innovation process.
Resources Required	▪ Power Point presentation for this module 4, consisting of 30 slides. ▪ Colourful pens, crayons or pencils.
Content Overview	This module firstly reiterates the important role leaders must fulfil in the innovation process. Secondly, the global knowledge, skills, attitudes (KSA's) leaders need to possess and display, which applies to every step of the innovation process, is discussed in detail. Thirdly, the KSA's that are important for each step in the process is presented and discussed. This last section delves deeply into the various phases of the innovation process, and specifically explores what KSA's leaders need during each phase to facilitate innovation successfully within their teams.
Practical Exercises	▪ Self-reflection exercise: Each participant was provided with a template on which they were requested to identify their personal strengths and development areas.
Homework and Reading	▪ Upon completion of this module, participants were asked to read: Innovation springs from the unexpected meeting of minds (Comstock, 2016).

3.2.3.3. *Phase 3: Subject Matter Expert evaluation of the programme content*

Prior to the implementation of the programme, the rationale of the programme, the programme goals, the presentation methodology and the programme content were subjected to a theoretical evaluation by subject matter experts (SME). Their task was to evaluate whether the programme content and chosen methodology are compatible with the underlying rationale and programme goals.

3.1.1.1.5 Identification and selection of SME's

For the purpose of the evaluation, three SME's were approached. Two of the SME's recently completed advanced post-graduate studies within the field of innovation leadership, and the third manages a consulting business specifically focused on innovation.

3.1.1.1.6 SME Evaluation Procedure

Each SME was provided with the detailed course content, the supplementary material, as well as an evaluation form to complete. The evaluation form elicited both quantitative and qualitative feedback about each of the programme modules. Evaluators were requested to indicate the extent to which they agreed or disagreed with a selected number of statements about whether the module objective and learning outcomes were achieved; whether the content is sufficiently comprehensive, and whether the practical exercises and activities were relevant to the module and learning outcomes. Thereafter, the necessary space was provided for qualitative feedback to support their responses and/or to recommend further improvements.

3.1.1.1.7 SME Evaluation Results

Overall, the SME's believed that the programme goals, as well as the individual module objectives were sufficiently met. Course content was rated as comprehensive by most evaluators, and some suggestions were made which would lead to further improvement of the content. The practical exercises were also rated as highly relevant to the module objectives, and evaluators believed that these would contribute positively to the development of the necessary skills to facilitate innovation in teams.

The following was listed as possible strengths of the course:

- Structure, module selection and overall flow of the programme.
- Quality, layout and design of learning materials (guides, slides etc.)
- Opportunities for self-reflection and learning evaluation.
- Interactive learning style.
- Practical assignments with feedback and debriefing opportunities.

The following was listed as possible areas for improvement:

- Utilising more South African examples of innovators and organisations to ensure learners relate better.

- Clearer definition of the target audience, as the material is well positioned for entry-level innovation leaders, but perhaps not as appropriate for seasoned leaders.

- More expansion on the challenges leaders face outside the direct team environment, such as promoting ideas to other stakeholders in the company and the implementation phase of the innovation process.

3.2.4. Facilitation of the training programme

The training programme was facilitated by the researcher, at the participating company's premises, during participants' normal work hours. The training programme was presented over a period of six weeks.

3.3. Methodology for Evaluation of the Training Programme

Whilst the focus of this study was on the development of the training programme, a preliminary evaluation was conducted to measure the effectiveness of the training programme. The following section describes the methodology followed for the preliminary evaluation and includes the experimental design, the use of pre-and post-assessments, subjective self-evaluations, sampling considerations and the selected statistical analyses.

3.3.1. Experimental design

The *classical experiment* is based on the random selection of an experimental and control group, requiring both groups to complete pre- and post-testing, but exposing only the experimental group to the stimulus. One concern of such a research design is that interaction may occur between the testing and the stimulus, thereby influencing the results of the experiment. On the other hand, the *Solomon four-group research design* presents the researcher with the opportunity to minimise interaction between testing and the stimulus. This, however, requires four groups of which the members are randomly selected. The first two groups are exposed to a classical experiment (as described above. Group 3 is not given a pre-test but is exposed to the stimulus and given a post-test. Group 4 is not given a pre-test or exposed to the stimulus but is only required to complete the post-test. A third experimental design, which is referred to as the *post-test-only control group design*, basically represents groups 3 and 4 of the Solomon four-group research design. This design will, however, only be effective if selection of group members is truly random (Babbie & Mouton, 2003).

Whilst this researcher acknowledges that the Solomon four-group research design is more comprehensive than the classical experiment, this researcher elected to use an approximation of the classical experiment to provide a preliminary measure of the effectiveness of the training programme due to time constraints, potentially limited sample size, and the requirement of truly random sampling.

All consenting participants were thus randomly divided into specific groups that were taken through the training programme at different stages of the research study. During the first phase of the study, approximately half of the managers were placed in a delayed onset group that served as the "control group". After completion of the first phase, the so-called "control" group were to become the "experimental" group and be subjected to the programme. However, due to organisational constraints the control group was not exposed to the training programme.

3.3.2. Sampling

This programme was specifically aimed at team leaders and mid-level managers, and the intention therefore was to seek organisations where a sufficient number of employees fill roles at managerial or team leader levels, to provide an adequate number of participants. It was important that those who attended the programme were in a team leader or managerial capacity, and that they had at least two subordinates reporting directly to them.

The ideal was to identify one organisation with a sufficient number of team leaders / managers, as this would aid in controlling for other factors which could impact the results of the study, such as differences in organisational culture and management practices.

As this was a preliminary evaluation only, it was the researcher's objective to secure 20 - 30 participants, which would then be divided into the experimental and control groups.

The researcher recruited 49 team leaders and managers within a large call centre, which operates within the debt collection and financial services industry. At the time of the research, the company employed over 2000 employees across South Africa, Namibia, Botswana and Kenya. All the participants in the study were based in the Cape Town offices.

The experimental group consisted of 32 participants (which were divided into 3 smaller groups), and a control group of 17 participants. The participants worked within a variety of departments (or functions) across the organisation, although the majority worked within the call centre itself. The participants were predominantly in first- and second line managerial positions, and all had a minimum of two subordinates.

To observe the necessary ethical obligations, the procedure below was followed in order to recruit the participating organisation, the managers and subordinates:

- The researcher presented the purpose, planned research methodology, practical implications and requirements of the study to the Chief Executive Officer and the Human Resources Manager. The Human Resources Manager subsequently signed an organisational consent form.

- After obtaining organisational consent, the researcher was provided with a list of all the managers in the organisation that would be able to participate in the study. These managers were invited to an information session during which the researcher explained the purpose of the study as well as the research methodology. All attendees were made aware that they would be required to complete assessments (questionnaires, self-evaluations and feedback surveys); that they would also be evaluated by their subordinates and that they would be required to attend the training programme. In addition, attendees were informed that their participation is entirely voluntary and that they would be able to withdraw at any given point in time. Each attendee was provided with a consent form on which they were requested to indicate whether they wish to participate in the study or not. Only those attendees who provided their consent were included in the study.

- After the participating managers were identified, their subordinates were invited to an information session during which the purpose and process was explained. Each subordinate was assured of confidentiality and anonymity, and also provided with a consent form on which they were required to indicate whether or not they consent to participate in the study. Only subordinates who provided their consent were included in the study.

3.3.3. Pre- and post-assessments

The researcher selected three measurement instruments to use as pre- and post-assessments during the study, in line with the selected research design.

The following measurement instruments were used during this study:

- **KEYS: Assessing the Climate for Creativity** (Amabile, Conti, Coon, Lazenby, & Herron, 1996): This instrument is specifically focused on assessing the perceptions about dimensions of the work context that has been theorised to influence creative

work. The conceptual model underlying the instrument identifies 8 scales for assessing perceptions of the work environment. These are (1) organisational encouragement; (2) supervisory encouragement; (3) work group supports; (4) freedom; (5) sufficient resources; (6) challenging work; (7) workload pressure and (8) organisational impediments. These scales are categorised as either stimulant scales, which have a positive influence on creativity, or obstacle scales which are said to be negatively related to creativity. In a study conducted by Amabile et al. (1996), the psychometric properties of the original instrument were determined, and a median Cronbach alpha of .84 was reported for the instrument. The original instrument consists of 78 items, but for practical reasons the researcher has elected to utilise an abbreviated version of KEYS, consisting only of 24 items. The same abbreviated version was utilised in an unpublished master's study and was applied to a sample of 335 participants. During this study, the instrument yielded a Cronbach alpha of .86 (Swart, 2013). The pre- and post-assessment scores provided an indication of the extent to which the team leader has successfully influenced the climate for creativity in the team.

- **Perceived Organisational Innovativeness Measurement Scale (PORGI):** Developed by Hurt and Teigen (1977), the PORGI measurement instrument measures perceived organisational innovativeness within teams through a self-report questionnaire given to team members. The questionnaire consists of 25 items, and requests respondents to answer each question through responding to a 5-point Likert-type rating scale. In the same study, referenced above, by Swart (2013), the instrument yielded a Cronbach alpha of .90. The pre- and post-assessment scores of the PORGI was utilised to ascertain the extent to which the team leader has successfully influenced the perceived organisational innovativeness of the team after exposure to the training programme.

- **The Innovation Leadership Questionnaire (ILQ):** The study conducted by Swart (2013) aimed to develop a questionnaire that measures 8 leadership competencies deemed important to foster creativity and innovation in teams. More specifically, the competencies are seen as being based on the requisite knowledge, skills and attitudes required to manage and foster creativity and innovation. Factor analysis revealed two distinct factors, being the development of the creative idea and promoting the implementation of the creative idea. The competencies measured by the ILQ are: (1) leading and empowering team members; (2) recognising and valuing team member input; (3) influencing key stakeholders; (4) applying technical expertise; (5) strategy

development; (6) goal setting and activity alignment; (7) adapting and accepting new ideas; and (8) monitoring opportunities and commercialisation. The assessment, consisting of 68 questions, require respondents (subordinates) to rate the behaviour of their supervisors on a 5-point Likert-type rating scale. The psychometric properties of the ILQ, as evaluated in the unpublished master's thesis, revealed a Cronbach alpha of .98 (Swart, 2013). This particular assessment will serve as a valuable pre- and post-measure, thereby providing possible means to determine whether changes in leader behaviour (as rated by subordinates) can be attributed to the training programme. As the ILQ can provide valuable inputs in terms of the possible developmental areas for leaders, the ILQ was given to team members to complete prior to their leaders attending the training and again after sufficient time has passed after completion of the training. In addition, all participating leaders were asked to rate themselves on the ILQ.

In summary, the measurement instruments were applied as follows: The PORGI and KEYS assessments were given to the leaders (both control group and experimental group), as well as the respective team members that they are responsible for, to assess changes in the perceived organisational climate pertaining to creativity and innovation, as well as the perceived innovativeness of the team as a result of exposure to the training programme. Likewise, the ILQ was also administered to the team members and the team leaders. Pre- and post-measurements took place in accordance with the methodology of the classical experiment.

All the above assessments (pre-and post-assessments, completed by the managers as well as the subordinates) were administered by the researcher. The administration involved gathering groups of participants into a meeting room and providing them with clear instructions on how to complete the assessments. In some instances, participants took the assessments back to their respective workstations and returned the assessments once completed. In other instances (based solely on time and venue availability), participants completed the assessments in the meeting room.

During this research, the time delay between the pre- and post-assessments was approximately 11 weeks.

3.3.4. Subjective evaluations

Subjective self-evaluations, based on the learning outcomes, were conducted after completion of each module of the training programme. The self-evaluations were created in conjunction

with the development of the training programme content and elicited both quantitative and qualitative responses of the participant's subjective experience of the course content and delivery. Each self-evaluation form contained a section requesting participants to indicate the extent to which they agreed or disagreed with a statement, based on a 5-point Likert-type scale where a score of 1 represented *strongly disagree*, and a score of 5 *represented strongly agree.* The following presents a few examples of statements that were included:

- The module objectives were clear.
- The module objectives were met.
- I learnt something new during this module.
- I am going to apply what I learnt to my work.

In addition to the above examples, each form also contained statements that were formulated specifically based on the content of the module concerned.

The form further contained a section for voluntary qualitative feedback, where participants were asked to indicate whether they experienced any personal or professional growth as a result of completing the module, and whether they had any recommendations to further improve the module.

Lastly, after completion of the entire training programme, participants were requested to complete an overall evaluation of the entire programme. The form was presented in the same format as the modular evaluation forms.

3.3.5.   Post-training focus group

The last step in the evaluative process was to conduct a post-training focus group with the participants to further discuss and explore the feedback and suggestions given in the feedback surveys. The researcher prepared several questions which were posed to the focus group participants. In total, 26 team leaders / managers participated in the focus group discussions.

3.3.6.   Statistical analyses

The statistical analysis involved calculating the Cronbach Alpha of the three measurement instruments that were used as pre- and post-assessments, as a measure of internal consistency and reliability. For the ILQ specifically, the reliability analysis was conducted on each of the 8 leadership competencies, as well as the two factorially derived subscales.

To determine the impact of the training intervention, a mixed model repeated measures (ANOVA) analysis was done with *group* (experimental vs control), *evaluation* (self-rating or upwards-rating) and *time* (pre and post) as fixed effects, and the *participants* as random effect. Third order interactions were checked to determine if the evaluation factor had any effect on the results. Then the main focus was on the group*time interaction effect. Fisher least significant difference (LSD) was used for post hoc comparisons of the means. Cohen's d effect sizes were calculated in addition to the LSD post hoc testing.

In all cases, normal probability plots were inspected to check for normality of the data and were in all cased found to be acceptable.

3.4. Conclusion

The research methodology, as outlined above, firstly provided the necessary structure for the development of the programme content and secondly, for the application and preliminary measurement of the programme's overall success. The methodology attempted to provide a comprehensive and holistic view of the programme's effectiveness through collecting data and feedback from several perspectives. These perspectives included pre- and post- assessments completed by both the participants and their subordinates; subjective self-evaluations by the participants themselves, as well as focus groups.

In the next chapter, the results of the study is reported and discussed. This includes both the quantitative and qualitative approaches that were followed.

CHAPTER 4
RESEARCH RESULTS

4.1.   Introduction

The focus of the research was on the development of the training programme. A secondary objective was to conduct a pilot study to derive a preliminary measure of the programme's success. In accordance with the research methodology defined in the preceding chapter, the researcher collected and analysed both quantitative and qualitative data, the results of which will be presented and discussed in this section.

4.2.   Statistical analyses

Firstly, the results of the reliability analysis for each of the measurement instruments will be discussed, where after the results of the mixed model repeated measures (ANOVA) analysis will be presented.

4.2.1.   Reliability analysis

The results of the reliability analysis for the 8 competencies, as well as the 2 factorially derived subscales, are presented in Table 4.1 below.

Table 4.1

Reliability coefficients for the ILQ

	Name	Sample Size[a]	Number of Items	Mean	SD	α
ILQ Competencies	Leading and deciding	1011	14	47.72	12.52	.96
	Analysing and interpreting	1009	8	26.93	7.01	.93
	Enterprising and performing	977	7	23.63	6.26	.92
	Interacting and presenting	978	13	43.95	11.56	.96
	Organising and executing	977	6	20.42	5.53	.92
	Supporting and cooperating	1009	11	37.45	9.64	.93
	Adapting and coping	1002	6	20.80	5.40	.91
	Creating and conceptualising	977	3	10.24	2.83	.83

Table 4.1 (Continued)

	Name	Sample Size[a]	Number of Items	Mean	SD	α
Sub Scales	Idea Development	998	35	119.66	30.92	.98
	Commercialisation	969	21	70.63	18.74	.98

[a] *Note.* The sample size includes the responses received from both managers and subordinates for the pre- as well as the post-test. To further clarify the large sample sizes: In this particular organisation, the managers have teams consisting on average of 10-15 subordinates, and in order to prevent selection bias, the researcher included all subordinates available at the time of the assessments in the data collection process.

From the above statistics, it is evident that the ILQ has exceptionally high internal consistency (Cronbach alpha > .80) and can therefore be considered a highly reliable measure of these innovation leadership competencies.

The results of the reliability analysis for the PORGI and KEYS measurement instruments are presented in Table 4.2 below.

Table 4.2

Reliability coefficients for PORGI and KEYS

Measurement Instrument	Sample Size	Number of Items	Mean	SD	α
KEYS	938	24	61.51	10.98	.89
PORGI	939	25	84.72	13.55	.88

The above analysis demonstrated high reliability for the PORGI and KEYS measurement instruments as well.

4.2.2. Results: Innovation leadership questionnaire

During the interpretation of the results, the researcher first considered the third order interaction effects between the group (experimental or control), time (pre- or post-test) and evaluation (self-rating or upwards-rating). For all the ILQ competencies as well as the two subscales, the third order interaction effects were not statistically significant ($p > .05$).

The main purpose of the study was to determine whether the change over time (from pre-test to post-test) is greater for the experimental group than the control group, as this is the primary indicator of whether the training intervention had an impact or not. The second order interaction effects between group (experimental versus control) and time is therefore of most significance for this study. The results of this analysis have been indicated in Table 4.3 below.

Table 4.3

ILQ Interaction effects: Group and Time

	Competency or Sub Scale Name	Control Group Pre-Test	Control Group Post-Test	Cohen's d for Control Group	Experimen-tal Group Pre-Test	Experimen-tal Group Post-Test	Cohen's d for Experimental Group	Interaction F and p values
		Mean (Std.Dev)	Mean (Std.Dev)		Mean (Std.Dev)	Mean (Std.Dev)		
Competency	Leading and deciding	3.47 (0.45) [b]	3.52 (0.58) [b]	.11	3.5 (0.64) [b]	3.85 (0.67) [a]	.54	$F(1, 46)=7.068$, $p=0.01076$
	Analysing and interpreting	3.46 (0.43) [b]	3.54 (0.58) [ab]	.15	3.42 (0.61) [b]	3.78 (0.66) [a]	.58	$F(1, 46)=5.658$, $p=0.02158$
	Enterprising and performing	3.42 (0.55) [b]	3.54 (0.59) [ab]	.21	3.35 (0.66) [b]	3.77 (0.70) [a]	.62	$F(1,46)=6.7681$, $p=0.01244$
	Interacting and presenting	3.48 (0.56) [b]	3.60 (0.54) [ab]	.22	3.39 (0.62) [b]	3.80 (0.66) [a]	.65	$F(1, 46)=6.8702$, $p=0.01184$
	Organising and executing	3.50 (0.49) [b]	3.53 (0.60) [b]	.07	3.46 (0.63) [b]	3.84 (0.68) [a]	.59	$F(1, 46)=8.2629$, $p=0.00611$
	Supporting and cooperating	3.55 (0.53) [b]	3.53 (0.62) [b]	.02	3.50 (0.56) [b]	3.81 (0.66) [a]	.52	$F(1, 46)=8.4397$, $p=0.00563$
	Adapting and coping	3.58 (0.51) [b]	3.62 (0.53) [ab]	.07	3.54 (0.65) [b]	3.84 (0.65) [a]	.5	$F(1, 46)=5.7378$, $p=0.02073$
	Creating and conceptualising	3.43 (0.70) [b]	3.56 (0.65) [ab]	.19	3.35 (0.75) [b]	3.78 (0.66) [b]	.6	$F(1, 46)=4.5763$, $p=0.03776$
Sub Scale	Idea Development	3.53 (0.43) [b]	3.57 (0.56) [b]	.08	3.52 (0.58) [b]	3.86 (0.66) [a]	.56	$F(1, 46)=9.1776$, $P=0.00401$
	Commercialisation	3.38 (0.55) [b]	3.52 (0.62) [ab]	.23	3.33 (0.67) [b]	3.76 (0.70) [a]	.63	$F(1, 46)=5.4657$, $p=0.02380$

Note. Superscript letters in the table indicate significant differences between means at p<.05. If there are no overlapping letters between two means (eg "a" vs "bc"), then the two means are significantly different (p<.05). If at least one letter overlaps (eg "a" vs "ab"), then the two means do not differ significantly (p>.05).

Consider the statistics for the competency *leading and deciding*: The difference between he mean for the pre-test and post-test is not statistically significant for the control group (both demarcated with the superscript letter b). This implies that there was no significant change in the control group over time, which is a desirable outcome. However, there is a statistically

significant difference in the means of the experimental group from the pre-test to the post-test (demarcated with superscript letters a and b for the pre- and post-tests respectively). This indicates that there was a positive change in the experimental group over time, which can be attributed to exposure to the training programme.

The descriptive statistics for the *leading and deciding* competency is presented in Figure 4.1. The various points on the graph below, as indicated by a and b, correspond with the descriptive data presented in Table 4.3 above.
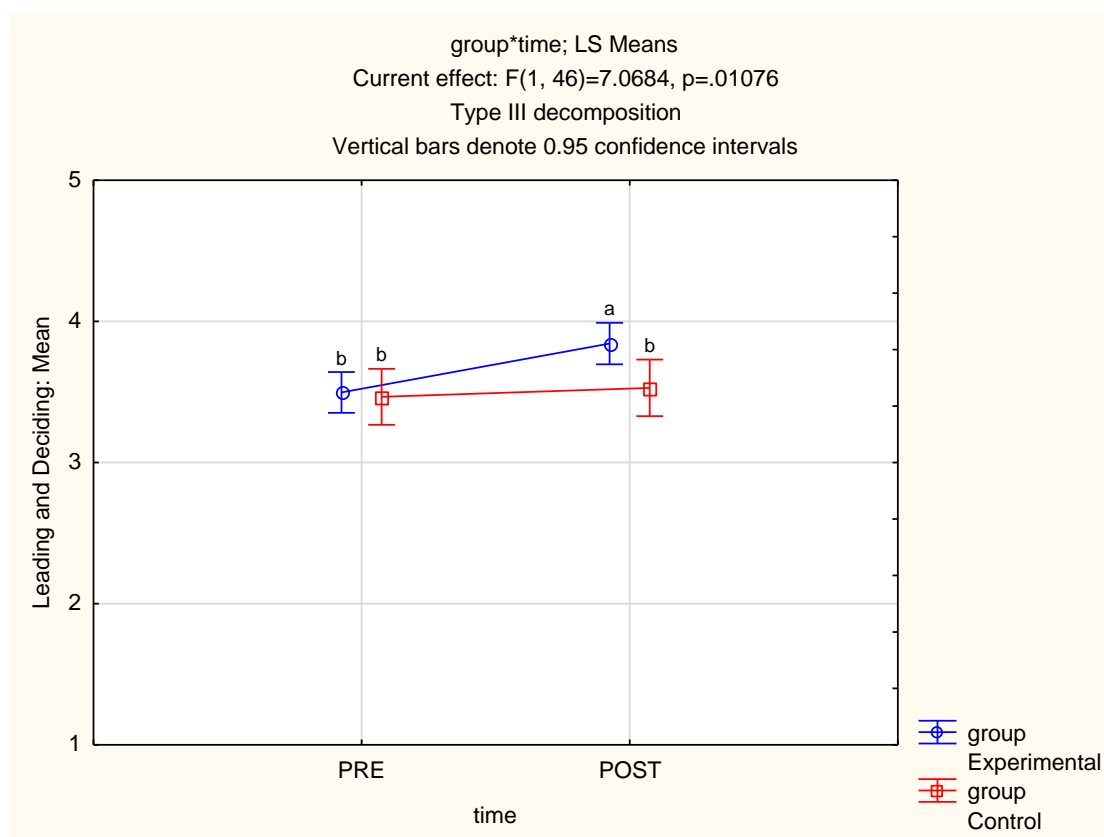
Figure 4.1: Second order interaction effects: leading and deciding

For all the ILQ competencies, the differences in the pre-test ratings between the experimental and control groups are not statistically significant, which can be interpreted to imply that all participants, irrespective of whether they were in the experimental or the control group, started on an even keel. In addition, it is a general trend that the observed change is greater for the experimental group as opposed to the control group. This is a positive observation which reflects favourably on the training intervention.

In some instances, such as for the competency named *analysing and interpreting* (represented in Figure 4.2 below), the difference between the post-test ratings for experimental and control

group is not statistically significant (p = .06), although still very close to acceptable in the 95% confidence range.
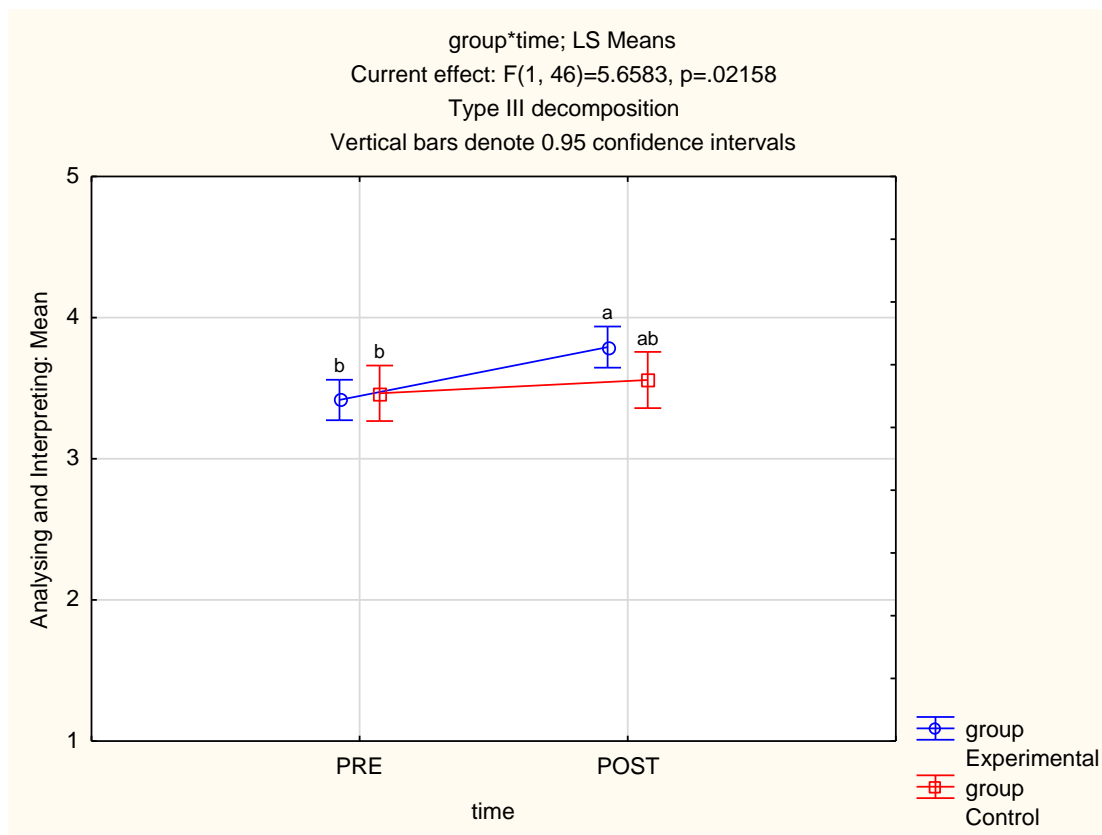
Figure 4.2: Second order interaction effects: analysing and Interpreting

To varying degrees, this is the case with some of the other competencies as well (refer to Table 4.3 above). Despite this, the trend of greater observed change in the experimental group is still present in all competencies and the researcher is satisfied that the training intervention resulted in sufficiently positive change in the experimental group whereas the control group remained relatively consistent over time.

Cohen suggested that d= .2 be considered a small effect size, .5 represents a medium effect size and .8 a large effect size. This means that if two groups' means do not differ by .2 standard deviations or more, the difference is trivial, even if it is statistically significant. Inspection of the d-values (Table 4.3 above) of the experimental group (pre-test vs post-test) reveals a medium effect size with respect to all ILQ dimensions (at the end of par 4.2.2). In the case of the control group the differences between the pre-test and post-test for three measures showed a small effect size.

When considering the descriptive statistics for the two subscales, namely idea development and commercialisation, the same trend persists. Both indicate insignificant differences between the pre-test scores for both groups, and then shows a positive change in the experimental group's post-test scores with limited change in the control group. This again supports the finding that the intervention has led to positive change in the experimental group, whereas the control group remained consistent over time.

If one observed a positive change in the control group over time, the implication would be that another variable exerted an influence on the experiment. As the control group showed insignificant change over time across all the competencies, as well as the two sub scales, one can safely argue that no other uncontrolled variables had an impact on the experiment. While statistically insignificant, the means for the control group show an incremental yet systematic increase between the pre- and post-tests. One should therefore consider the possibility of the Hawthorne Effect, which refers to the impact of the research itself on the results or subject that is being studied (Babbie & Mouton, 2003). In the current research, it is however assumed that the possible Hawthorne Effect would be the same for both the control and experimental groups.

4.2.3.   Results: PORGI and KEYS

The PORGI and KEYS instruments both represent measurements of organisational culture and team climate. The results of the assessment therefore have limited bearing on the direct supervisor, and it is not of great relevance whether this was completed by the manager or the subordinates. The predominant interest therefore remains to see whether there is a positive change over time between the perceptions of the experimental group and that of the control group as it pertains to the organisational culture and team climate. Table 4.4 represents the descriptive statistics for PORGI and KEYS.

Table 4.4

PORGI and KEYS Interaction effects: Group and Time

Measurement Instrument	Control Group Pre-Test	Control Group Post-Test	Experimental Group Pre-Test	Experimental Group Post-Test	Interaction F and p values
	Mean (Std.Dev)	Mean (Std.Dev)	Mean (Std.Dev)	Mean (Std.Dev)	
KEYS	2.90 (0.24)	2.83 (0.33)	2.87 (0.33)	3.23 (0.33)	$F(1,45)=1.9914$, $p=.16507$
PORGI	3.35 (0.30)	3.31 (0.35)	3.32 (0.25)	3.44 (0.37)	$F(1,45)=7.5057$, $p=.00879$

With reference to KEYS, the data shows a statistically significant change over time for the experimental group ($p=.01$), but not for the control group. Although this still fits in with the general trend as observed with the ILQ, the post-test scores did not reveal a significant difference between the two groups.

The results are similar for the PORGI analysis, although in this instance there is a significant difference between the post-test results for the different groups ($p=.02$).

4.2.4.   Conclusion from statistical analyses

As a starting point, the reliability coefficients of the various measurement instruments were determined. All three instruments yielded acceptable Cronbach alpha's, which indicates that the measurements are internally consistent and therefore reliable.

The primary purpose of the statistical analysis, however, was to determine whether there is greater change in the experimental group than the control group over time, as such a change would be attributable to the training intervention. Based on the results, the researcher is satisfied that the experimental group showed statistically significant positive change over time, and that no other external variables had an impact on the experiment. The positive change can therefore be attributed to the training intervention.

4.3.   Qualitative evaluations

The following section provides a summary of the qualitative evaluations, which consisted of individual participant feedback and focus groups. Only the experimental group were requested to complete these modular evaluations, as the control group was not exposed to the intervention.

4.3.1. Results of subjective evaluations and individual participant feedback

As described earlier, upon completion of each module, all participants were asked to reflect on their individual learning and experience of the specific module. Respondents had to indicate the extent to which they either agreed or disagreed with a set of statements based on a 5-point Likert-type scale where a score of 1 represented *strongly disagree*, and 5 represented *strongly agree*. In addition, respondents were presented with two questions, to which responses were voluntary. These questions were (1) "Do you feel that you have experienced personal or professional growth as a result of attending this module? Please motivate"; and (2) "Do you have any recommendations to improve this module?"

The interpretation of the subjective evaluations involved calculating the average score for each of the statements on the respective questionnaires. It further involved a thematic analysis of the two open-ended questions, based primarily on the frequency with which certain statements were made. The following section provides a summary of the feedback received from the participants.

4.3.1.1. *Module 1: The fundamentals and theory of innovation*

The questionnaire contained 15 statements and was completed by 31 participants. The average score for each statement was above 4, which indicates that the majority of respondents agreed or strongly agreed with the various statements. The average score for each statement is summarised in Table 4.5 (ranked from highest to lowest):

Table 4.5

Module 1: Average score per statement

Statement	Average Score
I learnt something new during this module.	4,68
I understand the need for innovation.	4,58
I can identify the reasons why innovation fails.	4,57
I understand the important role of leaders/managers in innovation.	4,52
I feel comfortable that I have a thorough understanding of the topics that were covered.	4,52
The module objectives were clear.	4,50
I understand the typical activities associated with each phase of the process.	4,45
I understand the difference between innovation and creativity.	4,42

Table 4.5 (continued)

The module objectives were met.	4,40
I will be able to comfortably explain to someone else what innovation is.	4,39
I am going to apply what I learnt to my work.	4,39
I understand the difference between divergent and convergent thinking.	4,37
I understand the innovation process and its various sub-phases.	4,35
This module provided me with a new skill I can apply to my work.	4,35
I will be able to comfortably explain the process and activities to someone else.	4,19

The majority of respondents reported that they have indeed experienced personal or professional growth. The following represent some of the statements made by participants:

- "Yes, people tend to think in the opposite direction to what this module asks you to think. That includes myself. Now I understand why I should think this way, based on what I learnt."

- 'Yes, new ideas generated from this session. Learning how things can fail if you don't innovate enough. You will stay in your comfort zone if you don't adapt to change."

- "I have experienced personal growth as I understand…that I should not stop being innovative and creative when an idea fails. I should continue to motivate and inspire my team…"

Only one suggestion was made to improve the module, namely that the module could be more interactive.

From the feedback above, the researcher is satisfied that the module objectives were met, and that participants' overall experience was very positive.

4.3.1.2. ***Module 2: The nature of creative people and creative work***

The questionnaire contained 12 statements and was completed by 28 participants. The average score for each statement was above 4, which indicates that the majority of respondents agreed or strongly agreed with the various statements. The average score for each statement is summarised in Table 4.6 (ranked from highest to lowest):

Table 4.6

Module 2: Average score per statement

Statement	Average Score
The module objectives were clear.	4,71
The module objectives were met.	4,71
I understand the differences between creative and non-creative people.	4,64
I feel comfortable that I have a thorough understanding of the topics that were covered.	4,64
I can identify tasks at work that require creativity.	4,64
I learnt something new during this module.	4,64
I understand the differences between creative and non-creative work.	4,54
This module provided me with a new skill I can apply to my work.	4,46
I am going to apply what I learnt to my work.	4,44
I can name the characteristics of creative people.	4,43
I can comfortably explain the componential theory of individual creativity.	4,36
I can apply an ideation technique.	4,18

Most of the respondents indicated that they have experienced personal or professional growth. Some of the statements made include:

- "Yes, I have. I am learning to think out of the box and not to just accept solutions given to me. Today I learnt that I should speak up when I have an idea…I was too afraid to look stupid in front of my peers and it stopped me from speaking up. Lesson learnt."

- Yes, made me think of missed opportunities and to prevent that."

- "…reminded myself never to give up. I'm enjoying the material."

It was suggested that more video material can be used during the module and that more time should be allocated to allow for more elaboration on the content.

From the feedback above, the researcher is satisfied that the module objectives were met, and that participants' overall experience was very positive.

4.3.1.3. *Module 3: The role of the work context*

The questionnaire contained 10 statements and was completed by 27 participants. The average score for each statement was above 4, which indicates that the majority of respondents agreed or strongly agreed with the various statements. The average score for each statement is summarised in Table 4.7 (ranked from highest to lowest).

Although fewer respondents completed the voluntary questions, most respondents who did, indicated that they have experienced personal or professional growth. One respondent made the following statement: "I definitely have experienced growth resulting from this training; I think of innovation in a whole new way".

Participants suggested that the brainstorming technique should be practiced more, and that the facilitator should make use of ice breakers to start the session.

Table 4.7
Module 3: Average score per statement

Statement	Average Score
I am going to apply what I learnt to my work.	4,67
I learnt something new during this module.	4,59
I understand why traditional management practices are not conducive to innovation.	4,56
I can identify management practices at work that are inhibiting innovation.	4,56
This module provided me with a new skill I can apply to my work.	4,56
The module objectives were clear.	4,48
I can identify the various organisational levels of factors that influence innovation.	4,41
I feel comfortable that I have a thorough understanding of the topics that were covered.	4,41
The module objectives were met.	4,37
I can explain the way in which the work context impacts individual creativity.	4,37

From the feedback above, the researcher is satisfied that the module objectives were met, and that participants' overall experience was very positive.

4.3.1.4.   *Module 4: The role of the leader – behaviour, knowledge and skills*

The questionnaire contained 10 statements and was completed by 25 participants. The average score for each statement was above 4, which indicates that the majority of respondents agreed or strongly agreed with the various statements. The average score for each statement is summarised in Table 4.8 (ranked from highest to lowest).

Most respondents indicated that they have experienced personal or professional growth as a result of completing this module. The following are some of the statements made by participants:

- "Yes, I took what I've learnt and shared it with my team; we together came up with new ideas on how to reach our targets…and it worked. We did reach our target."

- "Yes, improved on being more innovative and accepting failure. Learning from it and moving towards positive outcomes."

- "I've learnt that innovation is not scary. You just need to tap into people's creative side and allow your team to come with new ideas which might surprise you. In my personal capacity, I have learnt to not limit my own potential and that failure does not mean the end of the process."

- "Module is very informative and makes you think of endless ideas that can be applied in the work environment."

- "Yes, there is so much more to just the title of Team Lead. You can build your team – to their own strengths and not just yours."

Participants suggested that more real-life examples and case studies should be integrated and that more practical exercises and opportunity for interaction is required as this module contains a lot of content.

From the feedback above, the researcher is satisfied that the module objectives were met, and that participants' overall experience was very positive.

Table 4.8

Module 4: Average score per statement

Statement	Average Score
I can identify areas where I can improve my own behaviour as a leader.	4,52
I learnt something new during this module.	4,52
The module objectives were clear.	4,48
The module objectives were met.	4,44
I understand the different leader behaviours required during each phase of innovation.	4,44
I can explain the differences between traditional managers and innovation managers.	4,44
I am going to apply what I learnt to my work.	4,44
I understand the leader behaviours that apply to all phases of innovation.	4,40
This module provided me with a new skill I can apply to my work.	4,36
I understand the attitudes, knowledge and skills leaders need to have to manage innovation.	4,28

4.3.1.5.   *Overall evaluation*

Upon completion of the entire programme, participants were asked to evaluate the programme in its entirety. This included an evaluation of the facilitator, the course content, materials, venue etc. The questionnaire was presented in the same format as the modular evaluations, however, the two voluntary questions were not asked.

The questionnaire contained 26 statements and was completed by 27 participants. The average score for each statement was above 4, which indicates that most of the respondents agreed or strongly agreed with the various statements. The average score for each statement is summarised in Table 4.9 (ranked from highest to lowest).

Based on the feedback provided by the participants, the researcher is satisfied that the participants' experience was positive, and that all benefited from attending the programme.

Table 4.9

Overall Evaluation: Average score per statement

Statement	Average Score
The course facilitator was well prepared.	4,70
The course facilitator was knowledgeable about the topic.	4,70
The course facilitator was able to explain and communicate properly with the group.	4,67
The class atmosphere was conducive to learning.	4,63
The course facilitator was able to stimulate participation.	4,63
The course content was well researched.	4,59
The course encouraged independent and critical thinking.	4,59
The course was pitched at a level that I could understand and relate to.	4,59
The course content successfully covered all important facets of innovation and creativity.	4,56
The course content was covered effectively.	4,56
The work load was acceptable.	4,56
The methods of presentation were appropriate.	4,56
Audio-visual aids were used effectively to facilitate learning.	4,56
The quality of the course pack was of a high standard.	4,52
The practical exercises used during the workshops were valuable and effective.	4,52
The course content was organised well and flowed logically.	4,48
The teaching methods catered for different styles of learning.	4,48
I gained new skills.	4,44
Enough time was allocated to cover each theme.	4,44
The course objectives were achieved.	4,41
The course material is useful and can be used as a reference tool.	4,37
The knowledge gained will improve my work performance.	4,37
A variety of teaching methods were effectively implemented.	4,37
The assignments given to complete during the practical application period were effective.	4,37
The course allowed for practical implementation of acquired skills.	4,33
The course content is relevant to my work.	4,26

4.3.2.   Focus group feedback

As the last step in the evaluation process, all participants were invited to attend focus group sessions. During these sessions, the participants were asked a predetermined set of questions and allowed to discuss these among themselves. The following section presents a summary of the feedback for each of the questions that were posed to the participants.

4.3.2.1.   *Question 1: What was your feeling about the course before you attended it?*

Several respondents indicated that they were sceptical about the course and were questioning why they must attend, especially in light of high work volumes. The nature of the topic also led a few participants to question the way in which such a topic would be addressed, and if it would be even possible to tap into creativity.

4.3.2.2.   *Question 2: What is your feeling about the course now that you have attended it?*

The general theme was that participants enjoyed the training; that it enabled them to think differently about the way in which they approach their own work; that it encouraged them to explore their own creativity, and that it increased their awareness of opportunities for innovation. In addition, they reported that they now see the value in involving their direct subordinates in problem-solving and idea generation, instead of trying to generate ideas by themselves. It is acknowledged that the use of the selected reaction criteria is inherently subjective, and that respondents' favourable reactions may simply be because they enjoyed the programme or the instruction.

4.3.2.3.   *Question 3: Do you feel that you will be able to apply the course content in your work situation? Please motivate your answer.*

Most felt that they will be able to apply what they have learnt, especially the ways in which they can involve their team members in generating ideas to solve challenges more creatively. Generally, participants were of the opinion that implementation would be the most difficult to achieve successfully, given demanding work schedules.

4.3.2.4.   *Question 4: In your view, how effective was the course format?*

There were different opinions regarding the effectiveness of the course format. The course was presented in weekly two-hour sessions, over the course of several weeks. Those who

enjoyed this format stated that it enabled them to still ensure that their work could continue as normal and that it enabled learning through periods of reflection between sessions. Those who would have preferred to attend a two-day workshop, where all content is delivered in two full days, stated that it would have been better due to enhanced focus instead of divided attention. Participant's preferences here seemed to be related to the type of position they held within the company, for example the IT and HR Managers versus the Call Centre Supervisors. The former are more involved in longer term projects and tasks and would therefore have preferred a two-day workshop. The latter have a very operational day-to-day target focus, and therefore prefer the shorter sessions to allow them sufficient time to ensure that stringent daily targets are still met.

4.3.2.5. *Question 5: Which part of the course content requires more time to be spent on it? Please elaborate.*

The consensus among participants related to the inclusion of more practical and physical activity during the sessions. This included more time to collaborate in groups, opportunity to move around, and more exercises to practice techniques or apply theory.

4.3.2.6. *Question 6: Are there any topics which you think should be included in the training material going forward? Please elaborate.*

The focus of the training was a lot on innovation in participants' immediate roles and teams. One participant felt that the different levels at which innovation could happen (individual, team, organisational) should be expanded. Other than this contribution, the remainder of the participants felt that the content was sufficient.

4.3.2.7. *Question 7: Are there any topics which you think should be excluded from the training material going forward? Please elaborate.*

Participants did not provide any content-related responses to this question and felt that everything that is included in the training material is relevant.

4.3.2.8. *Question 8: A colleague asks you to describe the course to him/her. What do you say?*

Responses to this question varied, although the majority described that the course teaches you how to be innovative in a systematic way and helps you to think of different ways in which to improve your work that would ultimately benefit the company. Some also stated that it

challenges your misconceptions about innovation, in that everyone can be creative and that it is beneficial to tap into your team's creative potential.

4.3.2.9.   *Question 9: Which part of the training did you find most interesting, and which part did you find least interesting and why? Please motivate.*

Most of the participants enjoyed the practical exercises during which they had an opportunity to test out their own creative thinking. A number of participants also commented on the introduction of new concepts and theories which they were not aware of, such as biomimicry.

4.3.2.10.   *Question 10: Did you read the supplementary materials and participate in the practical assignment?*

Only a few participants read the supplementary materials that were distributed between sessions. The stated reason for this is lack of time during work hours, and a culture of "not taking work home". Quite a few also felt that the management team is not supportive of learning and development. The researcher believes this is reflective of the participants' orientation to learning – in that they fail to see the potential benefit to themselves personally and instead believe that this is purely to the benefit of the company.

4.3.3.   Conclusion from qualitative evaluations

The feedback, especially during the focus groups, highlighted general constraints which are often problematic when implementing training solutions in a work environment. These include work load and perceptions around a lack of time; management support; personal orientations towards learning and so forth. A major concern remains about whether participants will take ownership of what they have learnt, and whether they will actively strive to apply this in the work environment after the programme has been concluded.

When considering the overall feedback provided in the self-evaluations, as well as the focus groups, the researcher is satisfied that the programme achieved its intended objectives. The participants perceived the programme positively, and the majority were able to derive some personal or professional benefit from attending the programme. The training material content was appropriate for supervisory and first-line managers who have not yet been exposed to much innovation material during the course of their work or personal studies.

4.4.   Conclusion

The research objective was to develop a training programme to equip leaders with the necessary knowledge, skills and attitudes to effectively facilitate creative and innovative processes, and to effectively manage creative work and -people. As a secondary objective, the researcher set out to conduct a preliminary evaluation to determine the success of the programme. The ILQ was central to the development of the research methodology, as it presents a comprehensive model of the leadership competencies required to successfully manage innovation in the work environment. In conjunction with the ILQ, two further instruments named PORGI and KEYS were utilised as pre-tests and post-tests in the experiment. In addition, supplementary qualitative data collection mechanisms were deployed in the form of subjective modular self-evaluation forms, an overall programme evaluation form as well as focus groups.

The statistical analysis, conducted on the results of the pre- and post-tests, revealed a trend of positive change in the experimental group over time, across all three instruments. It further revealed that there was limited or insignificant change in the control group over time. One can therefore argue that the training programme was successful in aiding the development of leadership competencies critical to the management of innovation within teams.

The qualitative data also yielded positive results. The self-evaluations (both per module as well as for the overall programme) indicated that training participants had a positive experience of the training programme, and that the modular and overall training objectives were achieved. Similarly, the feedback from the focus group provided valuable insight with regard to the participants' experience of the programme, as well as suggestions for further improvements.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1.   Introduction

The business imperative for innovation has been discussed at length during this and many other research papers. Innovation is the only way in which businesses can maintain competitiveness in the current global marketplace, and the first requirement is to recognise that traditional management practices are insufficient for managing creativity and innovation. Further, managers and leaders are often ideally placed within the business to exert a great deal of influence over factors that can impede or enhance innovation and therefore the research set out to develop a training programme to equip line managers and team leaders with the requisite skills and knowledge that will enable them to improve innovation capability within their teams.

The following section will reflect on the key findings, limitations and practical implications of the study, as well as suggestions for future research.

5.2.   Research Summary and Key Findings

The research initiating question was whether the existing body of knowledge allows one to develop a training programme for team leaders and managers that will provide them with practices and strategies to demonstrably improve the innovative outputs of their team. After an extensive literature review, a theoretical model was developed which considered the leader characteristics, team member characteristics, the work environment, the nature of the work and the innovation process as key influences on leader and team member behaviour. This theoretical model served as the basis for the development of the training programme.

Through an approximation of a classical experimental design, the researcher applied the training programme in an organisational context, with the purpose of conducting a preliminary measure of the programme's success in influencing leader and team member behaviour. Both quantitative and qualitative data was collected before, during and after the application of the training progamme. Analysis of the pre- and post-assessment data revealed positive changes in experimental group's leader behaviours, as rated by themselves, as well as their subordinates, while changes in the control group were statistically insignificant. This indicated that the training programme was successful in aiding the development of leadership competencies necessary for the management of innovation in teams.

Based on the expansive literature review, it was possible to develop a profile of leader knowledge, skills, attitudes and behaviours required for innovation and such contributes positively to the existing body of knowledge with regards to innovation leadership. Such could lead to further development of innovation leadership theories, and also specifically address how this differs from traditional leadership practices.

5.3. Limitations of the Research Methodology

As part of the methodology for the development of the training programme, the researcher obtained evaluative feedback from subject matter experts (SME). However, due to the participating organisation's preferred time line for the application of the programme, the feedback from the SME's was not received sufficiently in advance to make adaptations to the material based on their recommendations. Whilst the feedback from the SME's were positive, the programme would have benefited from some of the improvements that were suggested. For example, the use of more South African based examples of innovations and innovators.

One of the SME's also recommended more clarity regarding the intended target audience for the programme. The original objective was to develop the programme in such a way that the contents will be applicable to any leader, irrespective of their status or position within the organisational hierarchy and irrespective of the leader's team size. After the application of the training programme, the researcher agrees that the training programme content, as written, was sufficient for team leaders or managers who have not yet had much exposure to innovation management. However, the content would have been insufficient for more seasoned managers who are familiar with the field of study.

Based on the researcher's experience with the application of the training programme, several further improvements can be recommended:

- Opportunity to customise the content, examples and practical exercises based on the organisation in which the training is being conducted. This would be specifically relevant in instances were all delegates are from the same organisation.

- Generating opportunities during the learning process for participants to apply the content to their own individual duties and responsibilities. Participants need more guidance to connect the theory of innovation to their day-to-day tasks and objectives.

- Including more practical exercises throughout the programme, including an opportunity to implement an innovative solution in their work environments. Many participants are

able to generate potentially innovative ideas, but lack the ability or skills to guide their teams through the process of implementing such ideas successfully. The current training programme leads them through the problem identification, idea generation and prototyping stages, but does not guide them through the implementation process.

- Expanding the learning process beyond the traditional boundaries of the training programme, through the inclusion of an individual coaching process, which ensues upon completion of the coursework.

With most training interventions, there are certain general challenges that are faced during the application. These do have an impact on the learning experience, the retention of information and the willingness to take responsibility for the application of learning in the work environment. While constructing the training material, these challenges can be kept in mind and strategies developed to overcome them. For example:

- Perceived (or real) time constraints at work: Delegates who are not fully engaged during the sessions, as work that is being put on hold creates mental distractions.

- Individual orientation towards learning: Delegates who externalise reasons for failing to bring about positive change in their own sphere of influence. This relates to the extent to which participants feel empowered to influence their own work.

- Group dynamics: The group size does have an impact on the level of participation. During the current study, the one group consisted of only 6 delegates as they were all night-shift managers. The interaction and engagement in this group was significantly less than in the other two groups who had more delegates.

Regarding the evaluation of the training programme, the researcher would argue that the study could benefit from a delayed post-assessment. Leadership behaviour generally takes time and practice before meaningful and lasting change can be observed. Such would also be an indication of whether the participants actively attempted to apply what they have learnt to their team environments beyond the initial enthusiasm that spurs from attending training.

More information about the organisation in which the study was conducted, would have proven useful in the interpretation of the results. For example, whether the organisation displayed high levels of innovation prior to the training intervention, could lead to the training intervention having less pronounced effects on the leader KSA's and behaviour than if the organisation was not considered as innovative.

The researcher did not collect any biographical information (age, gender, ethnicity etc.) from the participating managers or their subordinates. As such, the equivalence of the experimental versus control group cannot be determined, nor can the generalisability of the results to the broader population be evaluated.

Self-report measures may be influenced by many different forms of bias, for example, social desirability; the respondent's emotional state and the demand characteristics of the researcher. Although additional sources of data are included (e.g. the subordinates' evaluation of their managers on the ILQ) to mitigate the impact of bias, the use of self-report measurement instruments presents a limitation of the study.

The sample size was relatively small from a statistical point of view. In instances where the differences between the means were not statistically significant, this may be due to the small sample size.

5.4.   Practical Implications

The training programme presents a promising first step towards the development of leadership competencies for the management of innovation and creativity in teams. Through the research, it is evident that the success of training interventions such as these can be appropriately measured, and further actions can be taken to support the longevity of the learning process.

The current training programme focused heavily on conveying knowledge about concepts, definitions, theories, practices and processes. It therefore succeeded in creating a theoretical framework of all that is necessary to manage innovation in teams. Within this framework, a magnitude of underlying skills can be identified which will enable leaders to manage the end-to-end innovation process and can thus be considered a valuable starting point for the development of a variety of specific skills development courses.

Ultimately, such a learning programme can be highly beneficial to the development of an innovation culture within organisations who wish to tap into the innovative potential of their employees.

The literature review resulted in the definition of factors that influence innovation on all different levels of analysis, namely individual, job, group and organisational levels. This provides useful insight into the development of innovation-specific management practices across all levels of

analysis. In addition thus to training leaders, the theoretical framework could become a blueprint for change management and organisational development initiatives.

5.5.   Suggestions for Future Research

As the purpose of this research was to conduct a pilot study, a much more comprehensive study to determine the success of the training programme can be pursued. This researcher argues that it would be valuable to apply the training with an integrated follow-up coaching programme to reinforce learning and guide managers through challenges. Then to conduct a similar experiment, with a delayed post-test to measure change on organisation, team and individual level.

The benefit of training programmes can often only be observed after longer periods of time. Certain skills programmes may have more immediate results, but with leadership development it would be beneficial to continue evaluating the leader behaviours over an extended period of time.

To supplement the training programme, a shortened version of the Innovation Leadership Questionnaire can be developed which can be used as a diagnostic tool for future training interventions.

The methodology for the evaluation of the training programme was focused on determining whether the training can impact leader *behaviours*. A further study could focus on measuring the impact of the training programme on tangible innovation *outcomes*.

A key debate in leadership literature, is whether leaders are "born or made". Similarly, in the innovation context, this is an important question that requires further attention. The current literature review referred to many stable and enduring traits or abilities, which are unlikely to be affected by short term training interventions, but also to other traits or abilities that may be more open to influence through training interventions. This could provide further insight to the question of whether innovation leaders should be recruited or developed.

Conclusion

The importance of innovation in the work environment cannot be overstated, especially in the South African context. As stated in the PwC Innovation Benchmark Report (2017), there is consensus among executives that people are central to the success of innovation as it relies on behaviour, novel thinking and leadership. They further agree that one of the most significant

people-related innovation challenges is to create the right leadership culture. Due to the critical influence that leaders and managers exert on the productivity and motivation of people, especially through their impact on the work environment, this research paper took a step towards creating a vehicle through which leaders can acquire the requisite knowledge, skills and attitudes to manage innovation in teams. Fundamental to this is the realisation that traditional management practices are insufficient for organisations who wish to innovate.

The innovation leadership programme, resulted in the development of a theoretical framework of knowledge, skills and attitudes that are critical to the successful management of innovation within organisations. Applied within a work environment, the research showed that leader behaviours can be successfully improved by exposing managers to such a training programme. Most training programmes available in the market fail to address the behavioural elements of innovation management and instead focus on processes and systems. Although such are important for innovation, it neglects the fact that successful innovation is fundamentally dependent on people.

Organisations who truly wish to be innovative, need to ensure that they embed innovation in the core of the organisational culture, and that daily management practices, allocation of resources and reward-related decisions have innovative behaviour at its centre. This will only be achieved if innovation is a strategic priority at executive level, and when leaders are encouraged to break away from the traditional, control-oriented and risk averse management styles that ultimately stifle innovative potential.

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