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**Gordon Institute
of Business Science**
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An individual's characteristics as a source of management innovation

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

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ABSTRACT

Due to the ever-changing environment that businesses operate in, there is a need to manage people differently to equip firms to avoid extinction. This need means that firms must identify and leverage sources management innovation. This research study investigated management innovation on an individual level by examining eight predetermined characteristics of an individual (age, total employment tenure, organisational tenure, functional role, innovation momentum, management training, educational level and gender) as possible factors that could predispose him/her to being a source of management innovation. Data was collected using nonprobability sampling and employed a self-administered survey. The findings indicated that all factors with the exception of management training are associated with an individual being a source of management innovation.

KEYWORDS

Innovation, management, management innovation, knowledge source

DECLARATION

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

Yomeshka Moodley

Date: 14 January 2015

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CHAPTER 1: INTRODUCTION TO THE RESEARCH PROBLEM

1.1 Research title

An individual's characteristics as a source of management innovation.

1.2 Research problem

Henri Fayol's research constituted one of the earliest formal bodies of literature concerning management and his research has formed the basis of many investigations concerning management theory. Fayol stated the following regarding the principles he observed that govern management:

“For preference I shall adopt the term principles whilst dissociating it from any suggestion of rigidity, for there is nothing rigid or absolute in management affairs, it is all a question of proportion. Seldom do we have to apply the same principle twice in identical conditions; allowance must be made for different and changing circumstances...” (Fayol, as cited in Wren & Bedeian, 1994, p.216)

The requirement for management change practices has been recognised by various management scholars for a considerable length of time. However, this discussion has recently received some formal recognition and study, being termed management innovation. Hamel (2009) explained that when modern day management was first created at the beginning of the industrial revolution, it was incorporated to ensure that employees completed repetitive tasks efficiently and competently so that the complex goods they produced were done efficiently and on a large scale. This required bureaucracy and a hierarchy that forced procedures and rules down to the lower rungs of the enterprise. However, the current nature of challenges faced by firms is different from those of the industrial era; the business environment is rapidly changing, which in turn requires new methods of management for firms to thrive.

Porter (1990) motivated that at the heart of competitive advantage is innovation. Innovation includes new methods of firm management. Hamel (2006) and Teece (2010) explained that management innovation yields more of a competitive advantage for firms than any other kind of innovation. A few examples of this competitive advantage gained from management innovation were initially listed by Hamel (2006):

- DuPont benefitted from standardising a way for comparing the performance of its many products departments.
- Toyota's success is largely due to the autonomy that it has afforded its employees in problem solving in the workplace.
- Whole Foods Market employees are managed differently from those employed at other grocery stores, as they are given autonomy and utilise unique management practices. This is one of the reasons Whole Foods Market has grown at a rate that cannot be matched by other grocery chain in the United States.

Management innovation therefore, provides tools for firms to create methods that allow employees to cope with the changing business environment because dated management practices do not address these new challenges. Management innovation is therefore essential for the survival of a business.

Given that management innovation is beneficial to business, it is important to determine where this commodity can be sourced. Despite the importance of management innovation, only one study has been found that attempted to identify sources of management innovation. This study was conducted by Mol and Birkinshaw (2009) and was largely based on firm level sources of management innovation.

The research presented in this research report investigates sources of management innovation on an individual level. Understanding the characteristics of an individual that can be classified as sources of management innovation will help employers identify individuals who can assist with creating new ways of coordinating activities in the firm.

1.3 Research scope

This research report investigates management innovation on an individual level as it concentrates on factors specific to a particular person. These factors are examined to determine the characteristics that are sources in the management innovation process. The research report does not address these characteristics' effects on the entire implementation process. The sample consisted primarily of South African individuals who have operated mostly in the South African working environment. This study also sought to examine these factors at the point in time at which the survey was administered.

1.4 Research objectives

This intent of the researcher is to determine whether eight predetermined characteristics of an individual (age, total tenure, organisational tenure, innovation momentum, management training, educational level, functional role and gender) are sources of management innovation.

1.5 Conclusion

This report builds an argument motivating the need for this research in Chapter 2 and explains how the research was conducted in Chapter 4. The results from the data collection process are presented in Chapter 5 and discussed with reference to the foundational literature. The report concludes by proposing recommendations, describing the limitations of this research as well as listing suggestions for further study.

CHAPTER 2: LITERATURE REVIEW

This chapter develops an argument that motivates the need for this study by using the foundation of academic literature that was available to the researcher. The literature review commences with defining the boundaries of the term management innovation and clarifies the importance of the subject. The gap in the available academic literature on management innovation and its sources is then discussed.

The chapter proceeds to motivate the reasons for the investigation of the eight predetermined characteristics of an individual (age, total employment tenure, organisational tenure, functional role, innovation momentum, management training, educational level and gender) in terms of management innovation and illustrates that, as far as the researcher has found, seven of these factors have not been previously investigated as sources of management innovation.

2.1 Defining the boundaries of management innovation

The term management innovation is explored in this section to determine the meaning and importance thereof.

2.1.1 Management

In his seminal work, Henri Fayol made the following statement: “a leader who is a good administrator but technically mediocre is generally much more useful to the enterprise than if he were a brilliant technician but a mediocre administrator” (Fayol, as cited in Wren & Bedeian, 1994, p.214).

Management in the business setting is of such importance to scholars and business that bodies of literature have been written on the subject and academic schools established to teach this administrative skill. Established management scholars Drucker (1993) and Fayol (1916), for example, argued that a firm’s success is more dependent on its managerial capability than its

technical capability as without good management, no fruits can be gained from technological ability.

To determine the innovation that is referred to in this research report, an understanding of the principles and activities that bind management is required. The researcher found that various sources have considered management as the process of organising and co-ordinating activities and people in order to achieve defined common objectives (Baye & Prince, 2014; Koontz, 1961; Luthra, 2014). Therefore, the purposes that emerged for management in scholarly articles include organisation, co-ordination and alignment of effort towards a common goal (Drucker, 1993; Fayol, 1916; Hamel, 2006). If the alignment of effort is considered a management objective, literature on management can be traced as far back as 1776 with Adam Smith's notion of the division of labour for efficiency in achieving a common goal, which illustrated the importance of the subject, as the alignment of effort is so fundamental to completing tasks to support humankind.

Many scholars have considered management to be a people-centric function designed to build relationships with stakeholders, including employees and communities. As such, many management scholars have researched people centricity and relationships as the core of the management role (Doh & Smith, 2011; Martin & Schmidt, 2010; Vaiman, Scullion & Collings, 2012).

Other secondary management tasks included motivating, acquiring and applying knowledge, attaining and distributing resources and balancing the demands of external constituencies (Farndale, Pai, Sparrow, & Scullion, 2014; Fayol, 1916; Hamel, 2006). It is then evident that management incorporates different tasks for different scholars. However, the vital role of management has been largely consistent in the literature that has been investigated.

When the literature concerning management is considered, management can be constrained to *all administrative activities applied toward organising and coordinating the purpose of reaching the end goal of the firm.*

2.1.2 Innovation

In an ever-changing world and economy, innovation is a crucial source for competitive advantage (Feigenbaum & Feigenbaum, 2005; Porter, 1990). Schumpeter's (1934) influential work laid the foundation for vast array of literature on the subject of innovation. He emphasised the importance of "carrying out new combinations" in order to achieve economic development. The phrase carrying out new combinations encapsulates the idea of innovation as it implies doing things differently from the past (Almeida, Hohberger & Parada, 2011; Drucker; 2013, Hamel 2006; Porter, 1990; Prahalad, 2012). The Oxford Dictionaries (2014) concurred with this early definition, describing *innovate* as the ability to "make changes in something established especially by introducing new ideas, methods or products".

The word *innovation* is usually used to refer to new technology, however; Schumpeter (1934) classified five types of innovation that includes "new ways to organise a business".

Because innovation has been widely acknowledged as a means for improvement or competitive advantage, it has attracted a large amount of attention in both the academic and business spheres. Various fields including economics, management, academics, law, sociology and medicine have used innovation as a means for improvement or to gain a competitive advantage (Barberá-Tomás & Consoli, 2012; Pistor, 2013; Schmidpeter, 2013).

An important departure from innovation literature is the idea of the extent of newness. Damapour and Aravind (2012) explained that innovation is either radical or adaptive. The former means the introduction of something completely new to state-of-the-art whilst the latter refers to the exploitation of existing ideas that are new to the organisation but not new to state-of-the-art. Conversely, Shenkar (2010) did not consider the copying of existing ideas (and making incremental changes) as innovation. This research report, however, has considered any new idea introduced into a firm, whether copied or not, as an innovation.

Scholars have also examined innovation on different levels, which include individual, organisational and national (Castellacci & Natera, 2013; Ryan & Tipu, 2013).

The depth and breadth of this research on innovation illustrates the importance and relevance of innovation in the realms of academia and business. This study investigates management innovation on an individual level.

2.1.3 Management innovation

Hamel (2006) defined management innovation as “a marked departure from traditional management principles, processes, and practices or a departure from customary organisational forms that significantly alters the way the work of management is performed” (p.3). This implies the innovation of any practice in the firm, which is not directly related to the tangible product for sale to the consumer. Mol and Birkinshaw’s (2009) definition of management innovation is “the introduction of management practices new to the firm and intended to enhance firm performance” (p.1).

Modern day management of business developed from the industrial revolution of the early twentieth century, when large corporations established themselves. Businesses became so large that they constituted independent social institutions, which required processes that would make achieving goals easier (Drucker, 1993). However, the way in which corporations are currently structured and how employees perform work has fundamentally changed since the industrial revolution. Therefore, it becomes apparent that the way in which processes and people must be organised and coordinated (managed) to achieve firms’ goals should be fundamentally different in the present day (Drucker, 1993; Hamel, 2006).

There are various types of innovation relevant to business, but management innovation differs from other kinds of innovation, which warrants it being studied as a separate entity. Birkinshaw and Mol (2006) explained that management innovation differs from technological innovation in primarily two ways; the first difference is that external agents of change such as consultants, academics

and ex-employees play a more pronounced role in management innovation than in other types of innovation; the second is that management innovation takes place and is implemented at a considerably slower pace than technological innovation because the former is tacit in nature, unlike a physical product that is generally much easier to replicate.

As with innovation, there is a divergence in literature regarding the extent of newness the term refers to. Some scholars considered management innovation as a completely new to state-of-the-art manner of managing (Chandler, 1962) whilst others regarded that it constitutes management practices that are not necessarily brand new, but are new to the firm (Mol & Birkinshaw, 2009; Young, Charns & Shortell, 2001).

In this research report management innovation is defined as the *introduction of management practices that are new to the firm with the intention of enhancing firm performance*. The following roles were considered as constituting the practices of management (Hamel, 2006, p.3):

- Motivating and aligning effort
- Coordinating and controlling activities
- Accumulating and allocating resources
- Acquiring and applying knowledge
- Building and nurturing relationships
- Identifying and developing talent
- Understanding and balancing the demands of outside constituencies

2.2 The gap in the management innovation literature

Despite the importance of management innovation, the subject is poorly understood and little work has been done to determine the origins and generative processes of management innovation (Birkinshaw & Mol, 2006; Wu, 2010). While there has been a vast amount of work done on various areas of technological innovation, a comparatively limited number of studies are present concerning management innovation.

Filling the knowledge gap on management innovation is important because it has been argued that management innovation is important in providing firms with a competitive advantage (Birkinshaw & Mol, 2006; Mol & Birkinshaw, 2009; Vaccaro, Jansen, Van Den Bosch & Volberda, 2012). Hamel (2006) and Teece (2010) explained that management innovation yields more of a competitive advantage for firms than any other kind of innovation. Feigenbaum and Feigenbaum (2005) and Hamel (2006) explained that sustainability of business success is a core result of management innovation.

Whilst academic research on management innovation is still in its infancy, some aspects of management innovation have been researched by scholars, for example, the effect of management innovation on firm performance (Walker, Damampour & Devece, 2010), the effect of competition and firm size on management innovation (Damanpour, 2010) and the result of different contexts on management innovation has been attended to by Luk, Yau, Sin, Tse, Chow and Lee (2008).

Many scholars have researched the implementation of management innovation (Abrahamson, 1991; Birkinshaw & Mol, 2009; Khanagha, Volberda & Sidhu, 2013; Walker et al., 2010; Wu, 2010). Leadership behaviour has subsequently been studied as a root of management innovation (Vaccaro et al., 2012). Manfreda, Kovacic, Stemberger and Trkman (2014) investigated absorptive capacity as a prerequisite (but not a source) for management innovation.

Given the gap in literature on management innovation and the importance thereof, it is concluded that there is a need for further research on the topic.

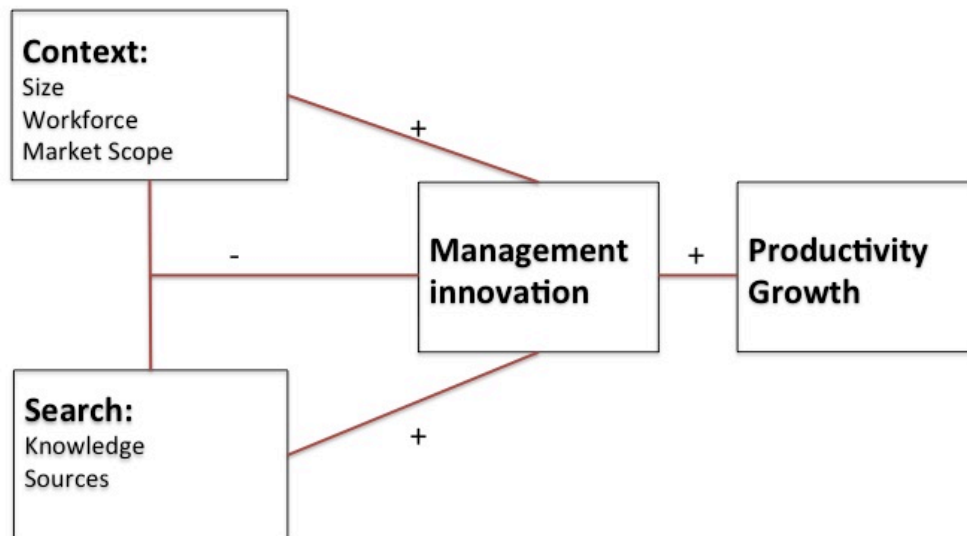
2.2.1 Management innovation sources

When the argument that management innovation is a pertinent factor to attaining a competitive advantage is considered, it is imperative to determine where an organisation can obtain this commodity.

According to the researcher's examination of published works, Mol and Birkinshaw (2009) have conducted the most comprehensive study of the

sources of management innovation to date. These authors have investigated management innovation sources on an organisational level. They found that the effect of these sources is dependent on the firm's context (Figure 1). Internal and professional networks, customers, competitors as well as consultants were found to be sources of management innovation.

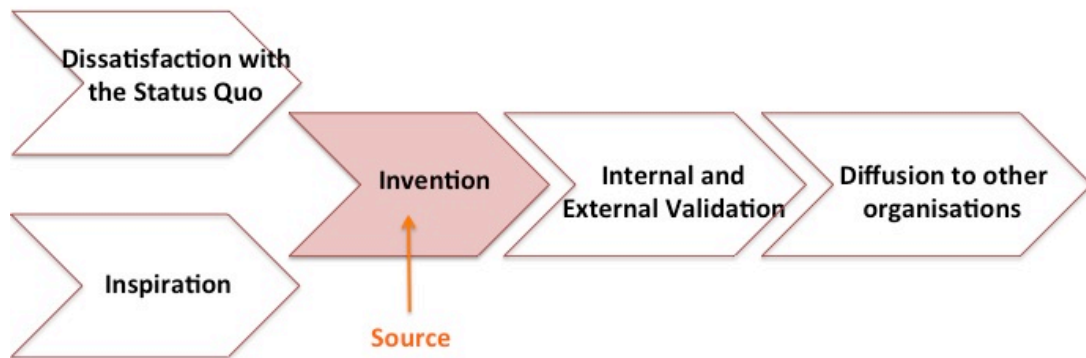
Figure 1: Conceptual model of sources of management innovation (Mol & Birkinshaw, 2009)



Whilst firm level sources of management innovation have been investigated, the researcher did not acquire any literature that has investigated an individual employee's characteristics as a source of management innovation therefore this research report aimed to do so.

Various studies on management innovation tend to merge the source of innovation together with the adoption thereof (Figure 2) (Birkinshaw & Mol, 2006; Ng & Feldman, 2013). However, Damanpour and Wischnevsky (2006) argued that the generative process of innovation is different from the implementation and these therefore ought to be studied as separate entities. This study therefore investigates only the source of management innovation.

Figure 2: Source incorporated into the management innovation process (Birkinshaw & Mol, 2006)

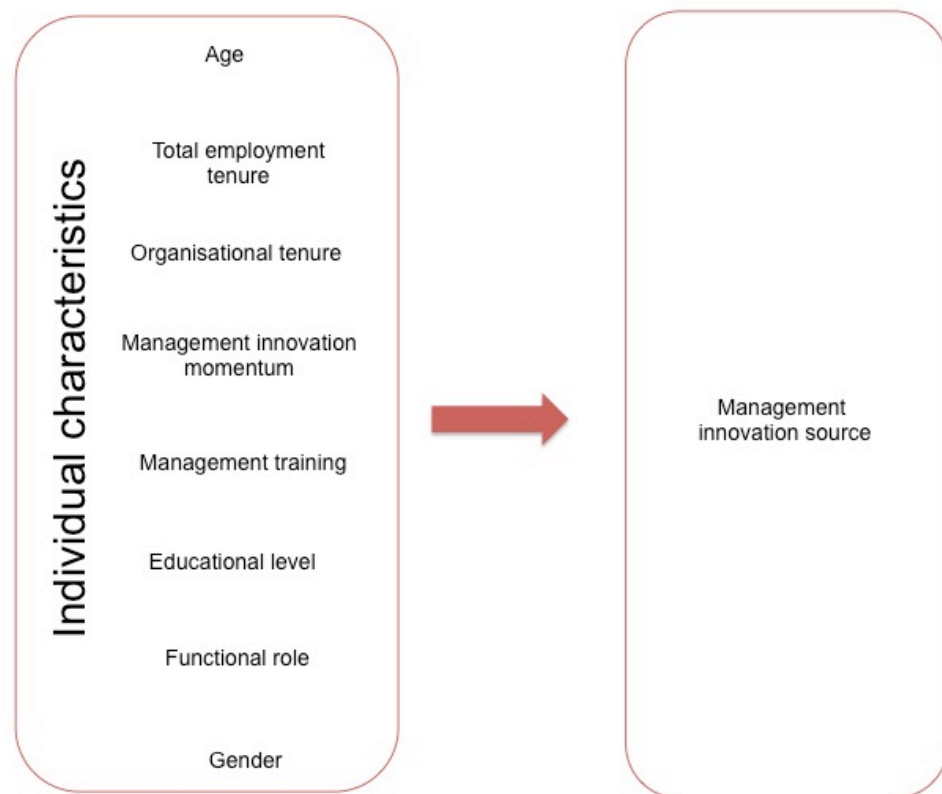


2.3 Individual characteristics as sources of management innovation

Determining whether an individual's characteristics are a source of management innovation is useful because it will help employers of firms that are in need of management innovation to determine which candidates are ideal for their organisation. The literature reviewed by the researcher has resulted in the classification of eight characteristics of an individual that can be considered as factors that can be tested as possible sources of management innovation. These characteristics are an individual's age, total employment tenure, organisational tenure, innovation momentum, management training, educational level, functional role and gender (Figure 3). None of these characteristics, except the educational level, have been investigated as sources of management innovation; therefore these have been studied in this particular research report. Inasmuch, Mol and Birkinshaw (2009) investigated the individual's educational level as a source of management innovation using a sample from the United Kingdom.

The literature research and motivation for the delineation of these factors are discussed in the remainder of this chapter.

Figure 3: Factors to be tested as sources of management innovation



The individual characteristics of age, total employment tenure, organisational tenure, innovation momentum, management training and educational level are related as they are influenced by past experience that forms a knowledge base from which an individual can draw for creating innovations.

2.3.1 Age as a source of management innovation

Knowledge of the relationship between one's age and their propensity to be a source of management innovation is important for business because it provides employers an idea of which employees can be utilised to or recruited for changing the manner in which the firm is organised. The relationship is important for academia because it will fill a gap for business and human capital disciplines.

There exists no literature known to the author that describes the relationship between the age of an individual and the likelihood of that individual being a

source of management innovation. There is, however, a vast literature base documenting the relationship between age and various elements of innovation that has been utilised as a basis for motivating why age should be investigated as a source of management innovation.

Camelo-Ordaz, Fernandez-Alles, Ruiz-Navarro and Souza-Ginel (2012) argued that an individual's age influences their perspective and their strategic choices. This can be translated into possible age-dependent perspectives on management innovation.

There are opposing bodies of literature regarding the relationship between age and innovation. Young *et al.* (2001) found that the likelihood of top managers to adopt a new form of quality management in the healthcare setting is negatively associated with age, whilst Camelo-Ordaz *et al.* (2011) concurred with this relationship that innovative activity is negatively associated with age. Ng and Feldman (2013) however found that age was not negatively related to behaviour. These authors did not study source in isolation but integrated sourcing with adoption in their respective investigations.

2.3.1.1 Age and openness to change

It is important to explore the relationship of openness to change with age, as change is the foundation for innovation, which is in turn necessary for management innovation. As discussed earlier, innovation implies doing something different from the past, therefore if individuals are not comfortable with doing things differently or being exposed to new things brought about by change it can be logically concluded that they are less likely to innovate.

Horn and Cattell (1967) explained that crystallised intelligence (which is the ability to access long-term memory for the use of skills and knowledge) is higher in older adults than in younger adults whilst fluid intelligence (which is the ability to think logically and solve new problems) is higher in younger adults. This theory supports the idea that younger adults or younger employees are better equipped for change as they have a higher capacity to function in new situations and with novel ideas. However, Hall and Mirvis (1996) argued that

there is no physiological evidence that proves that aging is related to personal adaptability or resistance to change.

There also exists a divergence in the industrial psychology literature regarding the relationship between age and the aversion to change. Kunze, Böhm and Bruch (2011) found that employee age is negatively related to resistance to change. The researchers based their definition of resistance to change on the following four dimensions:

- Routine seeking to the extent to which the employee aims for routine and stable environments.
- Emotional reaction to imposed change, which reflects the degree to which employees perceive change as stressful.
- Short-term focus, which describes the extent to which employees focus on the short-term challenges of change rather than the long-term benefits thereof.
- Cognitive rigidity.

Contrary to the findings of Kunze *et al.* (2012), other researchers have found that older employees are indeed more resistant to change (Chiu, Chan, Snape & Redman, 2001).

Although no studies regarding the relationship between age and openness to management innovation (change) have been found by the author, a large body of work has been written on the relationship between age and openness to change in the technological innovation space. This body of work is significant as it could indicate factors affecting the propensity to change that are shared with the management innovation field. Various researchers have studied the ability of older people to adopt new technology, which involves change and the acceptance of a new concept. Researchers have found that older employees are perceived as less persistent than their younger counterparts in adopting, implementing and adapting to new technologies (Davis & Songer, 2009; Morris & Venkatesh, 2000; Mostafa & El-Masry, 2008; Young et al., 2001). Conversely, Quasi and Thalukder (2011) found no significant relationship between a worker's age and his attitude towards accepting technological innovations, nor

did these specific researchers find any significant relationship between a worker's age and their usage of technological innovation.

2.3.1.2 *Age and creativity*

Ng and Feldman (2010) explained that creativity is a critical component in a firm's ability to adapt to a changing business environment. Creativity results in the generation of new ideas for the firm; therefore it is a building block for innovation.

The researcher found no consistency in the literature regarding the relationship with age and propensity for creativity. Carmelo-Ordaz *et al.* (2011) explained that an individual's cognitive ability diminishes with age, thereby inhibiting their innovativeness and creativity. It follows from this that the ability for an individual to create new ideas about how to manage a firm will diminish with age. Alternatively, various authors emphasise the unfair stereotype that older employees are less likely to be inventive than older ones (Quazi & Thalukder, 2011). Eder and Sawyer (2007) found in their meta-analysis on the relationship between age and creativity that the two are not related. Timmerman (2010) explained that as people age, their abilities like memorising and reaction time which are driven by the left brain diminish, whilst abilities driven by the right brain increase. These right brain abilities include creativity and emotion. It can therefore be deduced from Timmerman's study that older people are more creative in the workplace and more likely to create management innovations.

Some researchers have found that in both self- and supervisor-assessments of employees, age was not significantly related to employee creativity (Binnewies, Ohly & Niessen, 2008; Ng & Feldman, 2013).

2.3.1.3 *Age associated with organisational tenure, training and management innovation momentum as sources of management innovation*

It is beneficial to determine whether individuals of different ages are differently predisposed to organisational tenure, training and management innovation as

sources of management innovation because it provides an indication of the times in a person's lifecycle that they are most predisposed to innovating, if at all. According to the researcher's review of published works there exists no study on the relationship between:

- age and organisational tenure as a source of management innovation,
- age and training as a source of management innovation, and
- age and management innovation momentum as a source of management innovation.

There are different views regarding differences in age groups in the workplace. One school of thought supports the idea that each generation has experienced shared events that shape the way each of these groups behave (Tolbize, 2008; Zemke, Raines & Filipczak, 2000), whilst another view proposes that all individuals experience a similar cycle through their career, regardless of their particular generation (Jurkiewicz & Brown, 1998).

Establishing these relationships helps businesses to determine when individuals may be at their management innovative peak and are then able to leverage from these cycles. This research report sought to investigate these relationships.

2.3.2 Total tenure as a source of management innovation

A search of published literature did not yield any results that describe the relationship between an individual's total employment tenure and their propensity to being a source of management innovation. If a relationship does exist, it is significant for business, as firms who wish to change the way in which they are being managed should employ candidates whose tenure predisposes them to being a source of new management styles. Ng and Feldman (2013) explained that older individuals (with more total working experience) have gained more knowledge that can be used to be more productive because they were exposed to coping in the workplace for longer. This research report intended to fill the gap in academia by determining whether knowledge with experience can be extended to generating management innovations.

2.3.3 Organisational tenure as a source of management innovation

Organisational tenure refers to the period of time that an employee has been employed by a firm. As far as the researcher has found, there has been no published research to determine the relationship between organisational tenure and propensity for management innovation. However, research has been conducted on organisational tenure in relation to elements of change, routine and innovation, which form a foundation for management innovation.

Opposing ideas have been found regarding the relationship between organisational tenure and change. Khanangha *et al.* (2013) found that the longer people work in an organisation, the more comfortable they become with the old routines and norms of the organisation and the less open they are to challenging these old ways of operating. Conversely, some scholars have found that routine promotes efficiency that results in high innovativeness due to cognitive capacity that has been freed (Jiménez-Jiménez & Sanz-Valle, 2011; Sørensen & Stuart, 2000).

The relationship between organisational tenure and its relationship to technological innovation is worth attention because it could illuminate the shared aspects regarding propensity to change with employment in a single firm. Scholars have affirmed that organisational tenure is negatively associated with (technological) innovative behaviour and positively associated with resistance to change (Camelo-Ordaz *et al.*, 2014; Entrialgo, 2002; Kor, 2006).

The opposing ideas of innovation and organisational tenure, as well as the gap in research on management innovation and organisational tenure warrant the investigation being conducted in this report.

2.3.3.1 *Familiarity with organisational culture and firm goals*

Ng and Feldman (2010) illustrated that organisational tenure has a positive relationship with creativity. The longer one is employed in a firm, the more he or she is exposed to the culture and goals of that firm and it can therefore logically be deduced that with tenure his/her creative efforts can be aligned more

effectively with these goals and cultural norms. However this relationship has not been empirically tested, neither has it been tested in terms of management innovation. This study therefore sought to fill the gap in literature by testing this assumption.

2.3.3.2 *Familiarity with firm procedures and management innovation*

The researcher's examination of published works did not uncover literature on the relationship between an individual's familiarity with a firm's procedures and the propensity for him/her to be a source of management innovation. The researcher, however, sourced literature describing the relationship between an individual's familiarity with the firm (as a result of longer organisational tenure) and their creativity within the firm. This literature has been used as a basis for testing procedural effects of organisational tenure with management innovation sources.

Procedures provide a standardised method of completing work that leads to repetition and routine. There are two differing views on the relationship between performing routines in the workplace and creativity. Ohly, Sabine and Plunkte (2006) argued that routinisation of work releases cognitive capacity for employees to become creative, whilst Ford and Gioia (2000) argued that performing repetitive work is creativity inhibiting. Knowledge within a firm is divided into declarative knowledge (expertise on the facts and principles of a subject) and procedural knowledge (practical knowledge from practicing declarative expertise), as posited by Ng and Feldman (2013). Therefore this study aimed to examine whether declarative and technical knowledge of a firm's procedures leads to an individual becoming a source of innovation.

2.3.3.3 *Familiarity with individuals within a firm and management innovation*

Ipe (2003) explained that organisational knowledge is created through interaction between individuals in a firm. The longer an individual is employed in a firm, the more exposure he or she has to other employees within that firm, which results in familiarity and exchanges of knowledge with fellow employees.

The sharing and dissemination of knowledge is essential to innovations within an organisation (Peng, Zhang, Fu & Tan, 2014). Various authors have motivated that knowledge sharing between individuals in a firm result in positive outcomes for the firm (Andrews & Delahaye, 2000; Ipe, 2003). However, Peng *et al.* (2014) argued that it is not only the amount of knowledge sharing but also the quality of the knowledge shared between employees that determine firms' successes.

2.3.3.4 *Familiarity with social networks and management innovation*

The longer one is employed in a firm the more time he or she has to incorporate into the social networks within that firm. There exists a dichotomy in the literature that was reviewed regarding the relationship of social networks within a firm and the propensity for innovation. Some researchers have found that social networks are a hindrance to innovation because they result in dependence on the knowledge base of the firm and prevent exploratory knowledge seeking (that could spur creativity) outside the firm (Fleming, Mingo & Chen, 2007; Wang, Rodan, Fruin & Xu, 2014). Alternatively, other researchers have found that social networks provide a diverse knowledge base that result in inventive activities (Phelps, 2010; Rodan, 2010; Rodan & Galunic, 2004). This divergence in the literature as well as the gap in the literature on the relationship between management innovation and social networks warrants further investigation.

2.3.4 Innovation momentum as a source of management innovation

Innovation momentum refers to the time periods between each of an individual's past instances of creating innovations. Knowledge is the key determiner of innovation and knowledge is derived from human capital. Therefore it can be argued that, by implication, individuals who have innovated in the past will build momentum from their past innovating experiences to enable future generation of new management principles. It is expected then that the period of time between an individual's management innovations will

decrease the more he/she creates innovations. As far as the researcher found, there is no literature that determines a relationship between an individual's past experiences with management innovation and their propensity to be a source of management innovation in the future.

Whilst there is a lack from academia to determine the relationship between management innovation momentum and propensity for future innovation, a considerable amount of work has been done regarding technological innovation momentum. This body of knowledge was utilised for this specific research report. Turner, Mitchell and Bettis (2013) investigated the probability of future technological innovativeness based on past innovation experiences and found that past innovation creates momentum for future innovation. Capaldo, Lavie and Petruzelli (2014) investigated past experience in innovation as a determiner of the value of future innovations and have found that past innovations have a curvilinear relationship with innovation value.

The concept of "serial innovators" has been coined in the technological space and refers to who people who innovate markedly more than others and who possess certain characteristics that predispose them to being innovative (Griffin, Price, Maloney, Vojak & Sim, 2009; Mansfield, Holzle & Gemunden, 2009). It can be deduced from this body of work, that if management innovation is a result of personal characteristics (which is assumed to remain unchanged) it is likely that an individual who has been a source of management innovation previously is likely to have a constant rate of innovation due to their set characteristics, unless there are other environmental factors that influence their behaviour in the workplace.

2.3.5 Management training as a source of management innovation

Management training can act as a knowledge source from which management innovations can be created. Birkinshaw and Mol (2006) explained that part of the process of management innovation generation is gaining inspiration from a source. This source can be a concept proven in another setting or an unproven concept. The purpose of training is to teach employees this new concept or refresh their memory regarding a previously taught lesson for application in the

workplace. It is therefore logically deduced that management training can be a source of management innovation.

Two diverging schools of thought were found regarding the effectiveness of training. One school of thought in the available literature concerning employee post-training behaviour indicated that employees tend not to retain and use their lessons from training in the workplace (Diamantidis & Chatzoglou, 2014; Velada, Raquel, Cetano, Michel, Lyons & Kavanagh, 2007). Another school of thought indicated that training lends people to have positive attitudes towards (technological) innovation (Quasi & Thalukder, 2011).

No empirical evidence could be found in available literature that either supports or refutes this relationship of management training with management innovation and was therefore examined in this particular research study.

2.3.6 Educational level as a source of management innovation

Determining the effects of the level of education on an individual's propensity to be a source of management innovation is important. This factor is indicative of the kinds of candidates that are required when there is a desire to introduce management innovations into companies.

Mol and Birkinshaw (2009) found that firms in the United Kingdom with a more educated workforce were more likely to produce management innovations. The authors differentiated their sample into employees with and without degrees. Quasi and Thalukder (2011) also found a positive relationship between educational level and attitude towards accepting innovation of a technological nature. Conversely, Camelo-Ordaz *et al.* (2012) found the educational level of an entrepreneur was detrimental to his/her propensity for innovation. The researchers suggested that formal education systems limited competencies that drive creativity. The relationship between educational level and the propensity for management innovation generation was investigated in this research report, and differs from Mol' and Birkinshaw's (2009) study as the sample in this research was taken from South Africa where the educational system is significantly different.

2.3.7 Functional role as a source of management innovation

Understanding the relationship between functional role and propensity for management innovation is important because this knowledge indicates the affect that assigned roles have on innovation to firm leaders.

From their study in the education industry, Baldrige and Burnham (1975) claimed that an individual's role within an organisation affects the likelihood of him/her being involved in the innovation within the organisation. These researchers found that people in administrative rather than actual specialist roles (in the study the specialists were educators) initiated change and partook in organisational (managerial) activities. If specialists are not exposed to managerial activities and change, they are unlikely to be involved in management innovation.

The authors also mentioned that individuals with more authority have more access to resources, which in turn influences their ability to be involved in the innovation process. No studies have been found that describes the relationship of functional role with management innovation propensity in the business. To provide more information regarding this factor, this relationship was investigated in this research report.

2.3.8 Gender as a source of management innovation

Both business and academia will benefit from establishing whether there exists relationship between an individual's inherent characteristic of gender and his/her propensity for management innovation. Business leaders can successfully determine whether their environments are conducive for all genders, whilst there is a gap to be filled in academic literature.

There are two opposing ideas regarding gender and innovation in the workplace.

Carrasco (2014) explained that males have historically dominated the workplace and innovation, thereby crafting an environment that supports a innovation by men. Carrasco further explained that these male designed

institutional factors did not support female innovation. Opposing this idea, Østergaard, Timmermans and Kristinsson (2011) found that gender diversity (i.e. the inclusion of more women) in the workplace has a positive relationship with innovation. The latter view is supported by the fact that because the corporate landscape has been dominated by males since the inception of the organisation as an institution, the *status quo* practices and structures of a firm have indeed been created by men but women would be more likely to innovate because of the new knowledge and perspectives they would bring to the firm. Some researchers have found, however, that minority groups in the workplace (like females in today's management roles) experience perceived discrimination, less job satisfaction and therefore they display a lack of commitment (Milliken & Martins, 1996). All of these negative consequences of belonging to a minority group could negatively affect a female's attitude to her job and/or employer and she could therefore become less likely to want to find new ways for the firm to improve how it is managed.

The affect that gender has on management innovation in the workplace has not been determined as far as the researcher has found, and was therefore investigated in this research report.

2.4 Conclusion

Despite the importance of management innovation, limited literature is available on the subject. Hamel (2006) argued that firms operate in an ever-changing and increasingly competitive environment. In order for firms to thrive, they must change with their environment.

If management innovation is so important, then it becomes critical to determine the manner in which it can be generated so that firms know where to source these innovations for their survival. Mol and Birkinshaw (2009) have conducted the only available study that determined some of the sources of management innovations. These authors concede that their study was not comprehensive and subsequently suggested additional factors to be investigated as sources of management innovation.

The researcher's search of the available literature has not uncovered empirical evidence that supports or refutes whether an individual's age, organisational tenure, total tenure, management innovation momentum, management training, functional role or gender are sources of management innovation. There are however, bodies of work that describe the relationship of these variables with aspects related to innovation. Some of these aspects are creativity, knowledge and confidence to innovate. In light of this gap in the literature, as well as the supporting bodies of work that allude to possible associations, these aforementioned factors were empirically investigated as sources of management innovation in this research report.

CHAPTER 3: HYPOTHESES

The purpose of this research report was to determine whether an individual's characteristics predispose him/her to generating management innovations. To do so, the following hypotheses were developed:

Hypothesis 1: An individual's age is associated with him/her being a source of management innovation.

Hypothesis 2: An individual's total employment tenure is associated with him/her being a source of management innovation.

Hypothesis 3: An individual's organisational tenure is associated with him/her being a source of management innovation.

Hypothesis 4: An individual's innovation momentum is associated with him/her being a source of management innovation.

Hypothesis 5: An individual's management training is associated with him/her being a source of management innovation.

Hypothesis 6: An individual's educational level is associated with him/her being a source of management innovation.

Hypothesis 7: An individual's functional role is associated with him/her being a source of management innovation.

Hypothesis 8: An individual's gender is associated with him/her being a source of management innovation.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 Introduction

This chapter discusses the research methodology that was employed in this research report.

Research methodology is defined as “a way to systematically solve the research problem” (Khotari, 2004, p.8). The selected methodology must be appropriate for the problem being studied. In the case of this research report, the hypotheses constituted the research problem; therefore the methods of research were designed to address these. Wilson’s (2014) honeycomb research methodology model was used as a system for structuring this research methodology (Figure 4).

Figure 4: Research Methodology Honeycomb (Wilson, 2014, p.8)



4.2 Research philosophy

Due to the natural scientific background and logical approach to knowledge that the researcher possessed, a critical positivist approach was employed. It is

acknowledged that a truly positivist (objective) philosophy is never possible because the researcher is human and subject to human bias constraints; however the investigative processes for this study leaned significantly more towards a positivist philosophy than an interpretivist one. The data collection method illustrated an objective philosophical method (see Section 4.6).

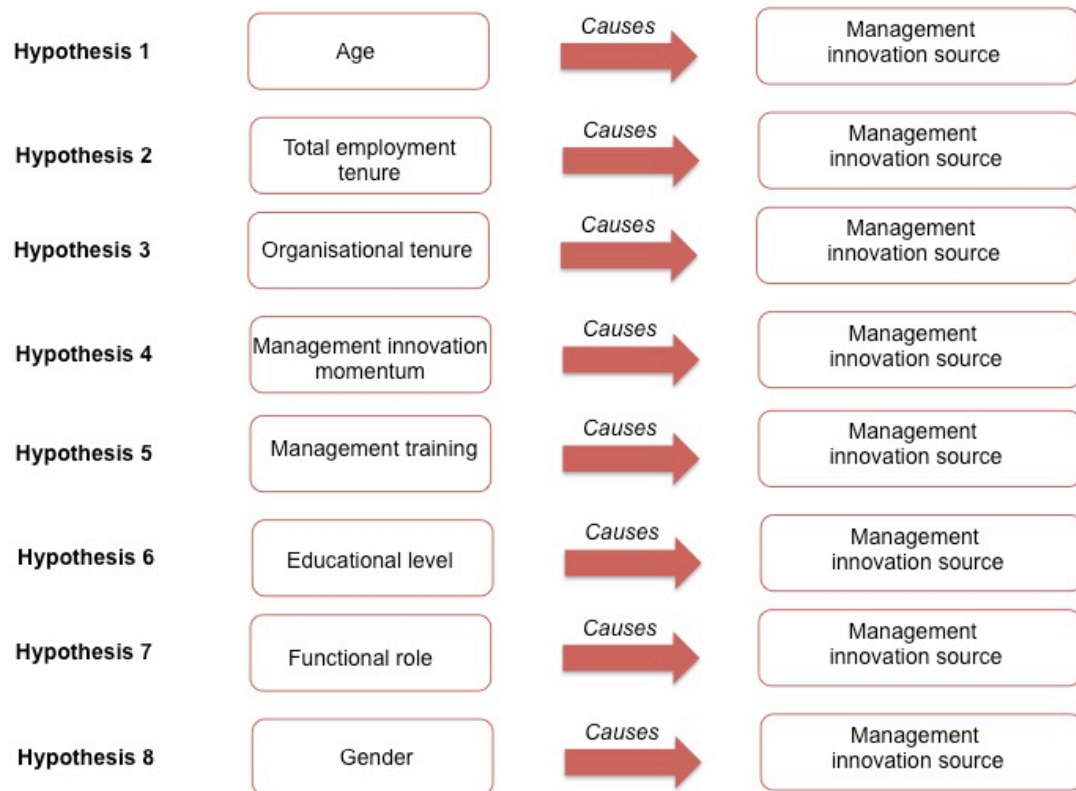
4.3 Research approach

This research report was based on a gap identified in existing literature concerning the theory of sources of management innovation. As such, eight hypotheses were formulated and examined. Wilson (2014) described the testing of hypothesis from existing theory as a deductive approach to the research.

4.4 Research strategy

Drawing from previous studies of existing theories on the characteristics and management innovation/innovation, eight premises have been logically constructed (Chapter 3). Denzin and Lincoln (2000) explained that a quantitative strategy emphasises the measurement and analysis of causal relationships between variables. This research report investigated eight factors that may cause management innovation (Figure 5) therefore these were tested in each of the eight hypotheses using a quantitative research strategy.

Figure 5: Causal relationship being tested in hypotheses



4.5 Research design

The research was a cross-sectional study as the data collected and conclusions drawn about the sources of management innovation are representative of a specific point in time. The research report sought to provide a breadth of findings rather than depth, due to the quantitative nature of the data collection and the statistical nature of the analysis.

4.6 Sampling design

The purpose of this study was to determine the effect of eight predetermined factors on management innovation. Therefore, the sample comprised of people of a variety of ages, total tenure, gender, functional roles and educational levels. In order to achieve this variety, judgment sampling was employed. Convenience sampling was also employed due to time, geographic and

resource constraints. The judgement and convenience sampling methods are non-probability methods that did not provide the researcher equal access to all samples of the population (Cooper & Schindler, 2014).

4.6.1 Population definition

Cooper and Schindler (2014) described a population as those people that contain the desired information and can answer the measurement questions. The population for this study was all people who are procured to perform work for a firm.

4.6.2 Sample unit definition

A sample unit is “the object being measured, counted or observed with respect to the random variable under study” (Wegner, 2013, p.5). The sample unit in this research was a person who has been procured to perform work for a firm.

4.6.3 Sample size

There exists many ‘myths’ about non-probability sample size leading to the use of *rules of thumb* (Cooper & Schindler, 2014). However, the parameters that led to the choice of non-probability sampling were used as a guide for sample size, i.e.: time constraints, resource constraints and access to sample unit constraints. Sampling ceased once responses became consistent, thereby warranting no further sampling. The researcher set a minimum target of fifty observations.

4.7 Data collection

4.7.1 Data collection instrument

A questionnaire was designed to determine the effect of the eight predetermined independent variables on an individual’s propensity to create management innovations.

The questionnaire was compiled by consulting published journals, articles and textbooks. Cooper and Schindler (2013) explained that a pilot test should be conducted to detect weaknesses in the data collection instrument. The first and second drafts of the survey were piloted on five individuals who provided the researcher with feedback regarding the clarity, logical sequencing and timing of instrument. The input from pilot participants was used to compile the final questionnaire.

The final questionnaire consisted of eight questions (Appendix 1). The first six questions were designed to collect demographic data, whilst the last two collected data specific to the eight hypotheses outlined in Chapter 3. Question 7 was designed to collect data that detailed the respondents' history of management innovation. Question 8 collected interval data specific to hypotheses one, three, four and five. This specific question used a Likert rating scale that captured the attitudes and motivations of respondents who had a propensity for management innovation (Wegner, 2013).

4.7.2 Data gathering

The questionnaire was a self-administered on-line survey using SurveyMonkey™. This enabled respondents to take the survey at a time that was convenient for them. The questionnaire did not request the participants' names to ensure a degree of anonymity.

For convenience sampling, the Masters of Business Administration (MBA) students, as well as the researcher's friends, family and acquaintances were utilised. These channels led to a faster and economic way to achieve responses. The respondents were contacted via email and social networking sites (Facebook and LinkedIn). After three months of having the survey accessible to the potential respondents, a total of 199 observations were received. The sample size exceeded the fifty envisioned observations.

4.8 Data analysis techniques

Wegner (2013) explained that descriptive statistics is used to organise large amounts of data so that essential information can be easily extracted. Descriptive statistics, therefore, was used to understand the demographic characteristics of the sample data.

4.8.1 Cronbach's alpha coefficient

Cronbach's alpha coefficient was used to test whether the research instrument used in Question 8 was reliable. This reliability test generally indicates internal consistency, which further indicates that the same results will be achieved if the test were to be repeated. The coefficient is applicable to Likert scale data (Gliem & Gliem, 2003). Darren and Mallery (2003), as cited in Gliem and Gliem (2003) stated that a Cronbach's alpha value lower than 0.6 indicates that the dataset may not be reliable.

4.8.2 Hypothesis testing

Hypothesis tests are used to determine the accuracy of claims that have already been established (Cooper & Schindler, 2014).

The single factor ANOVA test was used to test hypotheses one, three and five. This test indicates whether there is difference in means between category types that in turn indicate the accuracy of the claim of the association between the dependent and independent variables (which are the propensity of an individual to be a source of management innovation and the eight characteristics respectively).

The Chi Squared (χ^2) hypothesis testing was used to test the accuracy of independence of association of categorical data. Because the resultant data for hypotheses two, four, six, seven and eight were categorical in nature, χ^2 testing was used.

Any sample varies from different populations to some degree due to sampling fluctuations. This variation is accommodated for by using a significance level (α) (Cooper & Schindler, 2014). The significance level sets the size of the sample that result in the rejection of the null hypothesis. The significance level was set at 0.05 for this specific research report.

4.9 Limitations of the research methodology

The following research limitations were acknowledged by the researcher:

- Due to the use of convenience sampling through the researcher's social network, the sample contained a large proportion of individuals who had a higher educational level than secondary school.
- The survey *via* online questionnaire technique used for data collection did not allow for the collection of insights or factors further than what is specified (Cooper & Schindler, 2014).
- Question 7 of the questionnaire required the sample units to access their memories of historical experiences with innovations. Due to the comprehensiveness of this task many respondents did not answer this question and it is also a possibility that this question was not answered accurately by those who did.
- The multiple-choice nature of some of the questions may not have catered for unforeseen options. This may have caused some respondents to skip questions rather than answer them untruthfully.

CHAPTER 5: RESULTS

5.1 Introduction

The outcomes from the administered survey are presented in this chapter. The ultimate question that this research required to be answered was “which of the eight hypothesised factors are sources of management innovation?” This chapter commences with a presentation of the demographic data of the respondents and is followed by the presentation of results in the order of the hypotheses, as proposed in Chapter 3.

The management innovation survey was administered to the sample set representing a variety of gender, age, tenure, functional role in firm and educational level.

The survey resulted in a total of 199 respondents. However one observation was removed from all analyses as it was perceived to be an outlier. This respondent displayed an unusually large number of management innovation activity in relationship to the rest of the respondents. Observations where respondents omitted data required for specific tests (e.g. their age) were excluded in those statistical tests. The data was formatted so that it portrayed a chronological order of innovative events for representative results.

A level of significance of 0.05 was used in the hypothesis testing.

5.2 Respondent characteristics

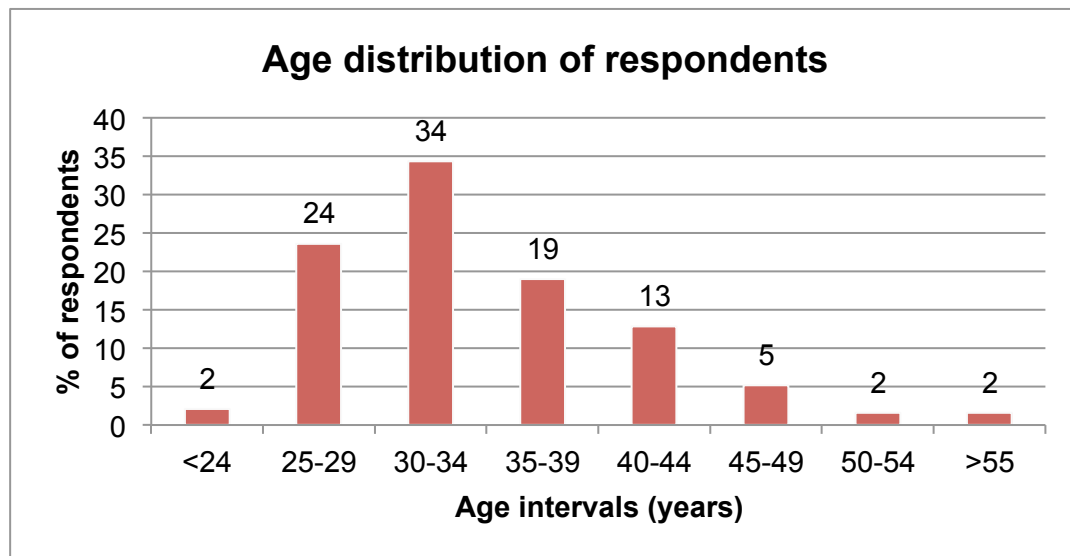
The following descriptive statistics describe the characteristics of the respondents who completed the survey.

5.2.1 Age of respondents

The sample of 198 respondents consisted of a representation of people aged from their early twenties to late fifties, however the data indicated that a majority

(77%) of the respondents were between their late twenties and late thirties (Figure 6). The disproportionate representation of people in their twenties and thirties can be attributed to the convenience sampling methods used to recruit respondents.

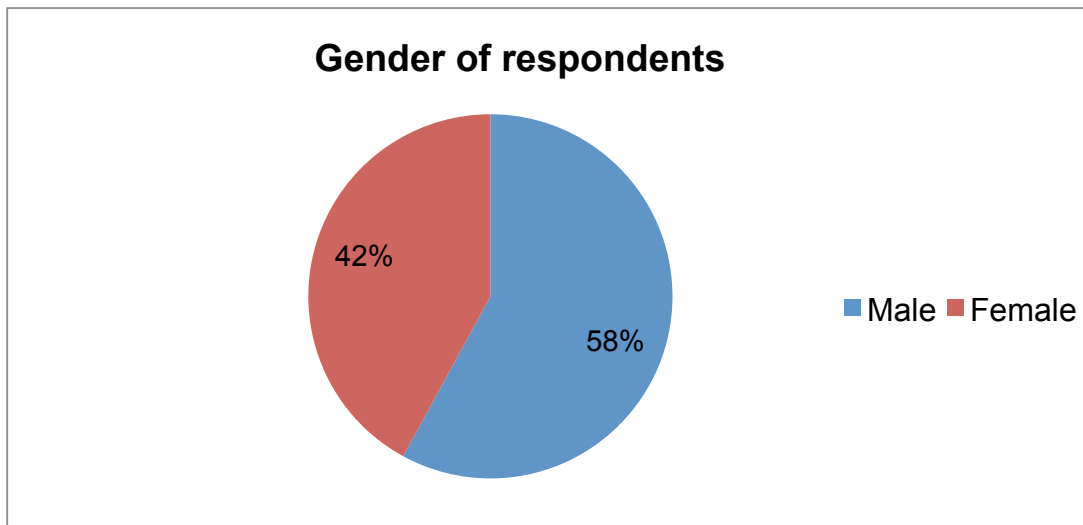
Figure 6: Bar chart of age ranges of the respondents



5.2.2 Gender of respondents

Figure 7 demonstrates that the majority of the respondents to this questionnaire were male. The proportion of female respondents is fairly representative considering that the representation of females in the workplace in South Africa was 45% in 2014 (World Bank, 2014).

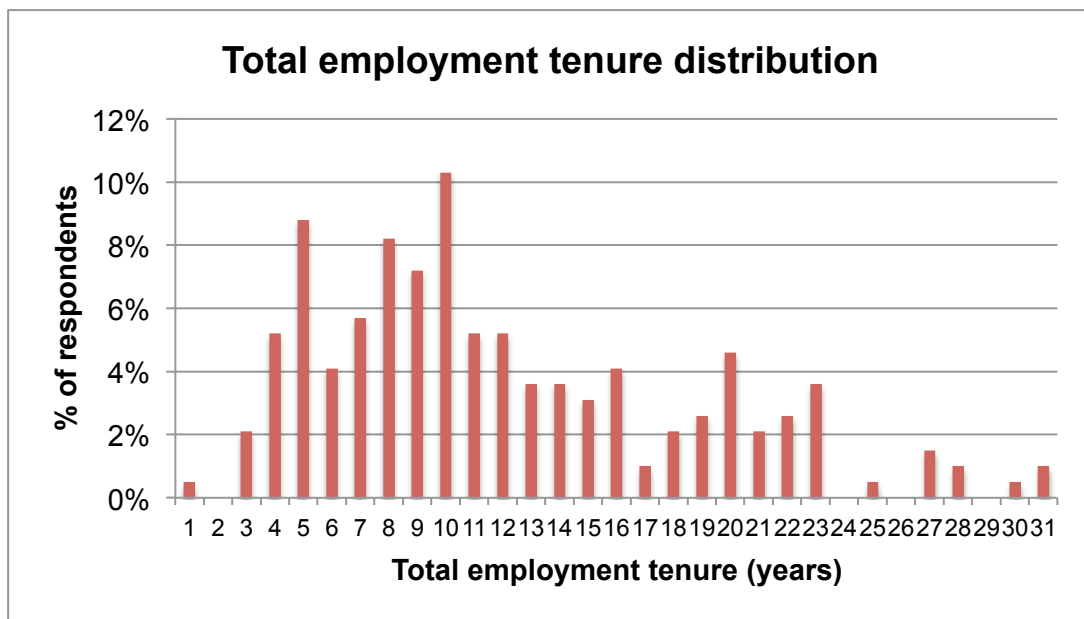
Figure 7: Pie chart of gender of respondents



5.2.3 Total working tenure of respondents

The data (Figure 8) illustrates that most (93%) of the respondents had between three and twenty-three years of working experience. The total tenure of the respondents is aligned to their age profiles in Figure 6. The disproportionate nature of the total working tenure of the respondents can be explained by the convenience sampling method used, which accessed individuals in the researcher's immediate network who tend to share similar total working tenure periods as the researcher. Five of the 198 sample units did not answer this question.

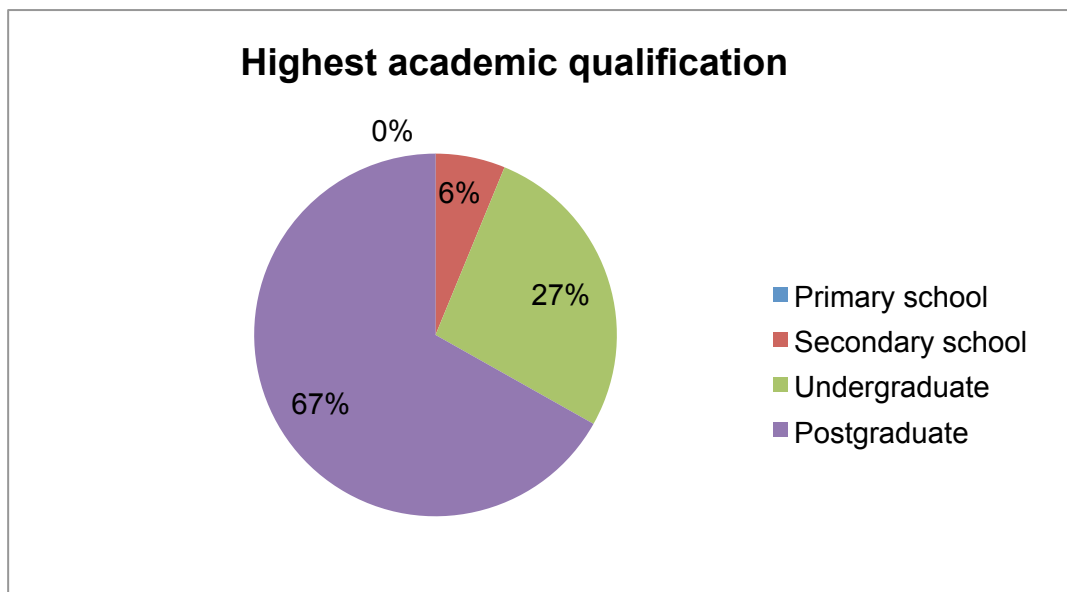
Figure 8: Bar chart of total employment tenure of respondents



5.2.4 Educational level of respondents

Two thirds of the 193 respondents to this question have a postgraduate qualification, whilst none have an educational level less than secondary school (Figure 9). This is explained by the convenience sampling method that accessed a large number of MBA students, most of whom have at least an undergraduate degree. Five of the survey respondents did not answer this question.

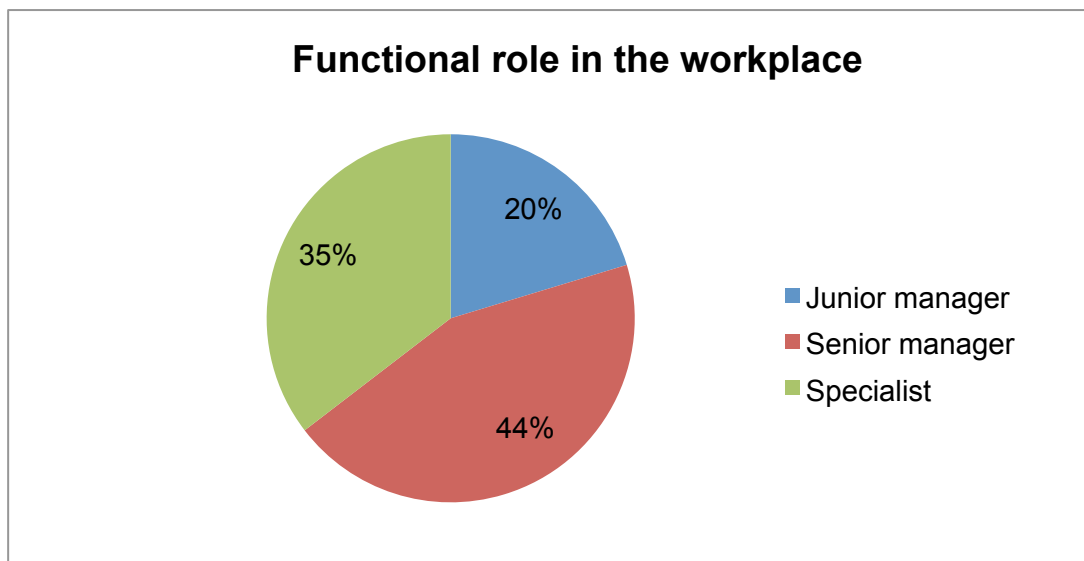
Figure 9: Pie chart of educational level of respondents



5.2.5 Functional role of respondents

The functional role of the respondents shows a representation of junior and senior managers as well as specialists (Figure 10). This sample contained a large number of senior managers and specialists. This response could be explained by the researcher's network that was used in the convenience sample. Six respondents did not answer this question, which may be attributed to the fact that the three roles specified do not fit these respondents' job descriptions.

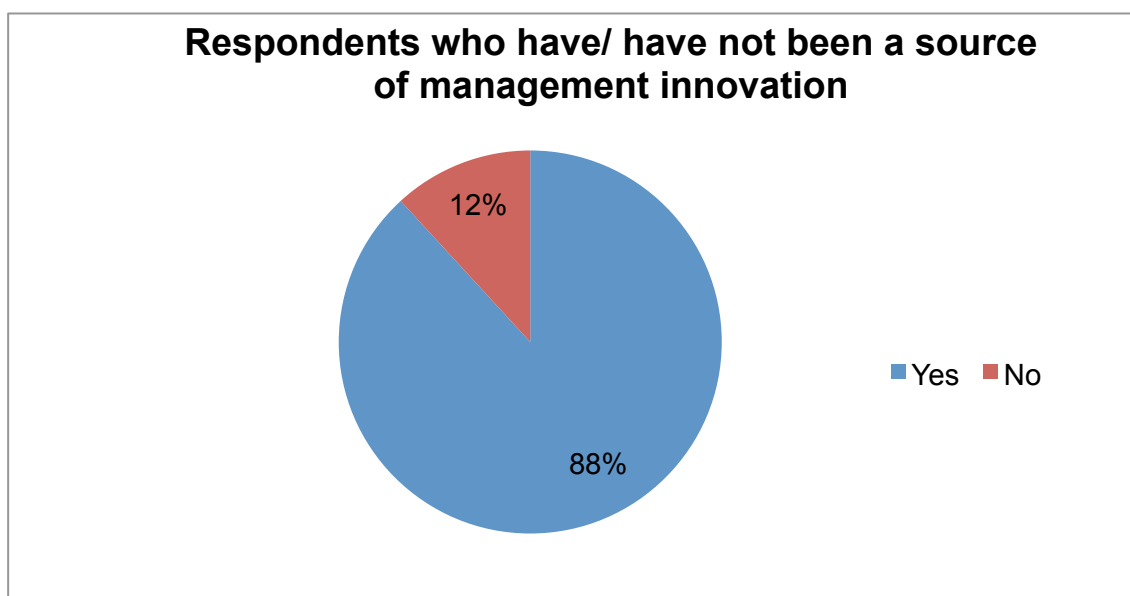
Figure 10: Pie chart of the functional roles of respondents in the workplace



5.2.6 Respondents who have been a source of management innovation

The data illustrates that a vast majority of the respondents (88%) have been a source of management innovation (Figure 11). This indicates that these respondents could provide useful data regarding the details of their management innovation efforts.

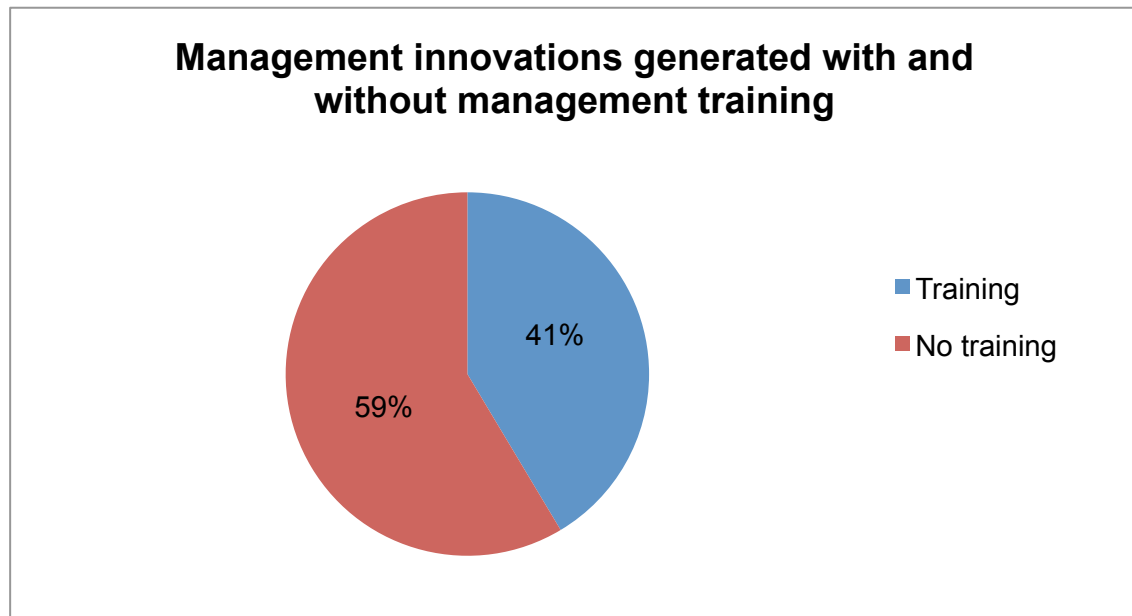
Figure 11: Pie chart of respondents who have/ have not been a source of management innovation



5.2.7 Management innovation generated after management training

Figure 12 illustrates that the majority (59%) of the respondents' management innovations were sourced after having received management training.

Figure 12: Pie chart of management innovations rproduced with and without management training



5.3 Hypothesis 1

The null hypothesis (H_{1_0}) states that an individual's age is not associated with him/her being a source of management innovation. The alternative hypothesis (H_{1_a}) states that an individual's age is associated with him/her being a source of management innovation.

To test this hypothesis a single factor ANOVA test was performed between the age at which individuals created an innovation and the number of management innovations created at that age. The data was chronologically ordered to perform this test. Observations where individuals did not provide their age at the time of the management innovation were excluded. From the results presented in Table 1, it can be concluded at the 0.05 level of significance that an individual's age has an association with him/her being a source of management innovation.

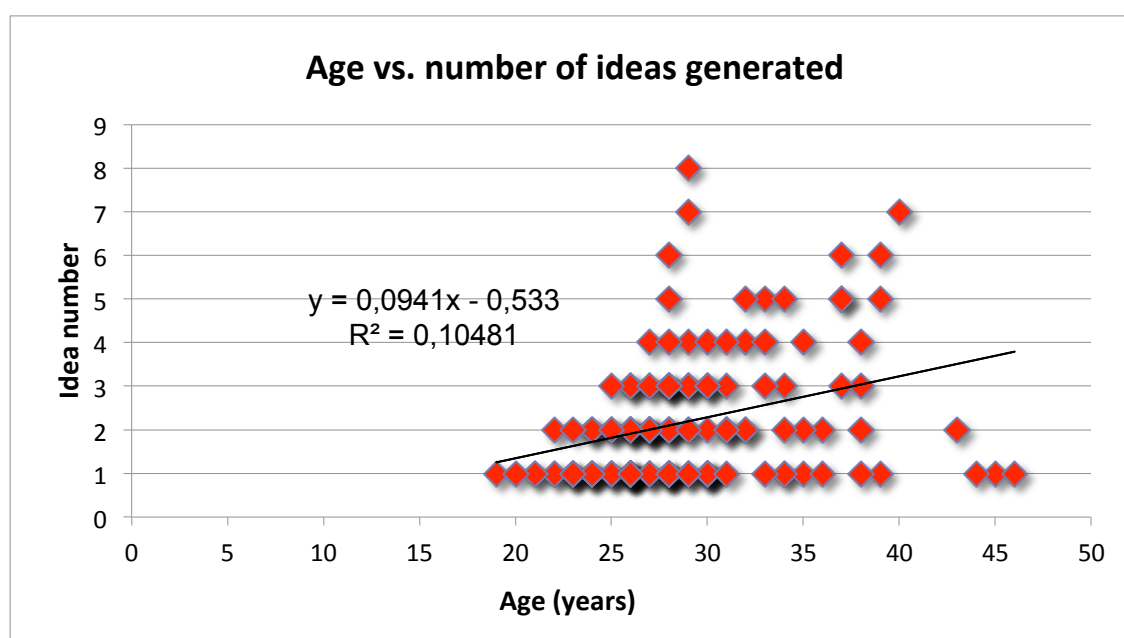
Table 1: Single factor ANOVA results for hypothesis 1

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	322.329	4	80.582	3.405	0.011	2.442
Within Groups	3052.925	129	23.666			
Total	3375.254	133				

The results of the single factor ANOVA test are supported by Figure 13 that expresses that most management innovations are created with increased age. An exception to this is data points past the age of forty.

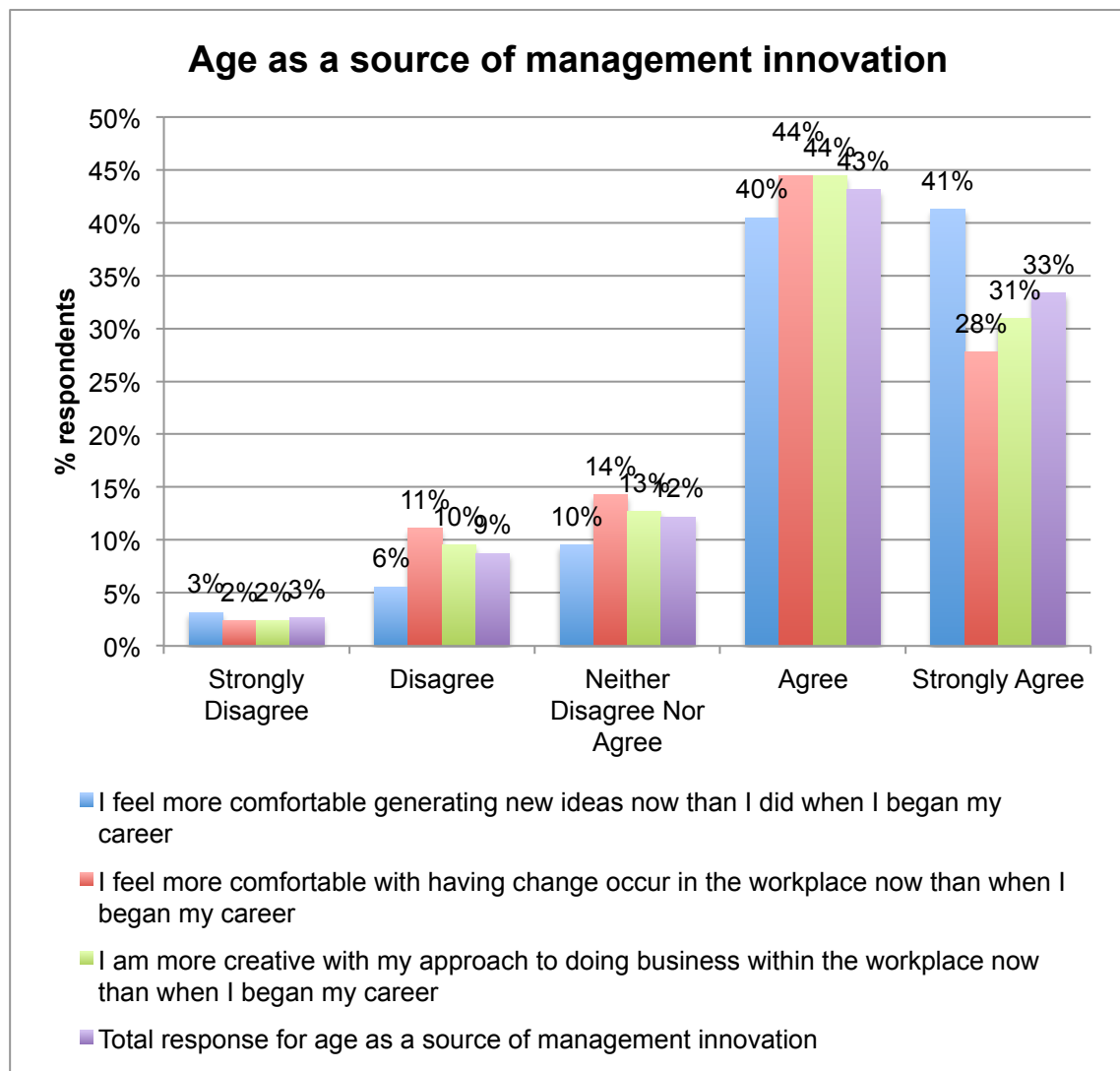
To establish whether a linear relationship exists, an individual's age was plotted against the number of management innovations they had generated. A very weak linear relationship exists between the management innovation idea number and the age at which the individual generated that innovation. The scatter plot did not significantly fit any other trend type.

Figure 13: Scatter plot of age vs. innovative idea number



The results of the ANOVA test also concur with 76% of respondents who felt that the older they become, the more likely they are to be a source of management innovation (Figure 14).

Figure 14: Bar chart of age as a source of management innovation



The Likert scale responses in Question 8 of the survey were divided into age ranges to determine whether people in these different age groups had differing views of the effects of their aging, organisational tenure, innovation momentum and training on their propensity to be a source of management innovation. The groups of people were delineated into those in their twenties, thirties and forties. To test for independence of association, Chi² hypotheses tests were performed between these three predetermined age groups and the Likert scale responses for age, organisational tenure, innovation momentum and management training.

Table 2 summarises the results for the test and confirms that people in these different age categories do not have significantly differing opinions of the effect their age and organisational tenure on their propensity to be a source of

management innovation. The results also demonstrate that individuals of these different age groups do not have the same opinion regarding the effect of their innovation momentum and training on their propensity to be a source of management innovation.

Table 2: Chi squared test results for age as a determinant of one's attitude toward age, organisational tenure, innovation momentum and training as sources of innovation

Factor	Cronbach's alpha	P-value	Conclusion
Age	0.776	0.125	Age and age as a source of management innovation are not associated
Organisational tenure	0.804	0.138	Age and age as a source of management innovation are not associated
Innovation momentum	0.767	2.27E-63	Age and innovation momentum as a source of management innovation are associated
Management training	0.921	0.008	Age and innovation management training as a source of management innovation are not associated

5.4 Hypothesis 2

The null hypothesis (H_{1_0}) states that an individual's total tenure is not associated with him/her being a source of management innovation. The alternative hypothesis (H_{1_a}) states that an individual's total tenure is associated with him/her being a source of management innovation.

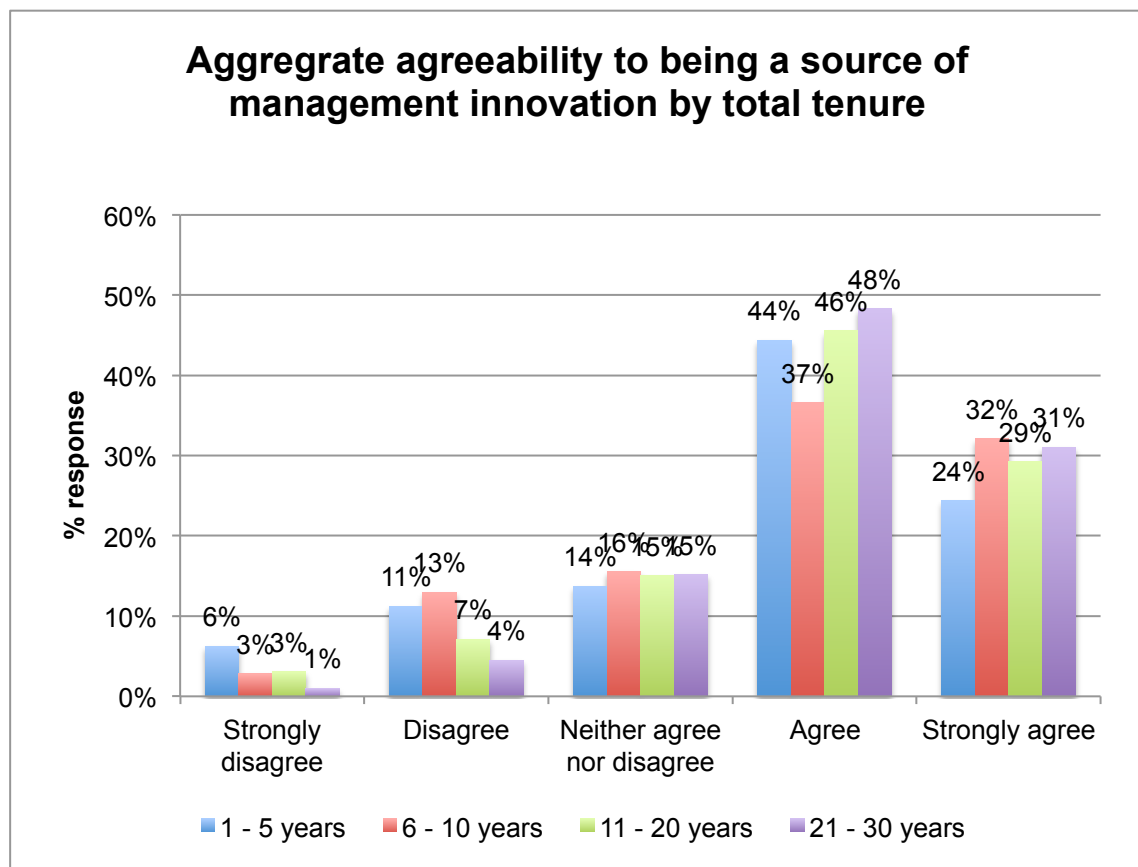
To test the hypothesis a Chi² test was performed on the propensity to create management innovations and four total tenure ranges, i.e.: 1 to 5 years, 6 to 10 years, 11 to 20 years and 21 to 30 years. The results of the test are displayed in Table 3 and they indicate that with a 0.05 level of significance an individual's total employment tenure is associated with an individual being a source of management innovation.

Table 3: Summary of Chi squared test results for hypothesis 2

P value	Cronbach's alpha
1.20E-06	0.835

Figure 15 illustrates the distribution of responses to the Likert scale questions in Question 8 of the survey, arranged by total employment tenure.

Figure 15: Bar chart of respondent's agreeability to being a source of management innovation by total tenure.



5.5 Hypothesis 3

The null hypothesis (H_{1_0}) states that an individual's organisational tenure is not associated with him/her being a source of management innovation. The alternative hypothesis (H_{1_a}) states that an individual's organisational tenure is associated with him/her being a source of management innovation.

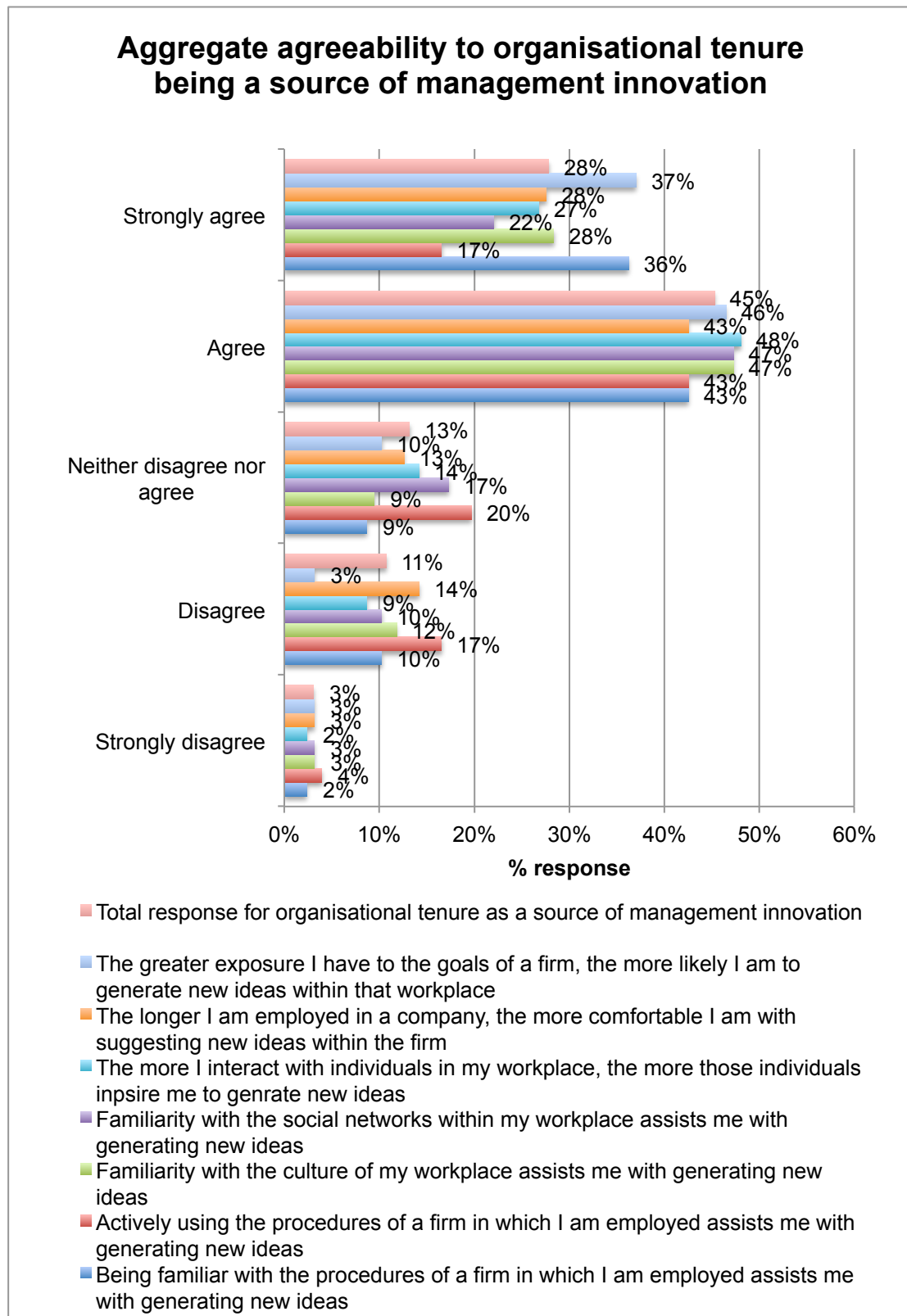
To test this hypothesis a single factor ANOVA test was performed between the organisational tenure at which individuals created an innovation and the number of management innovations created at that tenure. The data was chronologically ordered by the researcher. Observations where individuals did not provide their tenure at the time of the management innovation were excluded. The results are presented in Table 4.

Table 4: Single factor ANOVA results for hypothesis 3

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	43.623	4	10.906	0.872	0.483	2.442
Within Groups	1613.190	129	12.505			
Total	1656.813	133				

At the 0.05 level of significance, the results indicate an individual's organisational tenure has no association with an individual being a source of management innovation. However, the outcomes of Question 8 of the survey (Figure 16) conflict with the results of the ANOVA test as they show that respondents tend to support the idea that the longer they are employed in a firm, the more they are to be a source of management innovation in terms of social networks, procedural familiarity and knowledge transfer from other individuals. This difference in results is explained by the possible lack of accuracy from the respondents' with recalling instances of past innovations. This may also be explained by respondents rushing through the question due to its time demanding nature.

Figure 16: Bar chart of respondents' agreeability to organisational tenure being a source of management innovation.



5.6 Hypothesis 4

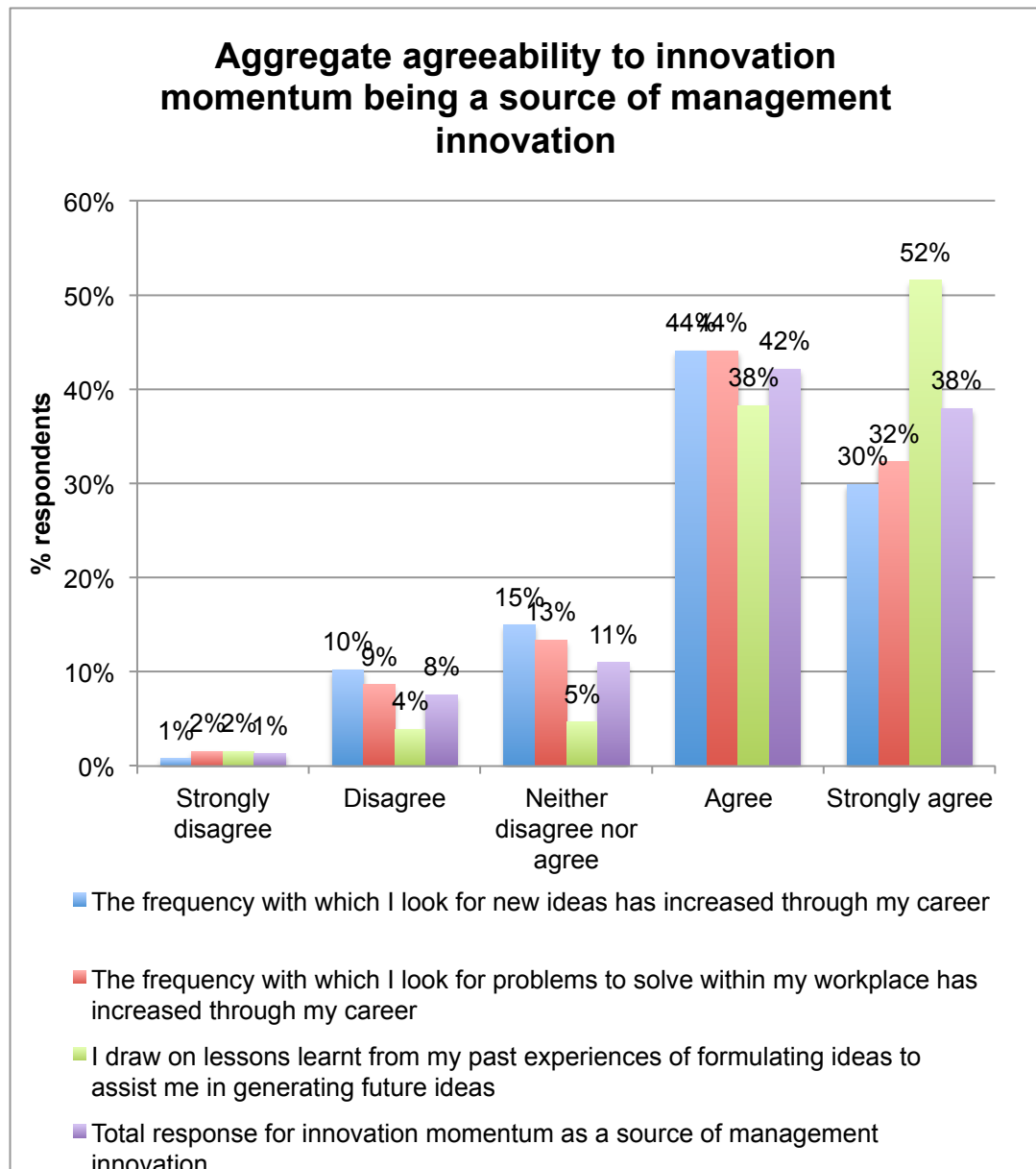
The null hypothesis (H_{1_0}) states that an individual's innovation momentum is not associated with him/her being a source of management innovation. The alternative hypothesis (H_{1_a}) states that an individual's innovation momentum is associated with him/her being a source of management innovation.

To test this hypothesis a single factor ANOVA test was performed between the period of time between an individual's innovative ideas ("idea gap") and the innovation idea number. If the two variables are associated, the idea gap should change consistently with the increasing idea numbers. The data was chronologically sequenced for the testing. Observations where individuals did not provide their age at the time of idea creation were excluded. The results (Table 5) provide support for the conclusion that, at the 0.05 level of significance, an individual's history with management innovation has an association with him/her being a source of management innovation. The summary of the survey responses (Figure 17) concur with the ANOVA test as 80% of respondents agree that their management innovation momentum is a source of innovation.

Table 5: Single factor ANOVA results for hypothesis 4

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	622.961	4	155.740	8.593	3.518E-06	1.989
Within Groups	2337.882	129	18.123			
Total	2960.843	133				

Figure 17: Bar chart summarising respondents' agreeability to innovation momentum as a source of management innovation



5.7 Hypothesis 5

The null hypothesis (H_{1_0}) states that receiving management training is not associated with one being a source of management innovation whilst the alternative hypothesis (H_{1_a}) states that receiving management training is associated with one being a source of management innovation.

To test this hypothesis a Chi² test was performed between people who either did or did not receive management training and while analysing their propensity for being a source of innovation (the data for propensity for being a source of management innovation was gained from the results of Question 8 of the survey) The table below (Table 6) displays the results of the test. It shows that with a 0.05 level of significance, an individual's management training is associated with being a source of management innovation.

Figure 18 illustrates the difference in respondents' agreeability to being a source of management innovation by either having received management training or not. The data used for this graph and the Chi² test were the respondents' answers to age, organisational tenure and innovation momentum as sources of management innovation in Question 8 of the survey. The outcomes of the respondents' responses to the training questions were not used, as respondents who have not had management training would not have provided accurate data regarding training. The results demonstrate that people who have received management training are more likely to either disagree or strongly disagree with the elements of age, organisational tenure and innovation momentum being a source of management innovation.

Table 6: Results of Chi squared test for hypothesis 5

P value	Cronbach's alpha
4.46E-03	0.835

Figure 18: Bar chart of respondents' agreeability to being a source of management innovation by training

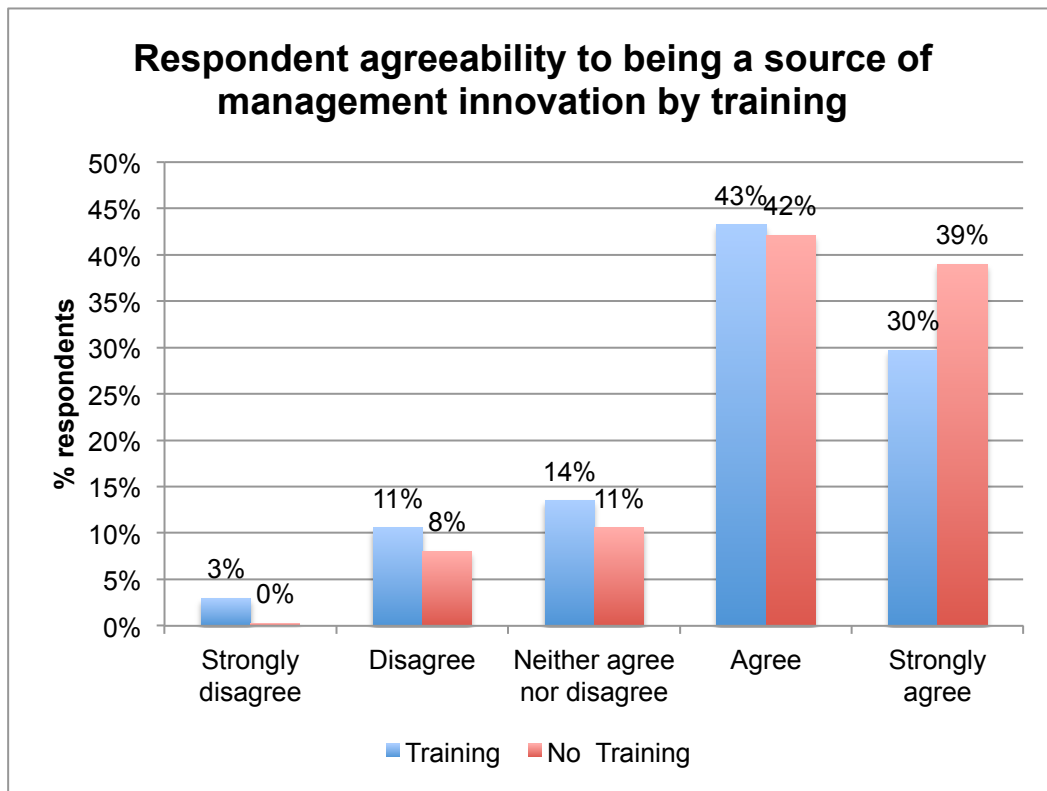
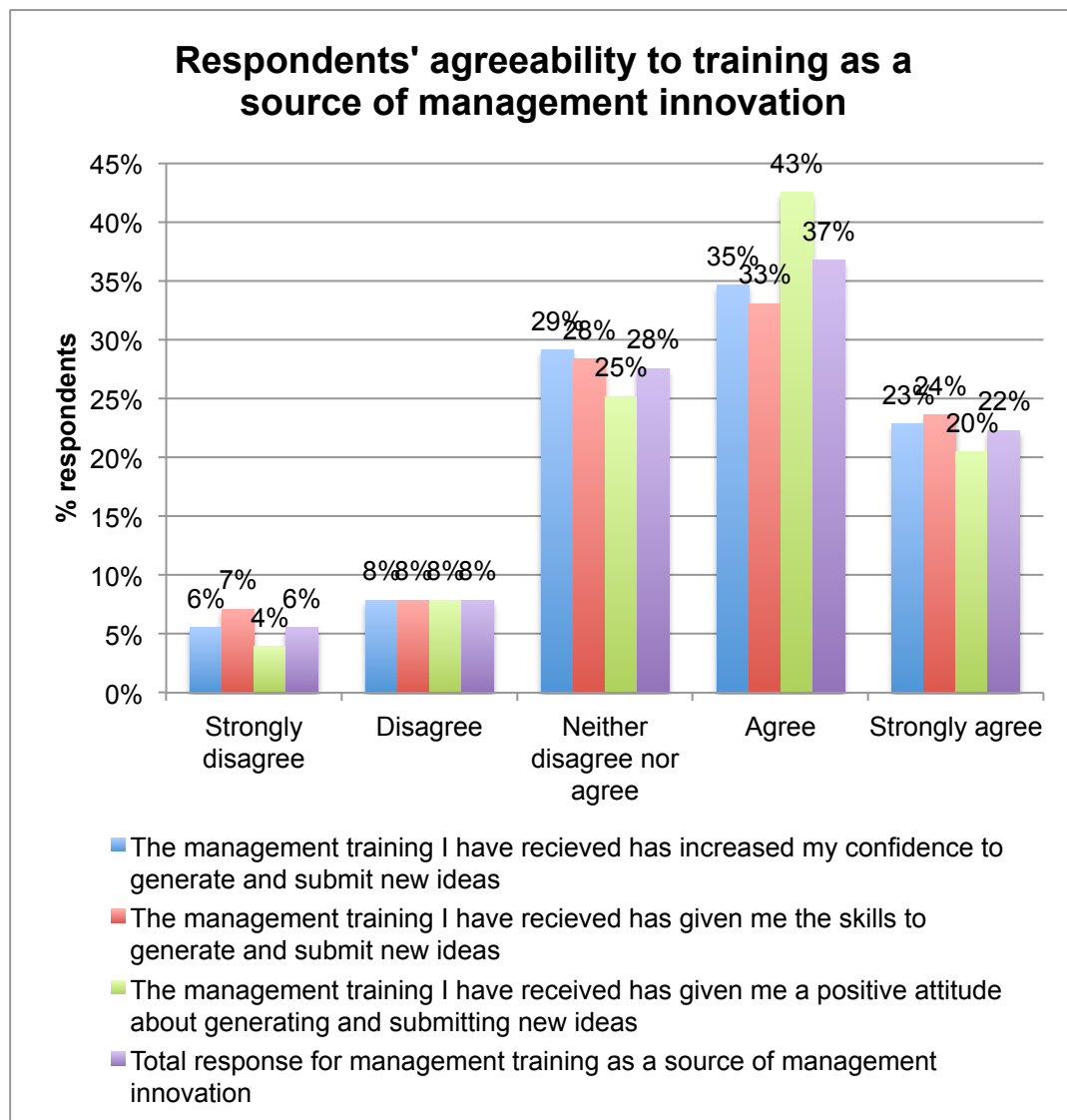


Figure 19 shows respondents' agreeability to management training as a source of management innovation. The data illustrated in Figure 19 is only from respondents who have undergone training because those who have not been trained cannot give an account of training experience. The data presents that 59% of the respondents concur with the idea that training increases their propensity for management innovation.

Figure 19: Bar chart of respondents' agreeability to training as a source of management training



5.8 Hypothesis 6

The null hypothesis (H_{1_0}) states that an individual's educational level is not associated with him/her being a source of management innovation. The alternative hypothesis (H_{1_a}) states that an individual's educational level is associated with him/her being a source of management innovation.

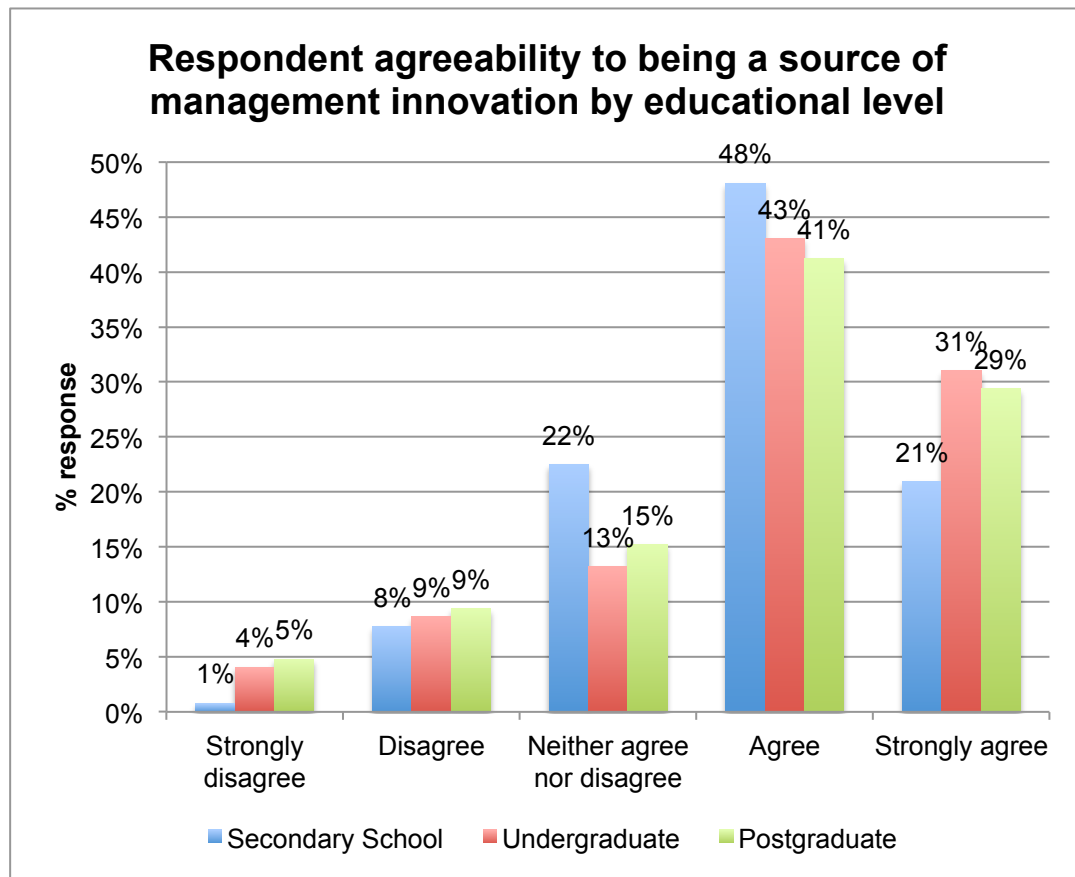
To test this hypothesis a χ^2 test was performed between categories of educational levels and propensity for being a source of management innovation. The results are presented in Table 7. It can therefore be concluded

with a 0.05 level of significance that an individual's educational level is associated with being a source of management innovation. Figure 20 summarises the respondents' agreeability to being a source of management innovation by educational levels of secondary school, undergraduate and postgraduate education. The bar chart shows that 69% of people with a secondary school education concur that they are predisposed to be a source of management innovation whilst 74% of undergraduate and 70% of postgraduates concur with this.

Table 7: Results of Chi squared test for hypothesis 6

P value	Cronbach's alpha
0.04	0.835

Figure 20: Bar chart summarising respondents' agreeability to being a source of management innovation by educational level.



5.9 Hypothesis 7

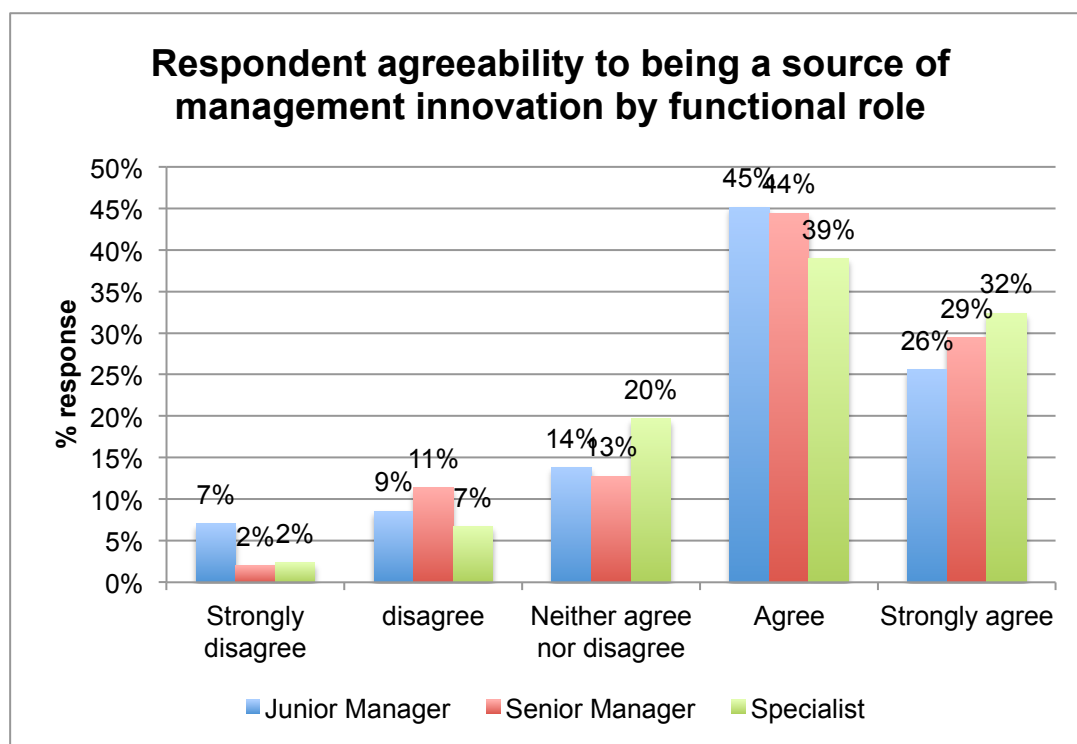
The null hypothesis (H_{1_0}) states that an individual's functional role is not associated with him/her being a source of management innovation whilst the alternative hypothesis (H_{1_a}) states that an individual's functional role is associated with him/her being a source of management innovation.

To test this hypothesis, a χ^2 test was performed between an individual's functional role and the individual's propensity to produce a management innovation (Table 8). Observations where individuals did not provide their functional role were excluded. From the result, it can be concluded with a 0.05 level of significance that an individual's functional role is associated with being a source of management innovation.

Table 8: Results of Chi squared test for hypothesis 7

P value	Cronbach's alpha
4.84E-06	0.835

Figure 21: Bar chart summarising respondents' agreeability to being a source of management innovation by functional role.



5.10 Hypothesis 8

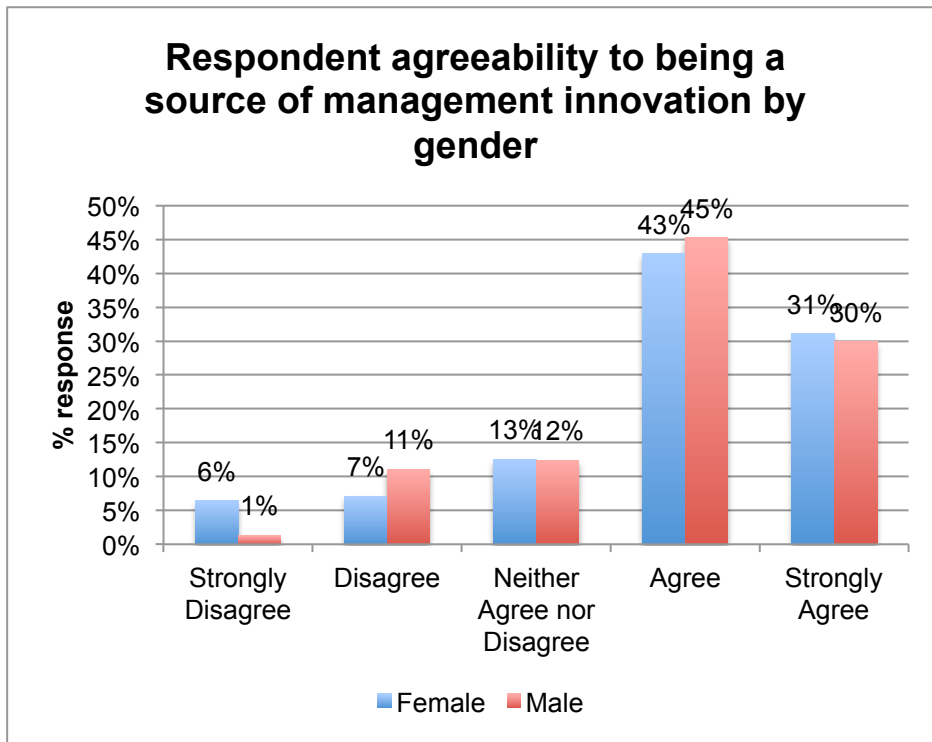
The null hypothesis (H_{1_0}) states that an individual's gender is not associated with him/her being a source of management innovation. The alternative hypothesis (H_{1_a}) states that an individual's gender is associated with him/her being a source of management innovation.

To test this hypothesis a χ^2 test was performed between gender and the respondents' propensity for innovation. The results are presented in Table 9. It can therefore be concluded at a 0.05 level of significance that an individual's gender is associated with him/her being a source of management innovation. The largest difference in response is the strongly disagree category, which is 6% for females and 1% for males.

Table 9: Results of Chi squared test for hypothesis 8

P value	Cronbach's alpha
4.55E-09	0.835

Figure 22: Bar chart summarising respondents' agreeability to being a source of management innovation by gender.



CHAPTER 6: DISCUSSION OF RESULTS

6.1 Introduction

This chapter discusses the results of the study and integrates the findings with the literature reviewed in Chapter 2. The fundamental question that this research sought to answer was “which of the eight independent variables are sources of management innovation?” To answer this question, this chapter is structured according to the order of the listed hypotheses in Chapter 3.

6.2 Hypothesis 1: An individual’s age is associated with him/her being a source of management innovation

The literature review discusses age as a source of management innovation using change and creativity as a foundational themes. The results for age as a source of management innovation are discussed in the same manner.

The results achieved for hypothesis 1 provided empirical support for the assertion that an individual’s age is associated with him/her being a source of management innovation. The results of the single factor ANOVA test (Table 1) support the idea that an individual’s age and propensity to be a source of management innovation are associated.

The self-assessment in Question 8 that was completed by the sample, which is illustrated in Figure 14, indicates that 76% of the respondents concur with the assertion that the older they become, the more likely they are to generate management innovations.

As discussed in Chapter 2, an important foundational factor to innovative behaviour is being comfortable with change as innovation brings with it “new combinations”. Seventy-two per-cent of the respondents concurred with the notion that they have grown more comfortable with change occurring in their workplace than when they began their careers. The results lend support to the earlier work of Kunze *et al.* (2011) where it was found that employee age is

positively related to ability to change. The work of these authors therefore provides support for the following assertions regarding older workers:

- They do not find stable and familiar workplace environments more appealing than their younger counterparts.
- They do not find perceive workplace change as being more stressful than their younger counterparts.
- They are no more cognitively rigid than their younger counterparts.

Furthermore, it can logically be deduced that because older individuals are more receptive to change in the workplace, they are more likely (than their younger counterparts) to initiate the change that is necessary for innovative behaviour in terms of ways to manage an organisation.

Figure 14 also illustrates that 81% of the respondents were more comfortable generating new management ideas than they were at the start of their careers. This indicates that older workers are more likely to be sources of management innovations than their younger peers. The outcomes of the survey can also be translated to illuminate the psychological sphere of employees who face change. Whilst Horn and Cattell (1967) demonstrated that younger adult's fluid intelligence enables them to solve new problems more efficiently than older adults, they also found that older adults better access long-term memory for problem solving. It is therefore deduced that in the workplace, novel problems are more often solved with lessons from past experience than with completely new methods. Considering the fact that Schumpeter (1911) called innovation "new combinations" and that this study considers innovation as an idea that is new to the firm (i.e. not completely novel) it is deduced that older employees' past experience predisposes them to rearranging elements of their memories of past events in order to perform "new combinations". These "new combinations" translate into sources of management innovation.

Horn's and Cattell's (1967) psychological theory can also be used to explain the differences in receptivity to change with age in the technological and management spheres. Various authors have illustrated the discomfort of older workers' attitude to technological change (Davis & Songer, 2009; Morris &

Venkatesh, 2000; Mostafa & El-Masry, 2008; Young et al., 2001), whilst results demonstrated the contrary with management innovation. The results of the current research report support the idea that older workers have a differing attitude to change to technological and management change. Based on Horn and Cattell's (1967) theory, it is suggested that that older workers are more open to management change in the workplace because they draw on past experiences as building blocks for management change whilst they may not have as much experience with technology as their younger counterparts.

The literature that was reviewed emphasises the importance that creativity plays in innovation and discusses opposing views regarding the relationship between one's age and elements of creativity. The results reinforce the idea that an individual's creativity regarding methods of management within a firm increases with age. The data in Figure 14 indicates that 75% of respondents support this relationship. This substantiates the argument by Quazi and Thalukder (2011), as well as Eder and Sawyer (2007) that older employees are unfairly stereotyped as less inventive. These results also provide support to Timmerman's (2010) psychological work that explained that the older a person becomes the more creative they grow due to right brain dominance.

The results, therefore, lend support to the idea that employee creativity in management increases with age.

This study further tested whether individuals in different age groups have differing attitudes from one another, regarding age, organisational tenure, innovation momentum and management training as source of management innovation. Three different age groups were delineated, namely the respondents who were in their twenties, thirties and forties. The results in Table 2 provide support that people in these different age groups have similar opinions regarding the effects that organisational tenure and age have on their propensity to be a source of management innovations.

The overall results for hypothesis 1 provide credibility to the motion that age is associated with a person's propensity to create management innovations.

These results also indicate that people become more likely to be revered as a source of management innovation with age.

6.3 Hypothesis 2: An individual's total employment tenure is associated with him/her being a source of management innovation.

The results supported the assertion that an individual's employment tenure is not independent on him/her being a source of management innovation (Table 3). The data was tested by delineating four groups of total employment tenure, i.e.: 1-5 years, 6-10 years, 11-20 years and 21-30 years. Whilst the majority of respondents felt that the longer their total working experience was, the more likely they are to create innovations, most respondents who disagree (24%) and strongly disagree (9%) with this assertion had less than ten years' working experience. Conversely, 14% and 4% of people with more than ten years' working experience disagreed and strongly disagreed respectively. The data also evidenced that the category of respondents who concur most with this motion (79%) are those with tenure of 21 to 30 years.

The outcome of the survey reinforced Ng and Feldman's (2013) argument that individuals with a larger working tenure have gained more knowledge due to being exposed to business and the workplace for a longer time and can call on that knowledge to innovate.

The overall outcome for hypothesis 2 is that an individual's total tenure is associated with him/her being a source of management innovation and that this relationship is a positive one.

6.4 Hypothesis 3: An individual's organisational tenure is associated with him/her being a source of management innovation.

The literature that supported hypothesis three had a basis in organisational culture, firm goals, firm procedures and familiarity with firms' individuals and social networks of a firm. The discussion of the results for hypothesis 3 is discussed in these terms.

The results of the single factor ANOVA test (Table 4) did not corroborate organisational tenure's association with an individual being a source of management innovation. The data used in the ANOVA test was gained from Question 7 of the survey, which required that the respondent access their memories of their working experience to provide data. A concern with this is that if a respondent recalled incorrectly, the dataset from this question could be inaccurate. This question also required a longer period of time to answer, which meant that respondents could have rushed through it due to time constraints, which compromised the data's accuracy.

The results displayed in Figure 16 demonstrated opposition to those of the ANOVA test, and rather showed support for hypothesis three. Seventy-three of the respondents considered the relationship between the two variables to be positive. Twenty-eight per cent of the respondents strongly agreed that organisational tenure is a source of management innovation whilst 45% agreed to this motion. Given the concerns around the data used for the ANOVA test, the results from the Likert scaled Question 8 were considered as a valid representation of the respondents and their represented population.

This evidence does not provide support for the claim that routines prevent employees from challenging *status quos* as advocated by Khanagha *et al.* (2013). In fact, the data supports the claims by Sørensen and Stuart (2000) and Jimenez-Jimenez and Sanz-Valle (2010) that routine promotes the liberation of cognitive capacity to innovate. It can therefore be deduced that an increased organisational tenure allows employees' familiarity with routines within the

workplace, which in turn liberates the ability for individuals to create management innovations.

These routines include the standard procedures that firms implement. The results illustrate that 79% of respondents feel declarative knowledge of procedures promote their propensity to innovate, whilst 60% deem procedural knowledge of procedures as helpful in innovating (Figure 16). These outcomes are contrary to the finding of Ford and Gioia (2000), where repetitive work inhibits creativity. The research findings lend support to the idea that routinisation of work by using procedures releases cognitive capacity, which can then be used for creativity. It can therefore be concluded that both familiarity with and actively using firm procedures (both of which are expected to increase with organisational tenure) increases an individual's propensity of being a source of management innovation.

Seventy-five percent of respondents concurred that being familiar with the culture of a firm positively affects their ability to create management innovations, whilst 69% felt being familiar with firm goals does so (Figure 16). This can be explained by the fact that understanding an environment and how to navigate in that setting helps an individual to align the efforts (in creativity) with the culture and goals of that setting, thereby supporting the work by Ng and Feldman (2010). These results also support psychology work by Sørensen and Stuart (2000) and Jimenez-Jimenez and Sanz-Valle (2010) because this familiarity with goals and culture could also release cognitive capacity to be used on innovation rather than deciphering the environment. It is concluded that familiarity with firm procedures and goals predispose individuals to being a source of management innovation.

The results from this study show that 74% of respondents concurred that interacting with individuals in their workplace increases their propensity for innovation. The results also supported the findings in studies by various authors who explained that knowledge is created by the interaction between individuals in an organisation (Ipe, 2003; Peng et al., 2014). From the research's results and literature that was reviewed, it can be deduced that the knowledge created

by the interaction of individual people within a firm is drawn upon in creating new ways to organise and co-ordinate activities by management innovators.

The outcomes of the survey supported the claim that familiarity with social networks, which is expected to increase with organisational tenure, has a positive effect on an individual's ability to be a source of management innovation. The results show that 22% of respondents strongly agree with the aforementioned positive relationship, whilst 47% agree with it. These figures provide credibility to the claim by various scholars (Phelps, 2010; Rodan, 2010 and Rohan & Galunic, 2010) who stated that interacting with social networks result in innovative activities. Just as is the case with interacting with individual people, exposure to social networks results in knowledge sharing that creates a knowledge base that can be accessed to create "new combinations" for managing a firm.

The data garnered from the survey supported the motion that exposure to firms goals, familiarity with firm goals and culture, the use of firm procedures and interacting with fellow individual people as well as social networks in the workplace (all of which are expected to increase with organisational tenure) can increase an individual's propensity to create management innovations.

6.5 Hypothesis 4: An individual's innovation momentum is associated with he/she being a source of management innovation

Both the results from the ANOVA test (Table 5) and the Likert scale Question 8 of the survey supported the motion that an individual's management innovation momentum is associated with him/her being a source of management innovation. Figure 17 summarises the respondents' agreeability to the motion that innovation momentum is a source of management innovation and illustrates that the majority of the respondents concur that their past experiences with management innovation are sources of management innovation (42% agree whilst 38% strongly agree).

Figure 17 also illustrates that people tend to search for more problems to solve in the workplace and use the knowledge base they have gained from past experiences by innovating to create new management practices. These outcomes support Turner *et al.*'s (2013) findings that past innovation creates momentum for future innovation.

As outlined in Chapter 2, the purpose of introducing management innovations is to troubleshoot coordination inadequacies. The results of the quantitative study (Figure 17) evidenced that individuals who innovate are increasingly analysing methods to trouble shoot problems in the workplace. This continuous problem-solving nature predisposes these individuals to searching for “new combinations” to improve their workplace inefficiencies.

The overall outcome for hypothesis four is that an individual's management innovation momentum is associated with him/her becoming a source of management innovation and this association is positive.

6.6 Hypothesis 5: An individual's management training is associated with him/her being a source of management innovation

Two sets of results are evident for hypothesis 5. The first is the Chi² hypothesis test results support the claim that management training is associated with an individual being a source of management innovation (Table 6). Figure 19 shows results from the Likert scaled enquiries in Question 7 of the survey indicate that this association is positive, i.e.: the more training a management individual receives, the more they perceive themselves to be confident, more skilled and more positive about creating management innovations. However, Figure 18 displays that more respondents who have gone through training are less likely to innovate (14%) than those who have not (8%). Also, a larger proportion of individuals who have not gone through management training (39%) strongly agree with being more prone to creating management innovations than those who have not (30%).

The results are interpreted to provide information regarding the divergent schools of thought on the effects of training emphasised in the literature review. It is extrapolated that respondents may feel that they have gained confidence skills and a positive attitude to being a source of management innovation but the lessons learned from training are not always retained (Diamantidis & Chatzoglou, 2014; Velada et al. 2007) and therefore cannot materialise into a source of management innovation. Another explanation is that data in Question 7 was used for testing this hypothesis (which is data regarding age, organisational tenure and innovation momentum) therefore the management training given tends not to have an affect on these three factors as sources of management innovation.

The outcome for hypothesis 5 therefore, is that an individual's training is associated with management innovation but whilst individuals perceive that they are more likely to create management innovations with the knowledge gained from training, this knowledge is often not retained. Therefore individuals who have not received training are more likely to create such innovations.

6.7 Hypothesis 6: An individual's educational level is associated with he/she being a source of management innovation

The result from the χ^2 hypothesis test demonstrated support for the claim that an individual's educational level is associated with the likelihood to generate management innovations (Table 7).

Using the results in Figure 20, it is argued that formal education is a finite source for management innovation. Whilst more undergraduates (74%) feel prone to create management innovations than high school graduates (69%), the educational category with most resistance to the hypothesis is postgraduates (14%). It is deduced from these results that a formal education provides a workforce with knowledge that they can access to create management innovations, but once individuals absorb too much formal education, it becomes

limiting to creating innovations. The results therefore partially support both opposing views in the literature; Mol and Birkinshaw's (2009) finding that firms with a more educated workforce are more likely to produce management innovations as well as the claim by Camelo-Ordaz *et al.* (2012) that an individual's educational level can be detrimental due to the formality of educational academics that deter creativity.

6.8 Hypothesis 7: An individual's functional role is associated with him/her being a source of management innovation

The results for hypothesis 7 in Table 8 provided empirical support for the statement that an individual's functional role is associated with that person being a source of management innovation.

The outcomes presented in Figure 21 are contrary to the study by Baldrige and Burnham (1975). The functional role category with the largest resistance to feeling they are likely to produce management innovations is junior managers (16%) followed by senior managers (13%). It must be noted however that these scholars referred to the entire innovative process and not just to being sources for management innovation. This indicates that specialists are sufficiently exposed to managerial activities and change that allows them to be sources of management innovations, but this may not be the case for implementing those innovations.

The results provide support for the claim that authority, as a result of the hierarchical structure within a firm, is not a factor that inhibits people to create new ways to manage a firm but may rather be a factor in the implementation thereof.

6.9 Hypothesis 8: An individual's gender is associated with he/she being a source of management innovation

The results achieved for hypothesis eight provide empirical support for the assertion that an individual's gender is associated with him/her being a source of management innovation (Table 9).

Figure 22 indicates that more females (6%) than males (1%) strongly disagree that they are predisposed to management innovation creation.

This supports the claim by Carrasco (2014) that there are institutional factors that do not lend themselves to innovation by women. So whilst women may have different perspectives from the traditional corporate landscape that could lend them to being a greater source of innovation than men, they can be discouraged from suggesting their ideas because of fear of discrimination, especially when they consider suggesting something new (Milliken & Martins, 1996).

6.10 Concerns with the dataset

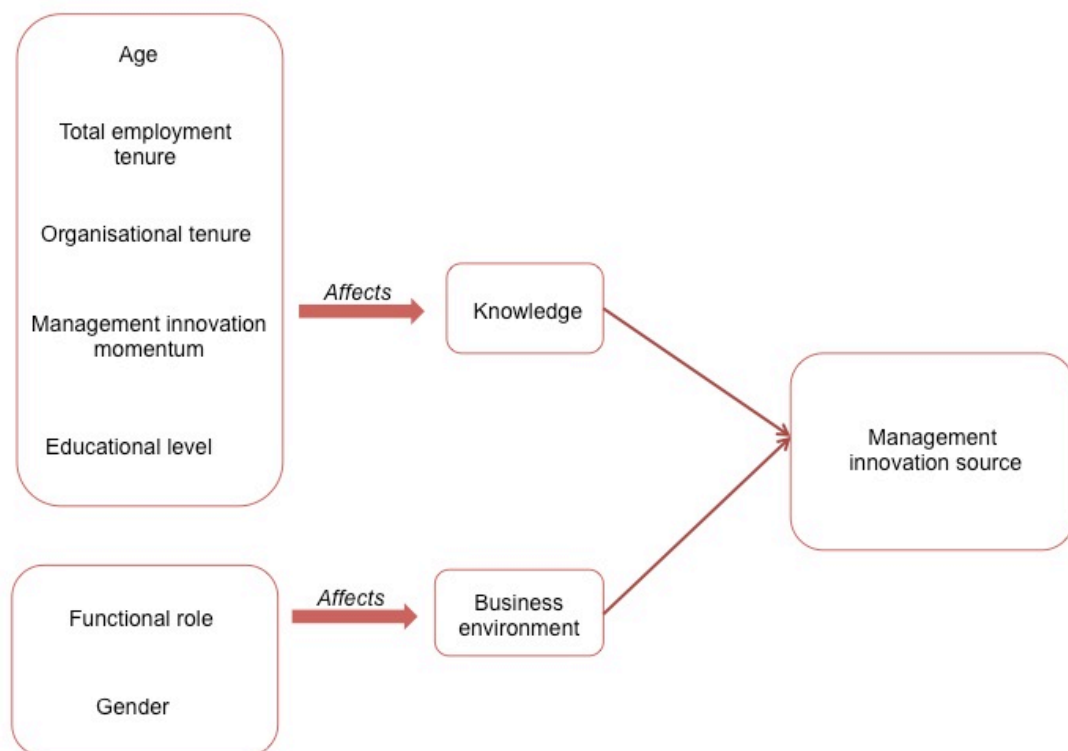
Question 7 of the survey required respondents to access their memories of their careers because the questionnaire required historical data of past experiences of management innovation. This question was time consuming for the respondents. If the respondents recalled their experiences inaccurately, or if they rushed through the question due to time constraints, the dataset that was derived from this question could not be representative.

6.11 Conclusion

The results of the quantitative research process demonstrated the relationship that an individual's age, total tenure, organisational tenure, innovation momentum and educational level effects how he/she accesses and uses

knowledge, which is in turn used for creating management innovations. All these aforementioned factors predispose an individual to being a source of management innovation. It was found that receiving management innovation training does not make one more prone to being a source of management innovation, although the recipient may perceive it to be. It was also found that an employee's functional role and gender is a source of management innovation due to workplace environmental factors.

Figure 23: Model summarising findings



CHAPTER 7: CONCLUSION

7.1 Introduction

This research has explored the sources of innovative methods for a firm to be managed. This final chapter provides a summary of the pertinent findings from this research report, along with recommendations to stakeholders. The chapter concludes by listing the limitations of the study and provides suggestions for future research.

7.2 Summary of findings

A longer period of exposure to the business environment or workplace increases an individual's propensity to create management innovations. As an individual's age, employment tenure, organisational tenure and innovation momentum increase, it lends him/her to being exposed to the workplace for a longer period of time. It was confirmed in Chapter 6 that an individual's age, total employment tenure and organisational tenure increase his/her ability to be a source of management innovation. This is because the innovating of organising activities within a firm is driven by knowledge of the environment. Larger knowledge of an environment comes with time and exposure to the elements of that setting. Management innovators tend to access their long-term memories and experiences to create "new combinations" to generate new ways to manage.

These findings demonstrate that older workers are no more cognitively rigid or averse to change than their younger counterparts in terms of management creativity. Firms' standard procedures improve individuals' abilities to create management innovations because these release cognitive resources that can be used in the creative process.

Individuals' knowledge bases also tend to increase with interactions with other individuals and social networks in their workplace. These interactions allow exposure to new knowledge that can be used in innovations.

The idea that management innovators use experience to innovate is also supported by the result that management innovation propensity increases with an individual's past experience in creating innovations. Again, the innovator's history with innovation is used as a knowledge base for creating new combinations.

The research also found that individuals without management training are more likely to innovate than those who have had training. People who receive the training gain confidence in the fact that they may be able to use their training for innovating but it is possible that they do not retain the skills learned in training.

An individual's educational level is interpreted to have an effect on the ability to produce management innovations. An individual will be more innovative up to a certain level of education, beyond which the formal and rigid nature of formal education systems becomes a hindrance to creative abilities.

The final finding of this research is that an individual's gender and functional roles are associated with him/her creating management innovation. The primary reason for this is because the business environment affects individuals in varying functional roles and gender differently. Women are more unlikely to create management innovations than males, which is often interpreted as a result of females being a minority group in the workplace where they perceive that new ideas they produce may not be accepted due to their minority status and/or due to a business environment that is more conducive to male creativity.

7.3 Academic implications

The results and findings in this study contribute to the existing body of literature regarding the determining of management innovation and its sources.

This is the only study (known to the researcher) that establishes the existence of an association between an individual's age, total employment tenure,

organisational tenure, management innovation momentum, functional role and gender with his/her propensity to create new management combinations.

This research developed the initial study by Mol and Birkinshaw (2009) who investigated internal and external organisational sources of management innovation. The findings of this study extend the study of Mol and Birkinshaw (2009) by focussing on an individual's propensity for innovation rather than an organisation's.

This research also expands the understanding of organisational behaviour and industrial psychology by providing inferred insight into the psychological determiners of management innovation within the workplace.

7.4 Recommendations for business

As a result of the findings of this study, the following points are recommended to the stakeholders:

- In order to foster and benefit from sources of management innovation, firm leaders should recognise experienced workers as bodies of knowledge from whom the rest of the firm can learn. More experienced workers should also be actively accessed for wisdom regarding new methods of firm management.
- Employees should be aware of and actively use their knowledge and networks base to create innovations for management.
- Both employers and employees must be aware of and address the reasons for more women (than men) feeling strongly against their likelihood to produce management innovations. This will allow for a more inclusive workplace that in turn results in a more innovative culture that can benefit the firm.

7.5 Limitations of the study

The research had the following limitations:

- The research could benefit from a larger sample and from a random sampling method that would result in a more representative sample set.
- Respondents could have experienced confusion regarding the nuances of the term “sources of management innovation”.
- Question 7 required respondents to access their memory of management innovation creation. If the respondent could not remember a detail, they might have provided incorrect data.
- Question 8 of the questionnaire was based on a self-assessment regarding innovation. A peer or supervisor assessment could produce less biased results.

7.6 Suggestions for future research

The following items constitute suggestions for future research:

- There are limited studies available that explore the possible sources of management innovation. This study too, is not exploratory and has used existing literature as a foundation for building hypotheses of possible sources. It is therefore suggested that the best way to discover pertinent sources of innovation is to perform an exploratory study by conducting interviews.
- The factors identified have been studied as a source of management innovation and not provide enablers for the entire innovation process. It would be beneficial to investigate this further, so that there is a complete tangible solution for the sourcing and implementation of innovations.
- The study can be administered to a larger audience using random sampling methods to achieve a better representation of the population.

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Appendix 1

SURVEY

Welcome to my survey

Dear Participant,

As part of the MBA programme at the University of Pretoria's Gordon Institute of Business Science (GIBS), I am conducting research on past experience as a source of management innovation. The questionnaire should not take more than 20 minutes and will help us understand whether past experience is drawn upon for generating new ideas on how to manage a firm. Your participation is voluntary and you can withdraw at any time without penalty. Of course, all data will be kept confidential. By completing the survey, you indicate that you voluntarily participate in this research. If you have any concerns, please contact me or my supervisor. Our details are provided below.

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Demographic data

Please indicate the following details about yourself:

1. Age
2. Gender
3. Total duration of working experience (years)
4. Highest academic qualification
5. Current position (last position if currently unemployed)
 - ☐ Junior manager
 - ☐ Senior manager
 - ☐ Specialist

Idea Creation

6. Have you ever submitted an idea (whether written or verbal, implemented or not) to your current or previous employer that was new to the firm and could translate into a financial or operational improvement for the firm? This idea would change the way your firm does ANY of the following;

- Motivates and aligns effort
- Coordinates and controls activities
- Accumulates and allocates resources
- Acquires and applies knowledge
- Builds and nurtures relationships
- Identifies and develops talent
- Understands and balances the demands of stakeholders

☐ Yes ☐ No

7. Please indicate the details of ALL the idea/s (referred to in the previous question) AT THE TIME you submitted the idea to your employer:

	Your age	Your tenure at the firm (years)	Did you have formal management training?	Industry	This idea would change the way the firm
Idea 1	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Idea 2	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Idea 3	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Idea 4	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Idea 5	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Idea 6	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Idea 7	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Idea 8	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Idea 9	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Idea 10	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Idea 11	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Idea 12	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Idea 13	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Idea 14	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Idea 15	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

8. Evaluate the following statements in relation to the ideas you've listed in the previous question.

	Strongly Disagree	Disagree	Neither Disagree Nor Agree	Agree	Strongly Agree
I feel more comfortable generating new ideas now than I did when I began my career	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel more comfortable with having change occur in the workplace now than when I began my career	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am more creative with my approach to doing business within the workplace now than when I began my career	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being familiar with the procedures of a firm in which I am employed assists me with generating new ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Actively using the procedures of a firm in which I am employed assists me with generating new ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Familiarity with the culture of my workplace assists me with generating new ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Familiarity with the social networks within my workplace assists me with generating new ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The more I interact with individuals in my workplace, the more those individuals inspire me to generate new ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The longer I am employed in a company, the more comfortable I am with suggesting new ideas within the firm	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The greater exposure I have to the goals of a firm, the more likely I am to generate new ideas within that workplace	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The frequency with which I look for new ideas has increased through my career	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The frequency with which I look for problems to solve within my workplace has increased through my career	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I draw on lessons learnt from my past experiences of formulating ideas to assist me in generating future ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The management training I have received has increased my confidence to generate and submit new ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The management training I have received has given me the skills to generate and submit new ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The management training I have received has given me a positive attitude about generating and submitting new ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Thank you for completing this survey, your time is appreciated!