How does learning agility affect a sales workforce in an IT multinational?

By

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Declaration

I hereby certify that this material, which I now submit for assessment on the programme of study leading to the award of Doctorate of Education is entirely my own work, and that I have exercised reasonable care to ensure that the work is original, and does not to the best of my knowledge breach any law of copyright, and has not been taken from the work of others save and to the extent that such work has been cited and acknowledged within the text of my work

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Abstract

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How does learning agility affect a sales workforce in an IT multinational?

This research examines the effects of learning agility on a sales workforce's performance within an Information Technology multinational. The investigation also considers the influence learning consumption and of organisational climate, rooted in psychological safety, as a moderator of learning agility. The research was conducted in multiple sites across the globe of a Fortune 100 listed organisation, posting revenues in excess of $90 billion and employing approximately 157,000 people globally. The study uses a single case study organisation, Technologyco, to test the research question using an employee survey (n = 165) to measure learning agility, psychological safe climate and personality. Secondary research data is obtained in the form of participants' yearlong sales performance, along with learning consumption data. Both data sources were linked to produce a comprehensive data source for analysis and recommendations for the organisation's sales workforce. The study finds an inconclusive relationship between learning agility and performance.

The study finds evidence of a positive association with the Big Five personality trait of openness to experience, including an interaction effect. Additionally, learning agility is found to be associated with the Big Five personality traits of conscientiousness and neuroticism. Finally, although no relationship is seen between learning consumption and learning agility, a positive relationship is seen between learning agility and psychological safe climate. The study, firstly, contributes to theory by furthering the understanding of the conceptualisation of the learning agility framework within a broader nomological network of related constructs. Secondly, conceptual boundaries and causal relationships in the form of individual level antecedents (i.e. openness to experience), contextual and environmental factors (i.e. psychological safe climate and learning consumption) within the learning agility framework are advanced and discussed. Thirdly, several new findings which contribute to the field are presented through empirical evidence including the influence of associated variables (individual level antecedents and contextual factors) on learning agility in relation to longitudinal performance. Exploratory analyses are used to better understand the data and the organisational context in which the results occurred. Finally, directions for future research are discussed along with the practical implications of this study for consideration.

Chapter 1 - Introduction and Rationale

As Plato (380BC) stated, the beginning is the most important part of any work (Cooper & Hutchinson, 1997). The beginning of the current research inquiry is to extend our understanding of individuals ability to learn from experience and apply those lessons to improve future performance, coined by practitioners and scholars as a concept called, learning agility (DeRue, Ashford and Myer, 2012). The ensuing research study attempts to add knowledge to the field of leadership and education by developing a deeper understanding of the mechanisms by which an individual's learning agility influences performance outcomes. The introductory chapter elaborates on the varying conceptualisations, challenges and the gaps in the current learning agility literature, culminating in a pointed research question to advance the theoretical and practical understanding of learning agility and its link to performance. The research approach is subsequently provided by way of a chapter overview. The chapter overview includes a literature review, research methodology, empirical data collection and analysis, and a discussion to appropriately position the findings in relation to theory, methods and practice.

Purpose of study

"The illiterate of the 21st Century are not those who cannot read and write but those who cannot learn, unlearn and relearn."

- Alvin Toffler, writer and futurist

As Toffler has expressed, the importance of continuous learning in the 21st century workplace will become ever more critical. With the backdrop of the fourth industrial revolution (WEF, 2016) leading to unprecedented and rapid change for organisations, the context in which they operate, an individual's capacity for lifelong learning and development is an expectation in the workforce today. Therefore, success is reliant upon how individuals and the organisations in which they work transform with change in the business environment.

Learning agility, the ability to quickly grasp one's understanding of a situation and move across perspectives flexibly in service of learning (DeRue, Ashford & Myers, 2012) has been suggested as one the most in-demand business skill of the 21st century (De Meuse, 2017) in order for organisations to change in parallel with their environments, or risk endangering their existence should they fail to

transform accordingly. Being an agile learner is an outcome of an individual being able to manage convergent priorities: counterfactual thinking and pattern recognition of past experiences to inform new and unfamiliar experiences in addition to learning new skills and concepts quickly (Mitchinson et al., 2012).

A growing body of evidence has contributed in identifying learning agility's relationship with important outcomes such as potential (Lombardo & Eichinger, 2000), performance after promotion (Eichinger & Lombardo, 2004), and career success (Dai, De Meuse, & Tang, 2013). However, a copious amount of this research has originated upon varying conceptualisations of learning agility, utilising various instruments along with a focus on a leadership population. Thus, resulting in an unclear representation of the importance of learning agility and its implications for individuals and organisations (DeRue, Ashford and Myer, 2012). In their influential work on identifying conceptual clarity and a theoretical grounding for learning agility, DeRue, Ashford and Myer (2012) integrated conceptualisations and findings from previous research to propose a new conceptual framework encapsulating the underlying processes associated with learning agility. Proposed within the framework are three important individual level antecedents (i.e. goal orientation, cognitive ability, and openness to experience) which are posited exemplars of an agile learner. Additionally, DeRue, Ashford and Myer (2012) suggest the degree in which an individual possess these antecedents, guides their learning agility, which is understood through a synthesis of underlying processes, both behavioural (i.e. feedback seeking, experimentation and reflection) and cognitive (i.e. cognitive simulations, counterfactual thinking and pattern recognition). These processes are suggested to influence the ability to learn during specific contexts and extend the application of these learnings to new and challenging contexts resulting in increased performance over time (DeRue, Ashford and Myer, 2012). Thus, it is through this lens the current research is undertaken.

Within DeRue, Ashford and Myer's (2012) model is a focus on the significance of understanding the influence of contextual factors and presenting a few exemplars in the form of experience characteristics (developmental challenge and complexity) and culture and climate (psychological safety and organisational climate). The importance of contextual factors, or moderators, cannot be underestimated as they enlighten the researcher of the expectation of certain outcomes when theory building. For example, in behaviour, or performance it is unlikely that the relationship exists between one dependant variable and another (e.g. learning agility and performance), but rather variables working together which may influence the dependant variable forming an interaction effect. Thus, allowing the researcher to give an accurate portrayal of the phenomenon and better predict behaviour

along with some associated variables. Recent research has provided evidence supporting the existence of the relationship between learning agility and performance, but this has mainly focused on a leaders' rather than individual contributors (De Meuse, 2017).

Additionally, little insight has been provided on the contextual variables, or moderators, which influence the relationship. Firstly, as Lewin's (1936) field theory indicates a person's life space determines their behaviour irrespective of an individual's personality or individual differences (e.g. goal orientation or cognitive ability). Secondly, while we understand that learning agility leads to higher performance within leaders, we have limited insights into an individual contributor population and weather all jobs require the same level of learning agility for individuals to be successful. Thirdly, it is unknown as to how or when the expectation of this positive relationship between learning agility and performance will materialise. This is a critical area for exploration due to the implications within the workplace and for how individuals and organisations understand learning agility. An abundance of evidence exists advocating the benefits of agile learners within the workplace enabling organisations to be suitably positioned to adapt to change (Gravett and Caldwell, 2016), however, little focus has been given to the longitudinal benefits of learning agility within the workplace. It is not difficult to postulate the benefits to organisations creating a workplace climate propitious to learning. To support this endeavour further understanding is needed by organisations on approaches to adopt over the long term to nurture both learners and organisations towards this goal.

A rich tapestry of research has advocated the role organisational climate can play in influencing organisational performance and the transfer of learning (Burke and Litwin, 1992; Rouiller & Goldstein, 1993; Tracey, Tannenbaum & Kavanagh, 1995). Fundamental to organisational climate is psychological safety of employees. Considerable evidence has supported the positive relationship between climates which are physiologically safe and a myriad of outcomes, including task performance (Edmondson, 1999; Schaubroeck, Lam and Peng, 2011), creativity and innovation (Madjar & Ortiz-Walters, 2009), engagement (Kahn, 1990), and organisational citizenship behaviours (Walumbwa & Schaubroeck, 2009). The degree in which a workforce feels psychologically safe ensures individuals feel they can take risks, and explore different opinions in service of learning, without fear of "saving face" or concerned with "being right" in order to preserve professional credibility (Edmondson, 1999).

Two shortcomings are evident in the current research on learning agility, the first is our limited understanding of learning agility from an individual contributor perspective, in the backdrop to organisations hierarchies becoming flatter. The second, is our narrow understanding of the underlying

contextual factors which influence the relationship between learning agility and performance. The consequences of these current limitations are organisations are yet to fully extrapolate the benefits of learning agility in the workplace. In the backdrop to this, it is easy to see why learning agility has been deemed one of the most in-demand skills of the 21st century and why organisations seek to nurture and develop individuals to achieve superior performance in a rapidly changing environment in which organisations operate.

Thus, this research will support the understanding of learning agility from an individual contributors' perspective, but also illuminate our understanding of the underlying contextual and environmental aspects (psychological safety) may have in influencing the relationship between learning agility and performance, which as a result may influence how organisations realise the beneficial outcomes related to a learning agile workforce.

Research context

The following research was conducted in an Information Technology company, of a Fortune 100 listed organisation, posting revenues in excess of $90 billion and employing approximately 157,000 people globally. The sales business unit workforce of 40,000 is the focus for this research, operating in 180 countries globally. The sales workforce sells hardware, software and business services to private and public sector clients, across all industries and market sectors globally. For the purpose of this research inquiry a focus was on the sales workforce in three sites across Ireland, two sites in the UK (England and Scotland), one site in Indian (Hyderabad) and one site in North America (Boston). The market segments in which the sales workforce operates is extremely competitive, driven by exponential technological change and globalisation. Consequentially, enabling and developing an agile sales workforce is an ongoing effort to support the achievement of superior organisational performance.

The researcher

I commenced my career with this organisation in November 2003 and have worked in various functions including Services and Sales before joining the Human Resources function of the Talent and Culture team as the Global High Potential Practice Lead in April of 2019. In this time, I have worked across a broad range of technologies and roles supporting a local, regionally and globally diverse workforce. Throughout this time the American multinational has gone through enormous change, with a host of acquisitions as well as moving from a publicly traded company, to a privately traded company and back to a publicly traded company again.

I have a long-held curiosity in anthropology, and that an individuals' career progression has a direct relationship to contextual and environmental factors in which they perform, coupled with the opportunities and experiences open to them. Of specific interest has been how individuals process and internalise these experiences differently in the service of learning and informing new and unfamiliar experiences. I have often reflected on my own good fortune to have received quality education and development opportunities, coupled with a professional environment whose culture is founded in an entrepreneurial spirit, thus a focus an openness to new experiences is promoted and encouraged throughout the organisation at every leadership level. This backdrop, coupled with my enjoyment of assisting the education of my colleagues was the primary driver behind the undertaking of an MSc in Management and Information Systems, which facilitated a career move from Services to the Sales learning and development function. As my curiosity grew, it facilitated the pursuit of the doctorate in leadership and education and thus supported my career change to human resources and more specifically supporting the accelerated career development of the leaders within the organisation.

Overview of chapters

The next chapter, Chapter two, commences with a review with a review of the relevant literature of the field of learning agility, psychological safety and performance. It builds on existing research and studies to provide evidential support for the research question. The chapter begins with a contextual overview of learning agility, followed by an examination of skilled learners in order to provide additional wider context. This is followed by an examination of DeRue, Ashford and Myer (2012) learning agility framework, an exploration of exemplar antecedents f learning agility (goal orientation, cognitive ability and openness to experience via the Big Five personality model), followed by contextual and environmental factors which may influence learning agility. The chapter concludes with an exploration learning agility in the context of career performance (success) and career advancement (potential). Throughout the chapter a set of research objectives emerge based on the research question and examination of the literature, and a series of hypothesis underpinning the research are revealed.

Chapter three provides the outline for the research methodology approach adopted to explore the research question and underpinning series of hypothesis. A quantitative approach is explained in the context of a single case-study organisation. The research context is described briefly, along with data collection approach. An overview is provided of a pilot survey utilising the identifying surveying instruments is tested, ultimately informing the large-scale study, as well as further informing further exploratory opportunities using employee data, which ultimately informs the findings and conclusions

from the study. Specific statistical techniques are outlined to inform the research design to advance the research question. Finally, ethical considerations are examined including the role duality of insider research.

The initial descriptive finds are outlined in chapter four. Firstly, a description of the respondent population is by a set of demographic variables, evaluation of the questionnaire instrument. Secondly, descriptive statistics are offered on the entire sample including mean, standard deviation, outliners and correlations. Thirdly, a presentation of the data findings relating to the relationship between learning agility, psychological safety, personality, learning consumption and performance are outlined. Findings are consolidated in a summary of hypothesis conclusions based on DeRue research model outlined in chapter two. Finally, the chapter concludes with an exploratory multi-level approach to data analysis exploring new relationships and further areas of research.

Chapter four informs chapter five which attempts to reflect on the overall knowledge and understanding enhanced from the study and locate them in the context of the current literature. It discusses the research findings in terms of *how* learning agility affects sales performance, along with *what* influence psychological safety impacts sellers in the context of their environment. Building on this, the chapter presents a summary of the key contributions of the research to theory, methods and practice. In addition, it provides a synthesis of the key limitations of the research study concluding with the identification of opportunities for further research. The chapter concludes that the research question has advanced a new stage of inquiry.

Conclusion

Chapter One provides an introduction to the research study and its constituent chapters. Through an overview of the of the challenges in identifying conceptual clarity and theoretical grounding for learning agility, as well the significance of contextual and culture and climate factors, specifically attaining to an individual contributor audience the stage is for an important research question.

Research Question: *How does learning agility affect the performance of the sales workforce in an IT multinational?*

The question informs the subsequent study, which is summarised in the chapter above. The next chapter begins to answer the research question by providing a review of the relevant learning agility literature.

Chapter 2 - Literature Review

The present research is broken into three sections. The first section aims to set the context by providing a brief overview of learning agility, followed by an examination of the characteristics of skilled learners in order provide additional context. The second section examines DeRue, Ashford & Myer (2012) learning agility framework, an exploration of exemplar antecedents of learning agility (goal orientation, cognitive ability and openness to experience via the Big Five personality model), followed by contextual and environmental factors which may influence learning agility. The final section of the research explores learning agility in the context of career performance (success) and career advancement (potential).

Learning agility context – practice and academia

The perennial pace of change within the contemporary business environment is one which continually accelerates due to boundless globalisation, virtual interactions, dynamic economic and political conditions and rapid technology advancements (i.e. The Fourth Industrial revolution - artificial intelligence, machine learning and Bitcoin). This new environment results in skills, that were once fundamental to an individual's success within organisations, becoming inadequate for continued success (Joiner, 2009). Thus, there is growing acknowledgement amongst scholars and practitioners that today's knowledge workers (i.e. critical thinkers utilising theoretical and analytical knowledge) must develop agility as a core competency, in order to adapt and respond effectively to uncertainty and ambiguity of the modern marketplace (Yukl & Mahsud, 2010). Agility, a term first used in the 1950's in the domain of air combat, was popularized in the early 1990's, firstly in a manufacturing context, before widening to a broader business context, is defined as the capability to response quickly to market shifts and to overcome with flexibility unexpected change in order to service unprecedented threats from the business environment (Breu et al., 2002).

Recent talent identification, development and succession research reflects this emerging focus on agility. Van Iddekinge and Ployhart (2008) state that job performance criteria have expanded beyond traditional job-specific task requirements to include adaptive performance, the capacity for knowledge workers to modify their behaviour to accomplish role requirements. Therefore, this expanded performance criteria changed peoples' understanding of determining what individual attributes should be used to predict effectiveness (Dai, De Meuse, & Tang, 2013). Additionally, this has become a critical component in employee selection in identifying talent with the potential to adapt to Volatile, Uncertain,

Complex, and Ambiguous (VUCA) environments. Silzer and Church (2009, p. 378) identified a change of mindset within organisations from "short term selection to long term prediction" due to a paradigm shift within the talent selection process which is no longer mapping talent to current needs but also considers the potential to adapt to future roles within the organisation. Supporting this assertation is the emerging focus on skills as the currency in the labour market of the new economy (WEF, 2019). Underpinning this change of focus is the fundamental role that learning, and skill development will play in an individual's long-term effectiveness and career success (Tannenbaum, 1997; Silzer & Church, 2009).

Based on the emerging shifts discussed above, a concept, which has gained prominence in the business world during the past two decades, is learning agility. Learning agility can be defined as the ability to learn from experience, and then willingness to apply those lessons to improve future performance in new and challenging leadership roles (Lombardo & Eichinger, 2000; Eichinger & Lombardo, 2004; De Meuse, Dai, & Hallenbeck, 2010; DeRue, Ashford & Myers, 2012; De Meuse, 2019). Given the hypercompetitive business environment, coupled with a constant "war for talent" in a global and virtual marketplace many organisations have been utilising learning agility as a key competency to assist in identifying and developing talent, a talent pipeline and bench strength (De Meuse, 2019). The recognition and commendations espousing the virtues of learning agility are impressive. De Meuse (2017) states that learning agility is (1) the most in-demand business skill of the 21st century; (2) learning agility correlates with leadership success; (3) and has a direct impact on business performance.

A number of globally prominent organisations such as GE, Mars, Novartis and Mondelez have been utilising learning agility in their leadership identification and development programs for a number of years (De Meuse, 2019). For example, Church et al. (2015), in their seminal work on high potential talent, revealed over half of organisations sampled used learning agility/ability for identification and selection of talent for succession.

Despite this growing prominence of learning agility within industry, De Meuse (2019, p. 25) points out "What hard evidence do we have that learning agility actually is related to leader performance or high potential success?". While there is a long, rich history of learning research in psychology, dating back to the early works and experiments of Ivan Pavlov, Solomon Asch and B. F. Skinner, from a scholarly perspective, learning agility as a concept is very much in its infancy of exploration with little empirical research conducted within the academic community to date (De Meuse, Dai and Hallenbeck, 2010; De Rue, Ashford and Myer, 2012, De Meuse, 2017;). Consequently, learning agility has garnered interest at

a faster pace in industry than empirical substantiation from leadership and psychology scholars. A growing body of evidence supports the relationship between learning agility and performance, however we still do not completely understand how or when we can expect this positive relationship to occur or underlying factors of influence (e.g. contextual and environmental). Additionally, existing learning agility research has focused predominately on a leadership audience, rather than an individual contributor audience. Furthermore, little is known on the contextual variables, or moderators that shape the relationship of learning agility and performance. Past research has focused primarily on the consequences of learning agility and personal attributes which predict learning agility (DeRue, Ashford & Myers, 2012). For example, the environmental context will influence the speed of learning and degree to which individuals can be flexible across different perspectives thereby affecting the degree in which individuals can demonstrate agility in the learning process.

Ability to learn

In a "war for talent", it is not surprising that many organisations focus their talent management (i.e. identification, development and succession) on individuals who will not only perform well in their current role, but also demonstrate capacity and potential for career advancement into future roles (Collings and Mellahi, 2009). Many of the traits which describe strong performers, curious, reflective, thoughtful and open are also the same traits scholars have used to describe agile learners. Consequently, before delving into learning agility as a concept it is important to understand what traits have been identified for skilled learners.

Fundamental to the understanding of learning agility is the concept that successful leaders are inclined to learn from experiences far quicker than unsuccessful leaders, and are more agile when adapting to new, rapidly-changing circumstances (McCauley, Ruderman, Ohlott, & Morrow, 1994; Spreitzer, McCall, & Mahoney, 1997; McCall, 2010; De Meuse, 2017). Successful leaders proactively seek out answers by asking the right questions, displaying an openness to diverse suggestions and alternative views, are not paralyzed by the ever-present fear of change and ambiguity, and take calculated professional risks (Smith, 2015).

The theoretical underpinning for the learning agility construct as it relates to job performance and career potential is rooted in leadership development literature. Leadership development scholars and practitioners identify a wide range of characteristics (both intrapersonal and interpersonal) and factors

(i.e. culture, environment and contextual) which enhance their ability to advance their careers. Central to these characteristics and factors of workforce development, is an individual's ability to learn.

"Learning is like breathing; it involves a taking in and processing of experiences and a putting out or expression of what is learned" (Kolb & Kolb, 2005, p. 208). Frequently, when leaders reflect on how they developed as leaders, they will often refer to experiences as their most formative or influential (McCall, Lombardo & Morrison, 1988; Yip & Wilson, 2010; Day & Thornton, 2018).   Experiences may take many forms, be it formal classroom program, coaching, mentoring or on the job assignments (Day, Harrison & Halpin, 2009). McCall, Lombardo and Morrison (1988) in their seminal research, interviewing successful executives in lessons on their experiences, identified that it is not fundamentally experiences that drive development, but the lessons obtained from experiences that matter most (McCall, Lombardo and Morrison, 1988; Day, Harrison and Halpin, 2009). Finally, scholars have asserted that effective leadership often involves a complex mix of behavioural, cognitive, and social skills that typically develop at different rates and require different learning experiences (Zaccaro & Klimoski, 2002; Mumford, et al., 2000; Day & Halpin, 2004; Lord & Hall, 2005). In summary, individuals sharing the same experience will personalise the lessons from the experience based on the individual's role and their organisations needs guiding their learning journey.

A rich body of research exists on characteristics (i.e. high self-awareness, set learning goals, value feedback) of individuals who are particularly proficient learners (Dechant, 1990; Bunker and Webb, 1992; Perkins, 1995; Noer, 1997; Spreitzer, McCall & Mahoney, 1997; Mumford et al., 2000; Marsick and Watkins, 2001; Lord & Hall, 2005; McCall, 2010). McCauley (2001) illuminates the ability to learn as it relates to job performance and advancement, identifying four common attributes of individuals who are skilled at learning. Firstly, individuals proficient at learning have a strong learning orientation; they see work and life as a sequence of "ongoing learning experiences" which they take responsibility for and proactively explore for purposes of personal development (McCauley, 2001). Secondly, these individuals take a "proactive stance toward problems and opportunities" with a bias towards action orientation, seek out new experiences, experiment with new ideas and enjoy meeting new people (McCauley, 2001, p. 368).   Critically, when identifying a learning need, the individual demonstrates ambition (i.e. initiative and self-direction) in their efforts to satisfy it. Third, individuals internalize the learning with intentional critical reflection of their experiences (McCauley, 2001). When results surprise them, they re-examine their value and beliefs, seeking to identify patterns and connections in how things work, the status quo, and what makes people think. This is enabled by holding conflicting views

in parallel, seeking out feedback and bridging the gap of where they are and where they need to be in a situation. Finally, proficient learners are open to experiences, new ideas and perspectives and demonstrate a fluidity in their thinking (McCauley, 2001). That is, shifting their assumptions and strategies midstream thus altering their behaviours to become more effective.

The identification of talent, based on these attributes of a skilled learner, is important and attractive to organisations. For example, individuals early in career will not have had the opportunities or experiences to learn the competencies they will need later in their career. However, if an organisation can identify individuals that have high learning ability, the organisation can personalise experiences and opportunities to accelerate development with the desired result of these individuals having a higher probability of developing the necessary competences as an outcome (McCauley, 2001).

London and Maurer (2004) add an additional lens to McCauley's work of identifying traits evident in skilled learners. Strong learners have high self-awareness, an understanding of their own strengths and weaknesses and utilize this in the establishment of goals for personal development (London and Maurer, 2004). London and Maurer (2004) state that individuals with high learning agility set challenging learning goals and embark upon these goals with confidence in their ability to self-develop through goal achievement (London and Maurer, 2004). Strong learners also value feedback as a way to thrive and excel, thus seek it out intentionally and internalise it with mindful reflection in order to process it and feel obligated to consider it when acting in the future. Furthermore, individuals who are proficient at learning also work to minimize defences that inhibit learning, for example, not being overly concerned with self in respect of fearing disapproval, being evaluated or challenging authority (London & Maurer, 2004, p. 231).

Individuals who are proficient at learning in the workplace are open to accepting responsibility for their own development and effectiveness, high in self-awareness of strengths and weaknesses and initiate learning goals which develop their deficiencies and play to their strengths (Van Velsor, Moxley, and Bunker, 2004). Consequently, proficient learners demonstrate a willingness to expose themselves to experiences which require competencies they have not yet developed in an effort to improve themselves. Van Velsor, Moxley and Bunker (2004) advise these individuals observe everyday experiences with a view toward learning what is needed to be successful. That is, proficient learners seek to learn and develop from missteps and setbacks, through reflection and processing of learning from these daily experiences. Due to this ongoing lens, high self-awareness and intentional reflection, these individuals recognise when current strategies are inadequate or strengths insufficient and have

the ability to detect new required behaviours and strategies (Van Velsor, Moxley, and Bunker, 2004). This self-awareness also allows the learner to understand how the intersection of attributes of personality, values and beliefs inform current strengths and sometimes present barriers in adopting different learning and problem-solving approaches (Van Velsor, Moxley, and Bunker, 2004). Given the link between an individual's ability to learn, proficient learners and skilled learners these factors might indicate the importance of learning consumption and its relationship with learning agility in order to yield performance.

Hypothesis 2: Learning consumption mediates the relationship between learning agility and performance

Situational context

A common and pertinent theme throughout skilled learners is situational context (e.g. contextual and environmental factors). As Lewin's (1936) field theory indicates a person's life space determines their behaviour irrespective of an individual's personality or individual differences (e.g. goal orientation or cognitive ability). For example, Benson, Li and Shue's (2019) note the necessity for leaders to adapt their management style as circumstances change has been acknowledged by scholars for over half a century (Fiedler, 1967; Vroom & Yetton, 1973; Heifetz & Laurie, 1997). However, there is still no cookie-cutter leadership style for individuals to imitate (George, Sims, McLean and Mayer, 2007). Scholars have long accepted that different leadership skills, managerial behaviours, decision styles and supervisory approaches are essential as leaders climb the organisational ladder (Tannenbaum & Schmidt, 1973; Charan, Drotter, & Noel, 2001; Brousseau et al., 2006). Successful leaders often adhere to Goldsmith's (2010) mantra "What got you here, won't get you there", ensuring to discard old habits and ways of performing their current jobs and acquiring new techniques and practices when required (Fiol & Lyles, 1985; Freedman, 1998). Successful leaders are adaptable, continuously evolving and grow from experiences which in turn reshape their identities (Lord & Hall, 2005). The tangible identification of adaptability as an attribute of a successful leader is potentially the pivotal reason why the concept of learning agility has proven to be a significant attraction within the practitioner business world. With this growing significance within practice it is paramount for further investigation into learning agility and its potential for determining success within practice.

Concept of learning agility

With the foundational underpinning of common characteristics of skilled learners, the next section examines DeRue, Ashford and Myers (2012) learning agility framework, an exploration of exemplar

antecedents of learning agility (goal orientation, cognitive ability and openness to experience via the Big Five personality model), followed by contextual and environmental factors which may influence learning agility.

Learning agility may be one of the solutions to the perennial problems within talent management at both an individual and organisational level. From an individual perspective, succession planning is an often-subjective process highlighted by the fact that many individuals fail in role transitions i.e. from leaders to a senior executive position (Hogan, Curphy, & Hogan, 1994). From an organisational perspective, scholars and practitioners alike have often cited the failure rate for top leaders anywhere between 30% to 67%, with a leading attribute being slow to learn (Hogan, Hogan, & Kaiser, 2011; Murphy, 2012). Compounding this failure is the cost associated with a mis-hire estimated to be as high as $2.7 million (Smart, 1999) for an executive. To put another way, the time co-workers spend educating and enabling a new hire, can easily cost between 93 - 200% of the departing hires salary (Cascio & Boudreau, 2010).   Within shrinking talent pools, coupled with inflation, it is not hard to imagine that number has increased significantly in the last twenty years and the need to figure out a lasting solution is ever greater to this exigent and alarmingly expensive problem.

A common fallacy in talent management is that organisations prioritize current performance in promotion decisions at the expense of other indicators (i.e. Peter Principle – promotion to level of incompetence) (Benson, Li and Shue, 2019). For example, at an executive level the common consensus from senior executives is that leadership skills matter (Day & Lord, 1992), however, most executive selections are typically selected due to immediate technical skills acquired from prior work, or political reason with little consideration given to critical factors which may cause individuals to derail in high-pressure leadership positions, such as arrogance, or abrasiveness (Hogan, Curphy, & Hogan, 1994; Van Velsor & Leslie, 1995; Burke, Trahant & Koonce, 2000; Burke & Noumair, 2002; Burke, 2011). Success in these roles, in an ever-changing business environment, necessitates critical thinking, innovation and calculated risk-taking, and require an individual to habitually seek out new contradictory information which conflicts or does not immediately align with pre-held believes, values or strongly adopted opinions (Spreitzer, McCall, & Mahoney, 1997; Kaiser & Craig, 2004). Thus, the demands of these leadership positions often require individuals to possess the ability draw from a broad and diverse assortment of past and professional experiences and challenges and be the kind of individual who learns from these i.e. exhibiting high learning agility (McCall & Lombardo, 1983; Howard & Bray, 1988; Morrison & Brantner, 1992; McCall, et al., 1998; McCauley et al., 1994)

Learning agility origins and evolution

Lombardo & Eichinger's (2000) seminal paper on "High Potentials as High Learners", which first coined the term "learning agility", simply defined learning agility as "the willingness and ability to learn new competencies in order to perform under first-time, tough, or different conditions" (Lombardo & Eichinger, 2000, p. 323). In the two decades since, its evolution has been remarkable, beginning with its formulation as a psychological construct, then expansion within industry as a leadership assessment tool with many variants (i.e. viaEDGE Assessment, TALENTx7 Assessment, and Burke Learning Agility Inventory (BLAI)). However, there remains much discourse among practitioners and researchers alike with regards to its exact definition, how to measure it, and how it relates to other psychological constructs (De Meuse, 2019, p. 277). Thus, the result has been a blurred picture on the importance of learning agility and its implications for individuals and organisations. One area of agreement across most definitions of the construct, either implicitly or explicitly, is that learning from experience is a critical component (Lombardo & Eichinger, 2000; DeRue, Ashford and Myer, 2012). Additionally, most definitions include an ability and willingness to learn component (Lombardo & Eichinger, 2000; De Meuse, Day & Hallenbeck, 2010). Finally, while most definitions imply the importance of learning agility in assessing talent, be it identification or succession, much of this research pertains to leadership roles, rather than individual contributor roles (De Meuse & Feng, 2015).

De Meuse (2017, p. 286) suggests most scholars, as well as practitioners, agree on the following five points:

1. The conceptualisation of learning agility in terms of learning from work and life experiences;
2. Learning agility as a multidimensional construct;
3. Learning agility may be utilized as a key predictor of leadership performance and potential;
4. On the recommendation that learning agility should be considered an important element in leadership development; and
5. On the requirement for additional research to be conducted

De Meuse (2019, p. 268) offers a broad definition stating "learning agility focuses on human behaviour, high-level cognitive processing, and the selective transference of lessons learned in one setting and applying them to a uniquely different one. It includes experimentation, self-reflection, leveraging individual strengths, continuous improvement, mindfulness, and mentally connecting experiences obtained from one situation to different challenges in another". In summary, learning agility is the ability to learn from experiences, and the willingness to apply those lessons to perform successfully in

new and challenging situations or roles. Figure 1.0 provides a graphic illustration proposing that learning agility directly affects personal development which in turn impacts success. However, it remains unclear if this is also applicable, and more importantly to what level, at an individual contributor perspective (i.e. sales audience) in order to be successful.

Figure 2.0 Relationship between learning agility, development and success (De Meuse, 2019)

LEARNING AGILITY⟶ LEADERSHIP DEVELOPMENT ⟶ LEADER SUCCESS

The relationship between learning agility, leadership development, and leader success.

Conceptualising learning agility

Learning from experiences as longitudinal in nature, that is, individuals develop an understanding of a specific experience and then identify patterns, connections and lessons to bring into future experiences DeRue, Ashford and Myer (2012, p. 263). Thus, as DeRue, Ashford and Myer (2012, p. 263) suggests, the learning agility construct applies "both within an experience (e.g. coming up to speed quickly and thinking flexibly about the current experience) and across experiences". Furthermore, less agile learners may exhibit behaviours (i.e. becoming defensive about their previously held assumption or point of views and rigidly carry over specific interpretations and lessons to new experiences) which may become barriers and inhibit learning. In contrast, the expected behaviour of individuals demonstrating a high level of learning agility is the ability to get up to speed quickly in a particular experience and to demonstrate fluidity in their thinking by shifting their assumptions and strategies midstream thus altering their behaviours to become more effective. It is clear to see why learning agility has attracted such attention within industry, supporting talent management endeavours, however thus far the academic community has been somewhat absent from the learning agility discussion, with the concept being ill defined and poorly measured (DeRue, Ashford and Myer, 2012).

Learning agility framework

Due to the discourse within research on learning agility (i.e. definition, measurement and relationships to other psychological constructs), DeRue, Ashford and Myer (2012, p. 264) have proposed a broader framework (figure 2.0) to capture the construct as it relates to learning from experience. Although not by any means exhaustive, exemplars with an emphasis on individual differences within learning agility are proposed in the form of cognitive and behavioural processes through which learning agility is manifested and enhanced (DeRue, Ashford and Myer, 2012, p. 264).

Figure 2.1 Framework for learning agility (DeRue, Ashford and Myer, 2012)
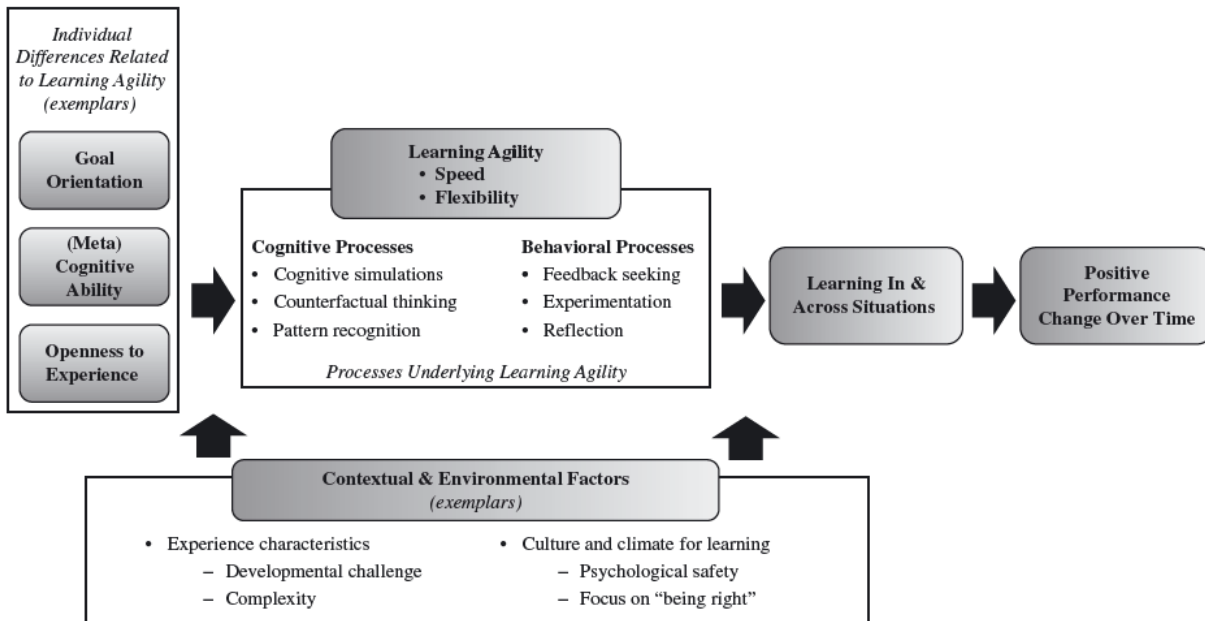
Utilising DeRue, Ashford and Myer's (2012) learning agility framework (Figure 2.0) this inquiry endeavours to refine and narrow the conceptualisation of learning agility, explore the boundaries and causal relationships and ultimately draw additional conclusions about learning agility and its relationship with learning from experience.

Other constructs have also been investigated which have similarities to the learning agility construct and warrant examination. Specifically, learning goal orientation is the belief that an individual can strive to comprehend new things and increase their level of competence in a given activity (Dweck, 1986; Dweck and Leggett, 1988; DeShon & Gillespie, 2005). Individuals high in learning goal orientation seek feedback and respond with adaptive and master-orientated behaviours that promote persistence to overcome challenges (Elliott & Dweck, 1988), and are likely to value experiences that foster development (VandeWalle & Cummings, 1997; VandeWalle et al., 2000). Although clearly related, learning agility is a significantly broader construct than learning goal orientation, which is but one antecedent along with cognitive ability and openness to experience as per De Rue, Ashford and Myer (2012) framework (Figure 2.0). Connolly (2001) empirically illustrated both to be uncorrelated during a study of law enforcement officers, which found reliability between learning agility and learning goal orientation to be .07.

Individual differences related to learning agility

The following section will examine how learning agility is related to three important antecedents of individual differences that are fundamental to understanding an individual's ability to learn from experience: an individual's goal orientation, cognitive ability, and openness to experience.

Goal orientation:

In the past five decades, goal orientation theory (Locke, 1968; Maehr, 1984; Dweck, 1986; Kanfer, 1990; Ames, 1992) has emerged as an important influence in the field of achievement motivation which still remains true today. Goals are one of the most pivotal cognitive factors affecting job performance (Locke, 1968). Goals focus individuals on the task at hand, support in the development of tactics, and assist in maintaining persistence at completing tasks (Locke, 1968). Locke is widely regarded as a scholarly authority on goal setting research advising that individuals with difficult, and specific goals outperform individuals with no goals (Locke et al., 1989). Linked to goals, Locke and scholarly associates have also examined goal commitment (Locke, Latham, & Erez, 1988). Locke, Latham & Erez, (1988) identified three determinants of goal commitment: external factors (authority, peer influence and external rewards), interactive factors (participation and competition), and internal factors (expectancy and internal rewards). An additional model of goal commitment consisting of two determinants: expectancy of goal attainment and valence of goal attainment was proposed by Hollenbeck and Klein (1987). Consistent to both models of goal commitment are personality factors or "internal factors" (Locke, Latham, & Erez, 1988), or "personal factors" (Hollenbeck & Klein, 1987) that assist in determining goal commitment levels achieved by individuals. In addition, Hollenbeck, Williams and Klein (1989) demonstrated with an empirical examination of 190 college students with academic goals, that commitment to goals was higher when (a) goals were made public, rather than private (b) when locus of control was internal, and (c) when subjects were high in need for achievement, especially when goals were self-set as opposed to assigned.

Specifically, goal orientation identified as a personality trait has gained considerable acceptance along with a preference as to how individuals approach achieving their goals (VandeWalle & Cummings 1997; Dweck, 1986). Goal orientation has been conceptualized as being made up of two components, learning goal orientation and performance goal orientation (Button, Mathieu & Zajac, 1996; VandeWalle, 1997). Learning orientated individuals focus on growing new competencies, whereas performance goal orientated individuals focus on meeting expected standards of competence to gain favourable (or avoid negative) judgements of competence (e.g. VandeWalle, Nerstad, & Dysvik, 2019; Button, Mathieu &

Zajac, 1996; VandeWalle, 1997). Within the workplace, an individual may often oscillate between both depending on the individual's situation, role responsibility and organisation requirements.

Individuals with high performance goal orientations reacted negatively to difficult tasks and also produced challenge-avoidance to these tasks (Elliott and Dweck, 1988). Performance goal-oriented individuals believe that ability is fixed and focus on ability shortcomings and obtrusive thoughts (Bobko & Colella, 1994; Button, Mathieu & Zajac, 1996). In contrast, Elliott and Dweck (1988) found that individuals with a greater learning goal disposition demonstrated a stronger persistence through difficult tasks in the belief that continued improved competency can accomplish the task. Additionally, research has also indicated learning goal orientated individuals respond to difficult tasks in a positive manner adjudging them as an opportunity to increase competence (Dweck & Leggett, 1988; Elliott & Dweck, 1988). Finally, research has found that individuals with greater learning goal orientation embark upon problem solving and vary their strategies in the face of obstacles and poor performance (Dweck & Leggett, 1988; Elliott & Dweck, 1988). In summary, whereas performance goal orientated individuals demonstrate behaviours which often prohibit learning from experience (i.e. defensiveness via challenge avoidance), learning goal orientated individuals demonstrate behaviours which assist learning from experience (i.e. comfort with feedback).

VandeWalle et al. (2000) found a positive relationship between learning goal orientation and feedback seeking. Furthermore, VandeWalle et al. (1999) found a positive relationship between learning goal orientation and performance among sales personnel. A sample consisting of 167 sales personnel, completed a goal orientation measure which was correlated against a performance measure, in units sold. The study found that performance goal oriented individuals pursue a maladaptive response style which hinders performance when confronted with challenges, while learning goal oriented individuals used an adaptive responsive style when confronted with challenges which enabled them to excel (VandeWalle et al., 1999). Although a learning goal orientation is favourable, DeRue and Wellman's (2009) research on developing leaders via experiences examined 225 on-the-job experiences across 60 managers and while the results demonstrated a pattern of diminishing returns between developmental challenges and leadership skill development, it was identified that this could be offset by access to feedback.

Considerable evidence has examined the relationship between goal orientation and personality traits (e.g. Big Five). Colquitt and Simmering (1998) surveyed 103 undergraduate students with several measures including goal orientation, motivation to learn and conscientiousness. Findings identified

conscientiousness and learning goal orientation to be positively correlated with motivation to learn, whereas performance goal orientation negatively correlated with motivation to learn. In a later study, Payne, Youngcourt & Beaubien (2007) found a positive correlation between learning goal orientation and all Big Five personality factors (i.e. openness, conscientiousness, agreeableness, extraversion and neuroticism), with openness to experience (p = 0.44) and conscientiousness (p = 0.32) having the largest magnitude. In contrast, in relation to performance goal orientation, all reported relationships were null, except for emotional stability. In summary, a substantial amount of evidence supports the inclusion of goal orientation as an important antecedent to learning agility as an individual difference exemplar.

Learning goal orientation influences individuals to engage in challenging activities, a desire to improve, self-reflect and internalize learnings (Button, Mathieu & Zajac, 1996, 1996). In contrast, performance goal orientation influences individuals to seek out non-challenging activities, a desire to avoid mistakes and often evaluate performance by normative standards (Button, Mathieu & Zajac, 1996). Pertinently, research conducted by Button, Mathieu & Zajac (1996) found that college Grade Point Average (GPA) was positively correlated to learning goal orientation, whereas Scholastic Aptitude Test (SAT) scores were not correlated to learning goal orientation and were negatively correlated with performance goal orientation. Both are academic achievement indicators, however, whereas SAT is a single standardised test, with country wide comparisons, GPA is a longitudinal indicator based on class performance with school comparisons. This further illustrates the divergence between cognitive ability (i.e. SAT score) and learning goal orientation given GPA is longitudinal in calculation.

In summary, scholars agree a strong learning goal orientation is associated with an increased motivation to learn; when the task is dynamic, feedback seeking behaviour is needed to improve performance, and a greater capacity to learn from challenging development experiences (Colquitt & Simmering, 1998; VandeWalle et al., 2001; DeRue & Wellman, 2009; Dragoni et al. 2009). In conclusion, all of which suggest similarities and linkages of goal orientation research with learning agility.

Cognitive ability

General cognitive ability has been defined as a variance among individuals in information processing capacity or the ability to learn (Hunter, 1986; Kanfer & Ackerman, 1989; Ree & Earles, 1991) and has been proven to improve job performance across various work and task contexts (Hunter & Hunter, 1984; LePine, Colquitt & Erez, 2000; Ree, Earles, & Teachout, 1994).

Individuals with elevated levels of cognitive ability excel because they have the ability to retain more information in their working memory, along with storing knowledge and skills more efficiently and learn at an accelerated pace from their experiences (Schmidt, Hunter, & Outerbridge, 1986). Furthermore, metacognitive ability is a particular form of cognitive ability that indicates one's ability to "think about thinking" (DeRue, Ashford and Myers, 2012 p. 266) and monitor cognition (Flavell, 1979). A corpus amount of research exists suggesting that metacognitive ability is positively correlated to knowledge and skill acquisition, monitoring of goal progress, adaptation and learning, and task performance (Kanfer & Ackerman, 1989; Pintrich & De Groot, 1990; Pokay & Blumenfeld, 1990; Ford et al., 1998; DeRue, Ashford and Myers, 2012).

From a speed perspective, prior research suggests that general cognitive ability increases individuals' working memory, thus is associated with enhances perceptual and processing speed (Kyllonen & Christal, 1990; Ackerman, Beier, & Boyle, 2002;). From a flexibility perspective, a stronger metacognitive ability should be associated with an enhanced ability to see connections and demonstrate fluidity in navigating across ideas at ease. Shore and Dover (1987, p.37) advise ''Metacognitive processes enable individuals to better control their thinking and thereby become more efficient and flexible learners''. One reason for this relationship is that metacognitive ability reduces the likelihood that an individual will become too microlevel in their thinking, but instead have a greater ability for macrolevel thinking. That is, rather than myopically focusing on a single component of the task individuals demonstrate a greater recognition and understanding of the connections across components. Indeed, research on the influence of metacognitive knowledge and aptitude on problem solving suggests that metacognitive ability enhances individuals' problem-solving abilities in complex situations or tasks (Swanson, 1990). Thus, similarities and linkages to Lombardo and Eichinger's learning agility "the willingness and ability to learn new competencies in order to perform under first-time, tough, or different conditions" and therefore an individual difference variable (Lombardo and Eichinger, 2000, p. 4).

Cognitive ability in relation to intelligence

Neisser et al.'s (1996) influential work on intelligence describe intelligence as individual differences in understanding concepts, adapting to one's environment, learning from one's experiences and overcoming challenges by applying reason. Neisser et al. (1996) state that in the field of intelligence, no theory commands universal assent. Theories on intelligence are wide ranging (Sternberg & Detterman, 1986). An abundance of research exists underpinning general mental ability as the best predictor of future job performance and learning (Hunter & Hunter, 1984; Ree & Earles, 1992; Ree, Earles &

Teachout, 1994; Schmidt & Hunter, 1998). Consequently, intellectual ability has long been the de facto standard for predicting job performance (Schmidt & Hunter, 1998), but there has been sparse research which illuminates intellectual ability with learning agility (Bedford, 2011).

Cognitive ability correlates to learning from experience

Time and again, it has been witnessed that people succeed academically, only to struggle when encountering challenges and ambiguity of the real world and vice versa (Sternberg et al., 1995). A substantial amount of the learning that improves performance occurs informally in the form of learning from an individual's own experience (Wagner and Sternberg, 1990, Wagner, 1997). There are many ways to demonstrate and conceptualize intelligence, however it still remains open to question whether measures of general intelligence are related with the ability to learn from experience. Additionally, it is also questioned whether alternative forms of intelligence (i.e. practical intelligence) (Neisser, 1976; Sternberg et al., 1995), Gardner's (2008) multiple intelligences (e.g. naturalist, existential, interpersonal) or emotional intelligence (Goleman, 1995) are related with the ability to learn from experience.

Cognitive ability as a predictor of job performance and knowledge acquisition

Schmidt and Hunter's (1998) often cited and well supported seminal work in the area of personal psychology, examining 85 years of research and validity of 19 different selection methods found that General Metal Ability (GMA) is the strongest predictor of job performance and acquisition of job knowledge. In addition, personnel assessments based on GMA offer the high validity and low cost across an organisation thus ensuing it has a unique place as a predictor of future role performance and learning (Schmidt & Hunter 1998, p. 264).

Pertinent findings identified that when an employer uses GMA to recruit employees, who "will have a high level of performance on the job, that employer is also selecting those who will learn the most from job training programs and will acquire knowledge faster from experience on the job" (Schmidt & Hunter 1998, p. 266). Individuals with a higher IQ learn quicker and therefore become more knowledgeable in their jobs sooner (Perkins, 1995). However, an individual's self-identify can affect knowledge acquisition through social processes, and in turn affect knowledge access (Lord and Hall, 2005).

A limitation with Schmidt and Hunter's (1998) research is the failure to define job knowledge acquisition, referring to it as "training performance", "acquisition of job knowledge on the job", and "future job-related learning" (Bedford, 2011).   While all three can be deferred to be learning from experience, there is no distinction between actual job performance and from measuring performance

within a formal training program (e.g. classroom-based training). Thus, no firm correlations between the differences between learning agility and learning from formal training can be made.

Building on Connolly's (2001) research, Eichinger and Lombardo (2004) advanced the argument that learning agility is a construct separate from intellectual ability further by advising learning agility has more to do with "personal adaptability" than GMA. Eichinger and Lombardo (2004) assert learning agility is related to an individual's ability to adapt to the environment to attain goals. The tone of this interpretation of learning agility appears to share many characteristics with Sternberg et al. (1995) concept of practical intelligence, amongst them the suggestion it is a job performance predictor above and beyond GMA. Interestingly, Connolly (2001) investigated learning agility among law-enforcement officers and found that learning agility predicted supervisory ratings of job performance and promotability beyond what was explained by cognitive ability (intelligence) and personality (the Big Five factors).

Cognitive ability, practical intelligence and tacit knowledge

Sternberg et al.'s (1995) seminal paper on "testing common sense", set out an extensive review of practical intelligence and tacit knowledge. Sternberg et al. (1995) define academic intelligence as "book smart", which is routinely measured by intelligence tests, as opposed to practical intelligence which is defined as "street smarts", portrayed in an everyday synonym as "learning the ropes". Sternberg et al. (1995) embody components of Polanyi's (1976) concept of tacit knowledge into practical intelligence (Polanyi, 2012). Sternberg et al., (1995, p. 916) express tacit knowledge as "action-oriented knowledge, acquired without direct help from others, and allows individuals to achieve goals they personally value….it is called tacit because it often must be inferred from actions or statements". This concept has clear similarities to learning agility.

Tacit knowledge as a predictor of job performance

While IQ has played a leading role in the measurement of cognitive functioning and a predictor of success in school, training and occupational selection for well over a century, recent studies suggest a rather murkier picture (Richardson and Norgate, 2015). An IQ test is widely recognised, since Galton (1883) and Spearman (1927), to measure intelligence, however the identity of that intelligence has never been fully agreed (Richardson and Norgate, 2015). For example, Wagner and Sternberg (1985) studying both academics and professionals found that practical intelligence was not correlated to general mental ability. Additionally, Wagner and Sternberg (1990) discovered that tacit knowledge predicts job performance above and beyond General Metal Ability (GMA) alone, with Eichinger and

Lombardo (2004) and Connolly (2001) also concurring. Correlations between IQ and job performance which are often cited as evidence for test validity were examined by Richardson and Norgate (2015), concluding a great deal of uncertainty about the interpretations of IQ-job performance correlations. Foundational to this uncertainty is the absence of a clear theoretical model of internal cognitive functions, thereby leading to test validity correlations being indirectly made via test scores correlated with individual differences on what are assumed to be criteria of intelligence (Richardson and Norgate, 2015). In summarising their findings, Richardson and Norgate (2015) note a range of other factors (i.e. learning agility) could explain correlations between IQ and job performance.

Tacit knowledge and learning agility

Enabled with Wagner and Sternberg's (1990) conclusion that practical intelligence is a construct distinct from general metal ability, Hedlund et al. (2003) conducted an influential study examining tacit knowledge among military leadership to understand why some leaders are more successful than others. Hedlund et al.'s (2003) conclusions supported the work of Eichinger and Lombardo (2004) on learning from experience and provides further evidence that tacit knowledge may be closely related to the construct of learning agility. Hedlund et al. (2003) conducted a series of interviews with army officers at three levels (platoon, company, and battalion) of leadership to identify the type of practical, experience-based knowledge which was not necessarily part of any formal training or doctrine. Leaders (n = 562) were administered the Concept Mastery Test and the Tacit Knowledge for Military Leaders (TKML) inventory, which consists of a series of leadership scenarios to assess the amount of knowledge leaders possess. Three levels of the TKML where administered, depending on leadership level, and scores were correlated with ratings from the Leadership Effectiveness Survey obtained from peers, subordinates or supervisors. The results indicated that leader level tacit knowledge can explain individual differences in leadership effectiveness (e.g. interpersonal skills, task orientation). For example, a role where negotiation skills (e.g. strong interpersonal and problem-solving skills) are required and knowledge is not openly conveyed, the learner has the responsibility to determine what information to focus on and how to interpret that information. Due to the learner acquiring this on their own, some individuals will fail to effectively acquire the relevant knowledge. In summary, tacit knowledge scores correlated with leadership level such that leaders at higher levels of command exhibited greater tacit knowledge than those at lower levels of command. Additionally, it was found tacit knowledge scores did not correlate with the number of months leaders had been in their current position. Therefore, indicating that tenure in role is not a proxy for efficiency and individual variances in performance often can be a derivative to

variances in tacit knowledge acquisition than differences in formal knowledge acquisition (Hedlund et al., 2003).

Furthermore, Hirst et al. (2004) observed 50 Research and Development teams consisting of 25 new and 25 experienced leaders, in a longitudinal study over a 12-month period and drew similar conclusions to Hedlund et al. (2003). Hirst et al. (2004) note that not all leaders learn at the same rate or in the same way, and that those better able to learn from their experiences tended to perform better (Day, 2014). Often when it comes to skills development, along with leader and leadership development, there is an assumption on the part of both practitioners and scholars that experience plays a critical role (Day 2014). Bettin and Kennedy's (1990) research suggested, while it does take time to build experience, scholars should be mindful of using time as a proxy (Day, 2014). These findings lead to the question as to why some individuals have more success developing tacit knowledge than others.

Two limitations of Hedlund et al.'s (2003) study concern generalizability of findings due to both the construction of the tacit knowledge measure (TKML) and the leaders' professional field (military). There is the risk that the TKML measure is highly military rank specific and highly context specific. In essence, the instrument is used to measure the practical know-how of military leaders who often obtain experience in a particular rank within the military. Similarly, what it takes to succeed in a given leadership rank within the military would be very different to industry, making generalisation, much less replication of the findings, almost impossible. These limitations call into question the extent of conclusions that can be drawn about tacit knowledge as a construct. In summary, the role of cognitive ability, in its many forms, suggests clear linkages to learning agility, however, in the context of this inquiry are there any factors that encourage or inhibit learning agility of individuals.

On the balance of the research, supported by a plethora of empirical studies to date, the evidence supports the association of a positive relationship between learning agility and various outcomes. It is expected that the results of this research inquiry will replicate the findings that learning agility is positively related to performance.

Hypothesis 1: Learning agility is positively associated with performance. Those individuals with high learning agility are likely to have associated high performance.

Learning agility and the Big Five personality traits

Although learning agility is a behaviourally orientated construct (i.e. experimentation, self-reflection, leveraging individual strengths, continuous improvement, mindfulness, learning from experience)

(Lombardo & Eichinger, 2000; De Meuse, Dai and Hallenbeck., 2010; DeRue, Ashford and Myers, 2012), it is likely to be related to numerous personality traits. Personality traits frequently influence interpersonal strategies which people employ to relate to others (Davis et al., 2010). The Big Five framework of personality traits (Costa & McCrae, 1992) examines five dimensions consisting of agreeableness, extraversion, neuroticism (or emotional stability), openness to experience, and conscientiousness and has emerged as a robust and prominent model within the workplace setting (Hogan, Hogan, & Roberts, 1996). The abundance of research on the Big Five, has uncovered strong relationships between personality and job performance (Viswesvaran, Ones & Hough, 2001; Bono & Judge, 2004; Hogan & Kaiser, 2005; Ng et al., 2005). Despite this correlation, there is a paucity of empirical research evidence linking personality traits to learning agility or the ability to learn from experience (De Meuse, 2017; Bedford, 2011). As Day (2014) cites, "If personality is conceptualized in terms of traits that summarize relatively enduring dispositional tendencies (House, Shane, & Herold, 1996), then its relevance for studying development (i.e., change) is questionable". As such, the following section discusses each trait in relation to learning agility and hypothesises potential correlations, as per Figure 2.2, based on existing research.

Figure 2.2 Big Five personality hypothesised correlations with learning agility (De Meuse, 2017)
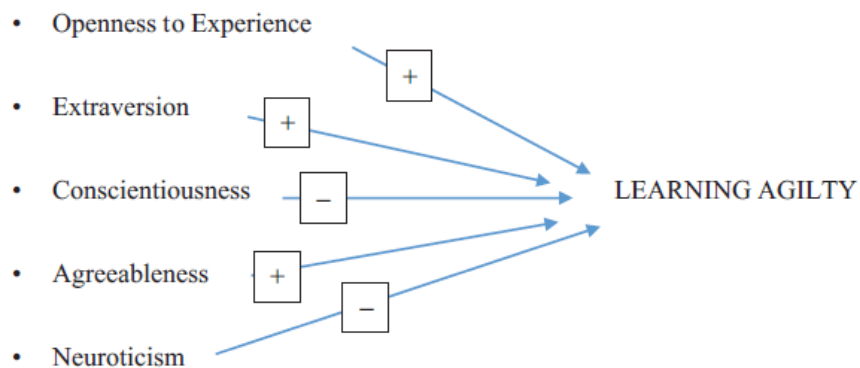
Openness to experience

Openness is characterised by curiosity, inquisitiveness and strong intelligence (philosophical and intellectual), and unconventionality (a preference for novelty, unusual ideas, imaginative, autonomous, non-conforming and open to new and different experiences) (Judge et al., 1999; Major, Turner and Fletcher, 2006; Davis et al., 2010; Komarraju et al., 2011; De Meuse, 2017). An individual who rates highly for openness is "interested in learning and exploring new cultures, environments, and activities"

(De Meuse, 2017). In contrast, people who score low on this trait tend to be very conventional, rigid and may struggle with abstract thinking (Davis et al., 2010; De Meuse, 2017).

The conventional wisdom of both scholars and practitioners in the field of adult learning and leadership development is that openness to experience is positively correlated to learning agility (Connolly, 2001; De Meuse, 2017). London and Smithers (2002, p. 10) propose individuals scoring high for openness to experience will pursue opportunities to learn and will engage in "continuous learning", findings consistent with the influential work of Ackerman and Heggestad (1997). Complimentary to this is an individual's "feedback orientation", the ability to be receptive to feedback, including comfort with feedback, propensity to seek feedback and process it mindfully, and the high probability of acting on the feedback to influence behaviour change and performance improvement (London and Smithers, 2002). Likewise, Komarraju et al. (2011) who studied academic students' (n=308) personality and learning styles against academic achievement and found a positive relationship between openness to experience and the ability to connect and apply new ideas to existing knowledge and personal experiences.

Connolly (2001) conducted research assessing the validity of learning agility by investigating law enforcement officers (n=107) and examining the relationship between learning agility, cognitive ability, personality, job performance and promotability. A small but notable correlation with openness to experience was discovered, but interestingly there was no correlation with the other Big Five personality traits (Connolly 2001). Consistent with Connolly's (2001) findings, Major, Turner and Fletcher (2006), conducting research on employees (n=183) within a financial services firm, discovered openness to experience was notably correlated with motivation to learn. Notably, Major, Turner and Fletcher (2006) also found correlations between extraversion and conscientiousness and motivation to learn. Granted, motivation to learn and learning agility are not the same constructs, there is a strong likelihood both are related with a strong probably, individuals who are talented at learning are also motivated to do so (McCall et al., 1988; De Meuse, Dai and Hallenbeck, 2010). Based on this evidence, it would suggest individuals who are more open to experience are more agile learners. Nieß and Zacher (2015) tested this assumption by applying promotion history analyses, to estimate the effects of the "Big Five" on upward job changes. Furthermore, propensity score matching was used to test the effects of upward job changes on personality (Nieß and Zacher, 2015). Both tests were conducted by Nieß and Zacher (2015) during a longitudinal study, collected from employees over five years. Results indicated that participants' openness to experience predicted upward job change, while at the same time it was

evident that an increase in openness to experience followed the upward job change into managerial and professional positions (Nieß and Zacher, 2015).

On the balance of research, given the evidence of openness to experience being positively related to motivation to learn, along with a predictor for upward job change and increasing following the upward job change, learning agility is likely to be associated with openness to experience. Additionally, with the supporting evidence, feedback orientation also appears to have a complementary role to learning agility's association with openness to experience.

Hypothesis 3.0: Learning agility is positively associated with openness to experience. Those individuals with high learning agility are likely to have associated high scores for openness to experience.

Extraversion

Extraversion is indicated by an individuals' eminent interaction and engagement with the external world. Individuals who are extraverts display high degrees of sociability, often perceived to be full of energy, display assertiveness and talkativeness, with a tendency to enjoy large groups and desire excitement and stimulation (Judge et al., 1999; Major, Turner and Fletcher, 2006; Davis et al., 2010; Komarraju et al., 2011; De Meuse 2017). In contrast, introverts tend to be more introspective, quiet, deliberate and have lower social engagements (Judge et al., 1999; De Meuse, 2017).

The traditional wisdom of both scholars and practitioners in the field of adult learning and leadership development is that extraversion is correlated to the learning agility components pertaining to interpersonal interactions, such as collaboration (De Meuse, 2017). As a result, the predominant understanding within the adult learning and development field suggests that extraversion enhances learning opportunities (i.e. networking, mentoring etc.) (Crant and Bateman, 2000; Major, Turner and Fletcher, 2006). Similar to openness to experiences, Komarraju et al.'s (2011) research found a positive relationship between extraversion and the ability to connect and apply new ideas to existing knowledge and personal experiences. Additionally, Smither, London and Richmond (2005) found extraverts solicit more feedback from others, seek out opportunities to learn from (Davis et al., 2010), and are inclined to share their knowledge with others (Hoare, 2006). Interestingly, extraversion has been shown to have a consistently strong correlation to leadership emergence and effectiveness (Barrick & Mount, 1991; Viswesvaran, Ones & Hough, 2001; Judge et al., 2002). As noted by Bedford (2011 p. 34), "learning agility is a necessary component of leader emergence (potential) and effectiveness (performance) in as much as learning agility is a necessary component for making transitions and executing new duties and

responsibilities". Consequently, individuals who demonstrate a high level of learning agility will often display a high level of extraversion. In summary, given the link between extraversion and seeking out learning opportunities, soliciting more feedback along with talent emergence and performance, learning agility is likely to be associated with extraversion.

Hypothesis 3.1: Learning agility is positively associated with extraversion. Those individuals with high learning agility are likely to have associated high scores for extraversion.

Conscientiousness

Conscientiousness is exemplified as being disciplined, organised, reliable (responsible and careful), achievement orientated (hardworking, persistent and ambitious) and displaying a high level of thoughtfulness while also managing their own impulses (Judge et al., 1999; Major, Turner and Fletcher, 2006; Davis et al., 2010; Komarraju et al., 2011; De Meuse, 2017). While these characteristics do not correspond to learning from experience, it seems evident that individuals rating highly on conscientiousness would be predisposed to learn more or learn better from experience than individuals rated low on conscientiousness (Major, Turner and Fletcher, 2006; Crant and Bateman, 2000).

Barrick et al. (1993) researched 91 sales representatives from a manufacturing company found a strong correlation between goal setting and goal commitment with conscientiousness. Many research studies have demonstrated conscientiousness as a consistent and stable predictor of exam performance (Chamorro-Premuzic & Furnham, 2003). Consistent with these findings, Komarraju et al. (2011, p. 476) noted "conscientious is critical for learning and performance". In contrast, De Meuse (2017) asserts that conscientiousness is negatively related to learning agility with a hypothesis advising that individuals who rate highly on learning agility are more strategic, than tactical, and embrace complexity and nonlinear thinking rather than procedural and detail orientated. In summary, while evidence suggests a strong correlation between conscientiousness and learning and performance, a dichotomy of perspectives within the field appear as to what association learning agility is likely with conscientiousness.

Hypothesis 3.2: Learning agility is negatively associated with conscientiousness. Those individuals with high learning agility are likely to have associated low scores for extraversion.

Agreeableness

Agreeableness is an interpersonal orientated personality trait, characterised by being cooperative, trusting of others and caring, as well as likeable, good natured, cheerful, gentle and altruistic (Judge et al., 1999; Major, Turner and Fletcher, 2006; Davis et al., 2010; Komarraju et al., 2011; De Meuse, 2017).

Individuals who rate high for agreeableness are willing to compromise their interests for others (Major, Turner and Fletcher, 2006; Komarraju et al., 2011; De Meuse, 2017). In contrast, those who rate low in agreeableness tend to be more competitive and even manipulative at times, showcasing a lack of empathy (Major, Turner and Fletcher, 2006; Komarraju et al., 2011; De Meuse, 2017).

Within an organisation, and more so team context, good interpersonal skills held by individuals are extremely valuable to organisations (London and Maurer, 2004). Furthermore, consistent studies within academia have indicated interpersonal skills as a stable predictor for overall academic performance (Farsides & Woodfield, 2003; Poropat, 2009; Komarraju et al., 2011). The higher the level of agreeableness within the team, the more likely individuals are to work collaborate together, along with potentially enhancing team performance (Barrick et al., 1998). While literature generally recognises agreeableness as a valuable trait, with emphasis on interpersonal skills, its correlation to the learning agility construct is unclear within literature.

Hypothesis 3.3: Learning agility is positively associated with agreeableness. Those individuals with high learning agility are likely to have associated high scores for agreeableness.

Neuroticism

Neuroticism is exemplified by the degree of emotional stability within an individual (Judge et al., 1999; Davis et al., 2010; Major, Turner and Fletcher, 2006; Komarraju et al., 2011; De Meuse, 2017). This trait is characterised by a tendency to experience negative effects (i.e. sadness, anger, self-consciousness, vulnerability and impulsiveness) (Judge et al., 1999; Major, Turner and Fletcher, 2006; Davis et al., 2010; Komarraju et al., 2011; De Meuse, 2017). Individuals who rate high for neuroticism often display less confidence, are emotionally reactive and vulnerable to stressful situations, resulting in negative moods (i.e. anxiety, fear and embarrassment). In contrast, individuals who rate low for neuroticism are more emotionally stable (resilient) and less reactive to stress (not easy to upset, less anxious) (De Meuse, 2017). These individuals tend to showcase a tolerance for their own failures and shortcomings, along with demonstrating a willingness to learn from mistakes and appreciate feedback from others (Davis et al., 2010).

It is not difficult to argue individuals who rate low for neuroticism would have a significant advantage when it comes to learning from experiences in the workplace due to this propensity to learn from mistakes and comfort with feedback. This is not to say that emotional stability is correlated with the learning agility construct, but one can identify similarities in components between both constructs in

alignment with Lombardo & Eichinger (2000) who identified individuals with learning agility as being open to different types of people and ideas and situations which are new and complex (e.g. stressful). Supporting this assertion, Judge et al.'s (2002) meta-analysis discovered correlations between leadership emergence (potential) and leadership effectiveness (performance) and individuals who score low neuroticism.

Hypothesis 3.4: Learning agility is positively associated with neuroticism. Those individuals with high learning agility are likely to have associated low scores for neuroticism.

Conclusion of learning agility and the Big Five personality traits

In summary, given that the learning agility construct is behaviourally orientated, and as outlined in the literature above, there are a number of probable links between the learning agility construct and one or more of the Big Five personality dimensions. Empirical research evidence presenting a clearer picture is still limited. Bedford's (2011) study of 294 individual contributors and managers, across ten different companies, in seven different industries, investigated the role of learning agility within the workplace and found high correlations to both performance and career advancement but yielded no significant results on the correlation between learning agility and personality or cognitive ability indicating it may be a separate construct. However, Nieß and Zacher (2015, p. 15) while somewhat echoing the above stated "Our results indicated that openness to experience played a key role in explaining upward job changes into managerial and professional positions, while the remaining four personality characteristics in the Big Five framework had no statistically significant effects." Thus, illustrating of the potential relationships between learning agility construct and the Big Five personality dimensions, learning from experience appears the strongest for inclusion as an important individual level antecedents within DeRue, Ashford and Myers (2012) learning agility framework.

Contextual & environmental factors related to learning agility

Next, an examination of on the influence of contextual and environmental factors related to learning agility will be undertaken. Among these factors, discussed below are experience characteristics (development challenges and complexity) and culture and climate for learning (psychological safety and focus on "being right") as proposed exemplars within DeRue, Ashford and Myers (2012) learning agility framework.

Experience characteristics

Several prominent theories in career literature, such as Person-Environment Fit Theory (Sims, 1983; Muchinsky & Monahan, 1987; Caplan, 1987), Vocational Choice Theory (Holland, 1959), and the Attraction-Selection-Attrition Model (Schneider, 1987; Schneider, Goldstein and Smith, 1995) support the assertation with empirical evidence (Kristof-Brown, Zimmerman, & Johnson, 2005) that individuals self-select into work environments that provide a good fit with their personality. While the learning agility corpus has had a strong emphasis on proximal factors of personal attributes (i.e. openness to experience) which predict consequences of learning agility, little attention has been given to understanding the distal contextual and environmental factors, and their influence on learning agility. However, anything in the environment which affects the climate and culture of learning (i.e. psychological safety), the speed of knowledge transfer or the latitude to which individuals can be flexible across different points of view or competing ideas would impact the degree in which people can demonstrate agility in the learning process (De Rue, Ashford, Myers, 2012). Thus, it is not difficult to argue that consideration as to how contextual and environmental factors might affect an individual's ability to be an agile learner and the subsequent consequences of learning agility, is required.

A useful starting point is taking a lens of environmental factors somewhat specific to the individual's experience. Thus, drawing from Trait Activation Theory (Tett & Guterman, 2000; Tett & Burnett, 2003) as an example, the essence of the experience itself and the process of its internalisation within an individual could have a profound influence on an individual's demonstration of learning agility. Differences in an individual's self-view entering experiences serves to activate learning agility to varying degrees of speed of learning and flexibility across viewpoints with the experiential learning process (DeRue, Ashford and Myers, 2012).

An example can be found in Kohn and Schooler's (1978) classic work on intellectual flexibility. Kohn and Schooler's (1978) examined the reciprocal relationship between intellectual flexibility and the substantive complexity of work or the degree to which work requires independent thought and judgment, e.g. jobs that require making decisions that involve ill-defined or conflicting contingencies. Kohn and Schooler's (1978) findings postulate the experiences high in substantive complexity can actually increase the extent in to which individuals exhibit intellectual flexibility. Furthermore, research on experience-based leadership development concludes one of the most reliable indicators and predictors of leadership is an individual's ability to find meaning in experiences (Bennis and Thomas 2002). Consistent with this observation, McCall et al. (1988) suggests experiences rich in a development

challenge promote learning by challenging individuals' status quo, thereby forcing a reflection on current behaviours and forcing individuals to think about and process experiences in different ways. In McCall (2010) influential work on lessons of experience, the more complex and challenging experiences create a backdrop where the need to demonstrate learning agility is increased as opposed to less challenging or complex experiences. Granted the need for learning agility and activation is at its greatest when experiences are more complex and challenging as per Lombardo and Eichinger's (2000) original definition "the willingness and ability to learn new competencies in order to perform under first-time, tough, or different conditions". However, it is noteworthy to observe the balance required in the dichotomy and tension in the characteristics of complex experiences. If an experience is deemed by the individual to not be complex then no learning agility activation will need to occur.

Alternatively, the learning process will be hampered if experiences are overly challenging and complex (DeRue & Wellman, 2009). From a learning agility perspective, if the speed at which an individual is required to perform outweighs the time required to internalize learning from an experience due to complexity or challenge (acquiring new knowledge and altering perspectives due to divergent inputs), then individuals are less likely to exhibit learning agility. This illustrates the multifaced nature of experiences and the importance of an individual's self-view in entering that experience, as the same attributes of an experience which makes it influential for one individual could ultimately be the same attributes which reduce probability of another individual demonstrating learning agility. For example, in a business context, international assignments are often used build a robust pipeline of cross-culturally competent talent. A large body of empirical evidence demonstrates an individual's international experience is positivity related to their self-assessed global orientation, tolerance for ambiguity, cultural flexibility, and strategy thinking competency (Black, Gregersen and Mendenhall, 1992, Arora et al., 2004., Caligiuri & Tarique, 2012, Dragoni et al., 2014). Critical to learning from these experiences, is the requirement for individuals to have an adequate level of challenge (Caligiuri & Dragoni, 2014). Dragoni et al. (2014) empirical research on 231 leaders revealed global work experience positively related to leaders strategic thinking competency, particularly for leaders who had exposure to a more culturally distant country (i.e. a US leader who had been on assign to China, as opposed to the UK).

Culture and climate for learning

Moving beyond experience itself, additional aspects of the broader working environment, along with team or group contexts, may influence the probability of individuals engaging in learning agility and thereby its outcomes. Firstly, the organisational climate in which learning agility is activated, along with

the climates' openness to foster experiences, are additional contextual factor to consider. Critical to many organisational behaviour models are insights into the work environment, referred to generally as "organisational climate" (Rousseau, 1988). Ford & Weissbein (1997) expanded on this term by referring to the prevailing attitudes and values about development, from a management perspective, as the "learning climate". Researchers have disputed that "organisational climate is based on the intersection between observable, objective elements of the organisational setting and the perceptual processes of organisational members" (Hellriegel & Slocum, 1974; James & Jones, 1974, 1976; Schneider and Reichers 1983). Rouiller & Goldstein's (1993) salient empirical study on the relationship between climate and training identified that the organisational climate was an important factor in the transfer of training in the workplace (Tracey, Tannenbaum, & Kavanagh, 1995; Rouiller & Goldstein, 1993). A further empirical study identified that both the climate and culture were directly linked to the transfer of training, in particular social support systems and work environment (Tracey, Tannenbaum and Kavanagh 1995; Blume, Ford, Baldwin and Huang, 2010).

Secondly, Edmondson's (1999) research on psychological safety, a shared belief held by individuals within a group that the group is safe for interpersonal risk taking, including exploring differing opinions, raising questions and seeking feedback. Furthermore, Edmondson, Bohmer and Pisano (2001) conducted research on 16 cardiac survey teams and discovered, for teams who rated high on psychological safety, the learning process was more successful. In contrast, in teams where individuals felt uneasy with sharing, trying approaches that may not work and admitting mistakes, the learning process was stifled. Consistent with these findings, Google (Duhigg, 2016) conducted research over a two-year period interviewing over 200 employees citing "psychological safety" as the number one reason on what makes a team effective. Complimentary to these findings, De Meuse, Dai and Hallenbeck (2010) indicates learning from experience generally requires an individual to be wrong on occasion and a punitive culture impedes an individuals' motivation for learning (Day, Harrison, & Halpin, 2009). De Rue, Ashford and Myers (2012) further suggest learning agility requires a degree of freedom of thought within individuals while simultaneously considering various approaches and perspectives. One of the strongest deterrents to exhibiting such freedom would likely be defensives or overconcern with the self. Thus, as indicated with Edmondson, Bohmer and Pisano (2001) an environment with poor psychological safety would likely detract from learning agility.

Thirdly, scholars within the educational psychology field have recognised the relationship between openness and defensiveness (Oddi, 1986; Brockett & Hiemstra, 1991; Fisher, King, & Tague, 2001). If

individuals are more invested in "saving face" and concerned with "being right" they are more likely to be less invested in employing an open mind to challenge common behaviours and pre-existing beliefs but rather defend it against perceived attacks (De Rue, Ashford and Myer, 2012). Mitchinson et al. (2012) have advocated defensiveness as a significant barrier to effective learning, advocating the term as a potential "de-railer" to learning agility. Smith (2015, p. 68) explored the construct of learning agility in relation to executive performance (n=700) and found "rather than an otherwise learning agile individual being de-railed as a result of defensive behaviours, a non-defensive theory-of-action is a prerequisite for learning agility".

Finally, De Meuse, Dai and Hallenbeck (2010) considered how a punitive culture could have a negative impact on learning agility, and specifically an individual's motivation to learn. De Rue, Ashford and Myer (2012) expanded this discussion noting any organisational culture which encourages individualism and narrowly assesses achievement (e.g. individual performance), will influence a behaviour consistent with "being right" and "looking right". Thus, there are facets of organisational culture beyond punitiveness which will impact learning agility. For example, the degree in which learning is encouraged, advocated and supported within an organisation could help to influence an individual's underlying ability to become an agile learner, thus promoting greater demonstration of learning agility within the organisation.

In summary, it is clear there are a number of proximal factors from the nomological network of learning agility from a contextual & environmental viewpoint. However, as to what impact they have in influencing the relationship between learning agility and performance is still uncertain.

Hypothesis 4: Psychological safety is positively associated with learning agility. Those individuals with higher perceived psychological safety are more likely to be associated with higher learning agility.

Learning agility in career success (performance) and career advancement (potential)

Researchers estimate the base rate of managerial incompetence within organisations ranges from 30% to 75%, with a recent study estimating the average at 50% (DeVries & Kaiser, 2003; Hogan and Kaiser, 2005; Hogan, Hogan and Kaiser, 2011). Furthermore, in their seminal and widely cited work Smart (1999) estimated the cost of a failed executive to be as high as $2.7 million. Compounding this, the time co-workers spend educating and enabling a new hire, can easily cost between 93 - 200% of the departing hires salary (Cascio & Boudreau, 2010). Considering the length of time since these figures were reported, coupled with the pace of change, escalation of executive salaries and smaller talent

pools it is easy to assume that this figure has grown considerably. De Meuse (2017) suggests "the hidden costs of failed leadership in the form of undelivered business objectives, lost customers, and disengaged employees are nearly impossible to calculate". Bentz (1985) pioneered research in the area of managerial incompetence in a study of failed managers at Sears during the 1970's, findings of which were echoed McCall and Lombardo's (1983) study on why and how successful executives become derailed; 1) inability to change (an early strength becomes a weakness) 2) poor interpersonal skills (inability to work with others) and 3) uncontrollable circumstances (bad luck) . Leslie and Van Velsor (1996) summarized the causes of failed managers in four broad areas; (1) poor interpersonal skills, (2) unable to deliver on objectives (3) unable to build a team and (4) unable to make the transition following a promotion. Interestingly, in Bentz's (1985) original research it was found that the failed mangers were uniformly bright and socially skilled, however "were slow to learn" which touches on all four areas summarized by Leslie and Van Velsor (1996). A growing consensus among scholars is that leadership typically involves a multifaceted, complex combination of behavioural cognitive abilities and social skills that may develop at different rates and require different learning experiences (Mumford et al., 2000; Zaccaro & Klimoski, 2002; Day, Zaccaro & Halpin, 2004; Lord & Hall, 2005).

Different scholars and researchers have given the ability to learn from experience different names: learning from mistakes, ability to learn, learning orientation, openness to learning, and learning agility. Irrespective of nomenclature used, research and industry practitioners contend individuals who are more skilled at learning from experience achieve higher performance in their role and have greater potential for career advancement (Spreitzer, McCall & Mahoney, 1997; Eichinger & Lombardo, 2004; De Meuse, 2017). The question remains, how do organisations identify and nurture the skill in order to realise the beneficial outcomes related to a learning agile workforce.

Learning as a key to career success

De Meuse (2017) conducted a meta-analysis of 19 field studies investigating the empirical linkage between learning agility and leader success. The 19 field studies contained an extensive and rich search of the existing literature (PsycINFO, ProQuest, and Google Scholar databases). Notably, at an aggregate level across the studies, there was a mixture of roles, positions and sample sizes of participants (n=4,863) and instruments (i.e. viaEDGE, TALENTx7, Burke learning agility Inventory and Prospector) used to measure learning agility and leader success. The breakdown of participants was 68% (n = 3,294) identifying as managers or executives and 3% (n = 138) as individual contributors and 29% (n = 1,431) identifying as both managers and nonmanagers. A variety of criteria are used to determine leader

success, including current performance and/or potential rating. De Meuse (2017) discovered a robust relationship between both leader's performance (r = 0.47) and leader potential (r = 0.48).

Furthermore, De Meuse (2017) suggests a number of emerging themes from the investigation, including (a) scholarly and practitioner research supports that learning from experience, experimentation, reflection, flexibility, resiliency, responsiveness to feedback and strong interpersonal skills are important for successful role transition; (b) learning agility can be, and has been, measured using a variety of methods and assessments; and (c) there is clear hard and soft data to empirically support the relationship between learning agility and leader success.

While De Meuse's (2017) research provides a much needed impartial and scientific lens into the evaluation of the merit of learning agility, it also asserts several issues which make the scientific study and application of learning agility somewhat challenging. One such challenge, is identifying whether learning agility is required for all positions within a workforce. For example, is it more applicable to individual contributors, rather than leaders, or technical roles (i.e. account, data scientist) as opposed to non-technical roles (i.e. sales) (De Meuse, 2017). Furthermore, De Meuse, Dai and Marshall (2012) cited in De Meuse (2019) discovered that when investigating the relationship between learning agility and performance, within two small sample groups, one of engineers (n = 19), a weak positive correlation (r = 0.12), while for the second of project managers (n= 17), a positive correlation (r = .35) was found. With organisations becoming flatter in hierarchy, increasingly limited opportunities, along with the fallacy that all employees naturally want to become managers and climb the corporate ladder it is not difficult to argue that learning agility may not be as relevant in some roles where risk taking, experimenting and career drive are not as prevalent (i.e. technical jobs). Additionally, studies have shown that the ability to learn from experience is a differentiating attribute between successful and unsuccessful managers (De Meuse, 2017), exemplified by Goldsmith (2010) who is widely cited as advising leaders "what got you here won't get you there". As leaders climb the organisational ladder, new competencies are required for success in role and former, perhaps critical competencies, often become impediments (Goldsmith, 2010; Charan et al., 2001; Benjamin & O'Reilly, 2011).

Learning agility and career advancement

Derailment

An alternative lens when contemplating the relationship of learning from experience and career success, Van Velsor and Leslie (1995), wrote about executive derailment, and Peter and Hull elucidated the Peter Principle (i.e. being promoted to a level of incompetency) (Peter and Hull 1969). Derailment refers to

leaders who enjoyed much success up to a point in their career within an organisation but unintentionally fail. Derailment is a metaphor of the "train coming off the tracks", which in an individual's career may result in demotion or termination, plateauing (being "left on the vine") or being forced into early retirement (Van Velsor and Leslie, 1995; Hogan et al., 2010; Inyang, 2013). Van Velsor and Leslie's (1995) much cited work in the area was a qualitative investigation into American and European managers which highlighted the four enduring themes of derailment; (1) poor interpersonal skills, (2) unable to deliver on objectives (3) unable to build a team and (4) unable to make the transition following a promotion. Of particular note, similar to Bentz's (1985) original research, almost "two thirds of managers…. who derailed were reported as being unable to change or adapt" (Van Velsor and Leslie, 1995, p. 68). This is but one important attribute of derailment and it could be argued that failure to adapt during a transition supports the clear need for learning agility within individuals.

While Van Velsor and Leslie's (1995) work is pertinent and has had clear influence on illuminating leadership derailment and failure, the study lacks detail. The study's publication was within the Academy of Management Executive, which is a well-regarded industry publication rather than scholarly journal and therefore may lack academic rigor (Bedford, 2011). An example is that only high-level information is provided on the sample, methods (i.e. how the interviews were conducted) along with the results analysis. Additionally, with the objective to identify whether the derailment themes identified in 1980's where still relevant in the mid-1990's, there are concerns as to how much this may have influenced motivations and supported unconscious biases. Supporting this is the fact that while their findings were consistent with earlier research, no additional derailer concepts where identified. Notwithstanding the lack of research within the area their findings have been generally accepted by scholars and practitioners (Hogan et al., 2010).

Despite these limitations, this study is consistent with earlier research on the derailment phenomenon which has received scant treatment within academic literature therefore leading to very limited understanding of the topic (Inyang, 2013). Eichinger, Dai and Tang (2009, p. 25) argue that "derailment is mostly fuelled by a lack of emotional intelligence and learning agility". This supports the assertation from a number of scholars that learning agility is a critical factor in navigating career transitions and advancing within the organisation (e.g. Spreitzer et al., 1997; Eichinger & Lombardo, 2004).

Performance and the Peter Principle

While derailment refers to an individual's ability to change or adapt during career transitions, the peter principle refers to an organisations perspective on promotion decisions. The Peter Principle applies broadly to the concept that skills which ensured success at one level of an organisation may differ from those at another level (i.e. engineering academia or entrepreneurship (Baker, Jensen Murphy, 1988). The term was first coined by Laurence Peter (Peter & Hull, 1969) who hypothesised that organisations prioritize current performance in promotion decisions at the expense of potential. This in turn leads to individuals within a hierarchy tending to rise to their "level of incompetence". For example, a competent school teacher may go on to make competent assistant principal, but an incompetent principal.

Benson, Li and Shue (2019) investigated promotions of sales workers (n = 38,483), 1,553 who were promoted to managerial roles across a large number of firms (n = 131). Their empirical findings are consistent with the Peter Principle, "illustrating that firms prioritize current performance in promotion decisions at the expensive of other observable characteristics which better predict managerial performance" (i.e. collaboration) (Benson, Li and Shue, 2019, p. 2085). Notably, Benson, Li and Shue's (2019) findings indicate that promoting people on current performance decreases their subordinates' performance by 30%. In summary, Benson, Li and Shue (2019) found that high performing sales workers had a higher probability of promotion. However, once promoted these sales workers had higher probability of performing poorly as sales managers, leading to considerable cost to the business (Benson, Li & Shue, 2019). Pluchino, Rapisarda and Garofalo (2010) adopted a different approach to testing the Peter Principal using game theory. Using a computer-based simulation, based on overriding criteria of employee promotion is selected on the strongest performers in their current position, and the level of competency in the promoted role was not depend on that of the previous role the Peter Principal was proven to be unavoidable (Pluchino, Rapisarda and Garofalo, 2010). In contrast, Pluchino, Rapisarda and Garofalo (2010) discovered that the optimal way to improve efficiency in an organisation is to promote employees randomly, or to shortlist the best and worst performers in any given group, from which the person to be promoted is then selected randomly. While performance is important within role, it is no guarantee of success within the next role and supports the suggestion, among scholars, that learning agility is a critical attribute in navigating career advancements and transitions within an organisation successfully (Spreitzer, McCall and Mahoney, 1997; Eichinger & Lombardo, 2004).

Chapter 3 - Research Methodology

Following a review of the literature, this methodology chapter outlines the most appropriate approach to investigate the proposed hypothesis. The chapter is broken into three sections. The first section examines what research is and identifies multiple paradigms, before exploring the philosophical assumptions related to this research inquiry. The second section looks at the conceptual and practical considerations for the research design adopted to investigate the research questions. A brief review is undertaken on the instrument development, data collection and phased analysis undertaken. The final section examines the ethical considerations, potential areas of concern and precautions taken.

Research, philosophical assumptions and research paradigms

What is research?

Research is one means by which people seek to comprehend their environment, understand a phenomenon, or solve a problem through reasoning, resulting in the creation of knowledge (Cohen, Manion and Morrison, 2011, p. 4). An approach to conduct research was first identified by Thomas Kuhn (1970) in his salient work, coining the term "paradigm", which was supported by a community of scholars. Years later some scholars have favoured the term "worldview" (i.e. Creswell and Clark, 2011). Scholars differ on its meaning, with Masterson (1970) cited as one the first academics to identify twenty-one different meanings of the term in Kuhn's ground-breaking work, 'The Structure of Scientific Revolutions' (Morgan, 2007, p. 50; Guba, 1990, p. 17). Morgan (2007, p. 51) more recently identified four basic versions of the concept; worldviews, epistemological stances, shared beliefs in a research field and model examples. Morgan (2007, p. 51) defines a paradigm as "shared belief systems that influence the kinds of knowledge researchers seek and how they interpret the evidence they collect".

A 'belief system' is one area of consensus among scholars. Guba and Lincoln (1994, p. 105) define a belief system as "the basic belief system or worldview that guides the investigator, not only in choice of method but in ontologically and epistemologically fundamental ways". Johnson and Onwuegbuzie (2004, p. 24) expand further, explaining that these beliefs "include, but are not limited to, ontological beliefs, epistemological beliefs, axiological beliefs, aesthetic beliefs and methodological beliefs". Each of these beliefs are linked and influenced by its predecessor and are the starting point for research, "determining what inquiry is and how it is to be practiced" (Creswell and Clark, 2011, p. 42; Guba, 1990, p. 18).

Paradigms

Creswell and Clark (2011) offer four research paradigms in relation to their associated language as a general philosophical orientation to research, while echoing Crotty's (1998) view that these stances are not "watertight compartments" and can be combined or used individually.

Table 3.0 Framing research within philosophy (Adapted from Lather 1992; Guba and Lincoln 1989; 2005; Creswell and Clark 2011)

Paradigm	Postpositivist	Constructivist	Transformative / Participatory	Pragmatist
Terminology often associated with paradigm	Experimental Quasi-experimental Correlational Causal comparative Quantitative Randomised control trails	Naturalistic Phenomenological Hermeneutic Symbolic interaction Ethnographic Qualitative Participatory action research	Critical theory Neo-Marxist Feminist theories Critical race theory Freirean Participatory Emancipatory Postcolonial/indigenous Queer theory Disability theories Action research	Mixed methods Mixed models Participatory
Nature of knowledge	Determination	Understanding	Political	Consequences of actions
Approach	Reductionism	Multiple participant meanings	Empowerment and issues oriented	Problem cantered
Knowledge accumulation	Empirical observation and measurement	Social and historical construction	Collaborative	Pluralistic
Inquiry aim	Theory verification	Theory generation	Change orientated	Real-world practice

Creswell and Clark (2011) offer further insights and paradigm elements of each paradigm along with implications for practice. These are discussed in detail below.

Table 3.1 Elements of paradigms and implications for practice (Adapted from Guba and Lincoln (1994; 2005); Morgan (2007); and Creswell and Clark 2011)

Paradigm Element	Postpositivist	Constructivist	Transformative / Participatory	Pragmatist
Ontology (What is the nature of reality?)	One reality; knowable within a specified level of probability Singular reality (e.g., researchers reject or fail to reject hypotheses)	Multiple, socially constructed realities Multiple realities (e.g. researchers provide quotes to illustrate different perspectives)	Rejects cultural relativism; recognises that various versions of reality are based on social positioning; conscious recognition of consequences of privileging versions of relativity Political reality (e.g. findings are negotiated with participants)	Asserts that there is single reality that all individuals have their own unique interpretation of reality Singular and multiple realities (e.g., researchers test hypotheses and provide multiple perspectives)
Epistemology (Nature of knowledge; relation between knower and would-be known/ What is the relationship between the researcher and that being researched?)	Objectivity is important; the researcher manipulates and observes in a dispassionate, objective manner Distance and impartiality (e.g., researchers objectively collect data on instruments)	Interactive link between researcher and participants; values are made explicit; created findings Closeness (e.g., researchers visit participants at their sites to collect data)	Interactive link between researcher and participants; knowledge is socially and historically situated; need to address issues of power and trust Collaboration (e.g. researchers actively involve participants as collaborators	Relationships in research are determined by what the researcher deems as appropriate to that particular study Practicality (e.g. researchers collect data by "what works" to address research question)
Axiology (Nature of ethical behaviour / What is the role of values?)	Respect privacy; informed consent; minimize harm (beneficence); justice/equal opportunity	Balanced representation of views; raise participants' awareness; community rapport	Respect for cultural norms; beneficence is defined in terms of the promotion of human	Gain knowledge in pursuit of desired ends as influenced by the researcher's values and politics Multiple stances (e.g. researchers

| | Unbiased (e.g., researchers use checks to eliminate bias) | Biased (e.g., researchers actively talk about their biases and interpretations) | rights and increase in social justice; reciprocity

Negotiated (e.g., researchers negotiate their biases with participants | include both biased and unbiased perspectives) |
|---|---|---|---|---|
| **Methodology (Approach to systematic inquiry / What is the process of research?)** | Quantitative (primarily); interventionist; decontextualized

Deductive (e.g., researchers test on a priori theory) | Qualitative (primarily); hermeneutical; dialectical; contextual factors are described

Inductive (e.g., researchers start with participants views and build "up" to patterns, theories, and generalisations) | Qualitative (dialogic), but quantitative and mixed methods can be used; contextual and historical factors are described, especially as they relate to oppression

Participatory (e.g., researchers involve participants in all stages of the research and engage in cyclical reviews of results) | Match methods to specific questions and purposes of research; mixed methods can be used as researcher works back and forth between various approaches.

Combining (e.g., researchers collect both quantitative and qualitative data and mix them) |
| **Rhetoric (What is the language of research?)** | Formal style (e.g., researchers use agreed-on definitions of variables) | Informal style (e.g., researchers write in a literary, informal style) | Advocacy and change (e.g., researchers use language that will help bring about change and advocate for participants) | Formal or informal (e.g., researchers may employ both formal and informal styles of writing) |

Ontology

Ontology beliefs relate to the "nature of reality and its characteristics" and how these beliefs relate external to individuals or are conceived within their internal consciousness (Creswell, 2013, p. 20; Cohen, Manion and Morrison, 2011, p. 5; Morgan, 2007, p. 57). Cohen, Manion and Morrison (2011, p. 5) expand with a compelling question on perspective, "is it a given "out there" in the world, or is it created by one's own mind?". An example would be an organisation's culture, its ideas, customs and social behaviour, which offer power of influence upon those who work within it. The question framed within this sense, is whether the organisation's culture is external to employees and which employees have no control over, or is it indeed the employees, ever changing with the organisation, which refine and evolve the culture, thus ensuring it is in a state of constant modification? (Bryman, 2016, p. 4).

The underlying assumption for this research inquiry concurs with Creswell and Clark's (2011, p. 41) views of reality as "both singular (e.g. there may be a theory that operates to explain the phenomenon of study) as well as multiple (e.g. it is important to assess varied individual input into the nature of the phenomenon as well)".

Epistemology

Epistemology relates to "the very basis of knowledge, its nature and forms, how it can be acquired, and how it is communicated to other human beings" (Cohen, Manion and Morrison, 2011, p. 6). Creswell (2013, p. 20) advises it is "what counts as knowledge and how knowledge claims are justified". Consequently, while ontology assumptions question the ways of constructing reality, epistemology assumptions question different forms of knowledge of that reality, along with the relationship between the researcher and the phenomenon. The underlying assumption for this research concurs with Creswell and Clark's (2011, p. 41) views of practicality, "that is the researcher collects data by "what works" to address the research question".

Axiology

Morgan (2014, p. 1050) states, axiology means being cognisant of our values, attitudes, and biases and acknowledging how these might play out in research praxis in terms of (a) what questions are asked or not asked in the research, (b) what type of data is or is not collected, and (c) the type of methods, measures, analysis and interpretation that shape understanding or the research process. Based on these components, significant consideration has to be given for the business environment, in which this research inquiry is to be conducted, is one that is Volatile, Uncertain, Complex and has high degrees of Ambiguity (VUCA) and fast changing (Bennett & Lemoine, 2014).

Consequently, with this backdrop and having given strong consideration to ontological, epistemological and axiology, the researcher came to four conclusions; (i) sellers day to day lives, as they interact with the environment, are constantly evolving towards a larger truth, (ii) there is a strong link between Technologyco and seller's social and physiological development (iii) a strong degree of flexibility within the chosen approach was required, (iv) within the Technologyco environment knowledge is both constructed and based on the reality of the world we live in. These conclusions suggested pragmatism as the most suitable approach which is supported further by the discussion below.

Philosophical assumptions / research paradigms

In relation to the research questions for this inquiry, an exploration of each of the paradigms (participatory, constructivist postpositivist, pragmatist) will follow with more detail as each has particular relevance to the rationale employed in determining the research method.

Firstly, the participatory paradigm, also referred to as the transformative approach (Creswell, 2014), often seen within action research and popular in certain social science areas (Bryman, 2016), is an approach that emphasises participation and action in a society. Researchers within this paradigm set an action agenda for reform that may change the lives of participants and the researcher and the organisations or institutions in which they work and live (Creswell, 2014). The participatory paradigm is rejected on the grounds that a desired outcome is change within the social world, supported by empowerment of marginalized groups and the researcher collaborating with individuals within the marginalized groups. This research is not attempting to change Technologyco sales workforce performance and their relationship with learning; it is attempting to understand it, through the lived experiences of the sales workforce tasked with achieving this sales performance.

Secondly, constructivism is characterised by the researcher seeking "understanding and meaning of phenomena, formed through participants and their subjective views" (Creswell and Clark, 2011, p. 40). The constructivism paradigm is aligned in the belief of uniqueness of human beings, their social interactions with one another, and their experiences within the social world (Crotty, 1998; Creswell and Clark, 2011; Creswell, 2014). Thus, starting with a "bottom up" approach to research, inquiry begins with individual perspectives and sharing broad themes leading to broad understandings (Creswell and Clark (2011). The objective is to generate or inductively develop a theory or pattern of meaning rather than the theory being the starting point (as with postpositivism) (Creswell, 2014). The researcher subscribes to the view that multiple realities exist and are sociopsychological and provide rich insights (Creswell, 2014). In other words, each individual generates their own reality based on their contexts

and values, which form how they interpret their world. While the constructivist paradigm has many benefits, within the context of this research it is the position of the author that it is not the most appropriate paradigm as this research aims to prove or disprove theories as opposed to generating theories.

Thirdly, postpositivism is characterised as a deterministic approach in which causes determine effects or outcomes and is often associated with quantitative approaches (Creswell and Clark, 2011). There is a focus on reductionism, by reducing and focusing on selected variables which interrelate (i.e. hypotheses), while collecting detailed observations and measures of the objective reality which is "out there" in the world (Creswell and Clarke, 2011; Creswell, 2014). Additionally, postpositivism asserts that absolute truth can never be found, thus theory testing is continually refined (Slife, Williams and Williams, 1995; Phillips, Phillips and Burbules, 2000; Creswell and Clarke 2011; Creswell 2014). In principle, the researcher discounts the use of the postpositivist paradigm for this research inquiry in view of the fact that philosophically, it rejects the existence of multiple realities (Guba and Lincoln, 1994), thus by extension the belief that Technologyco sales workforce's lived experiences provide rich insights and are contextual and socio-psychologically constructed.

Finally, pragmatism, focuses on "the consequences of research, on the primary importance of the question asked rather than the methods, and on the use of multiple methods of data collection to inform the problems under study" (Creswell and Clark, 2011, p. 41). James (1995) cited in Johnson and Onwuegbuzie (2004, p 17) advise "the pragmatic method is primarily a method of settling metaphysical disputes that otherwise might be interminable… the pragmatic method in such cases is to try to interpret each notion by tracing its respective practical consequences". Dewey (1948) cited in Johnson and Onwuegbuzie (2004, p. 17) expands on this by stating "in order to discover the meaning of the idea [we must] ask for its consequences". It is from this perspective the researcher sees learning (metaphysical and interminable) among the sales workforce within Technologyco impacting performance (practical consequences), for both the seller and the environment which are inextricably interlinked.

Fundamental to Dewey's (1948) reasoning, was the concept of experience, in that "beliefs must be interpreted to generate action, and actions must be interpreted to generate beliefs" (Morgan, 2014, p. 1046). The researcher has rejected both a postpositivist claim that the world exists apart from our understanding it, and the constructivist's claim that the world is created by our conceptions of it, in favour of Dewey's position, both nature and human experience are equally important and interlinked,

two sides of the same coin (Greene, 2007, p. 84; Morgan, 2014, p. 1048). Creswell (2011, p. 41) advises "the pragmatist views reality as both singular (e.g. there may be a theory that operates to explain the phenomenon of study), as well as multiple (e.g. it is important to assess varied individual input into the nature of the phenomenon as well).

Pragmatic research approach

Having determined the pragmatic research approach for this research inquiry, the following section identifies the various research approaches for this paradigm. Table 3.2 below outlines a pragmatic alternative to key issues within the research methodology.

Table 3.2 A pragmatic approach (Morgan, 2007, p. 71)

	Qualitative Approach	Quantitative Approach	Pragmatic Approach
Connection of theory and data	Induction	Deduction	Abduction
Relationship to research process	Subjectivity	Objectivity	Intersubjectivity
Inference from data	Context	Generality	Transferability

Additionally, the researcher, with this focus on abduction, contends to "further a process of inquiry that evaluates the results of prior inductions through their ability to predict the workability of future lines of behaviour" (Morgan, 2014, p. 71). The researcher aims to use a pragmatism paradigm of which a "fusion of approaches" is a characteristic (Denscombe, 2008, p. 273).

Johnson, Onwuegbuzie and Turner (2007, p. 125) expand further by advising that pragmatism offers "an epistemological justification and logic for mixed approaches and methods". Thus, pragmatism is the approach adopted in response to this research context. The fast moving, VUCA nature of the sales organisation has implications for the researcher due to the context being unstable from a research point of view. The associated language, real world practices, outcomes of action, mixed methods suggest an element of adaptability to real world situations. In order to mitigate organisational and market shifts, prudence suggests building an element of flexibility into the research design, enabled by the adoption of the pragmatic paradigm.

Criticism of pragmatism

Pragmatism, like all research paradigms has its critics, not least due to its origins in American philosophy according to Schwandt (2001), cited in Patton (2015), and its focus on "what works" (Patton, 2015, p. 155). Morgan (2014, p 1051) draws on the work John Dewey, advocating that in the pursuit of research,

pragmatism "points to the importance of joining beliefs and actions in a process of inquiry that underlies any search for knowledge". Denzin (2012) and Howe (1988) expand by advocating that in neither practice nor epistemology, quantitative or qualitative methods display incompatibilities, thus there is no argument as to why educational researchers should fear forging ahead with "what works". However, it is this characteristic of a pragmatic approach, that is often criticised by purists (Johnson & Onwuegbuzie, 2004; Morgan, 2014). Tashakkori and Teddlie (2010, p. 274) provide a useful analogy of being stuck in the woods, rather than ignoring or throwing away any available instruments (i.e. compass, flash light or phone), the more and diverse a set of tools you have the better your chances or navigating out of the woods, or truly answering your research questions.

An additional contentious point is pragmatisms failing to produce generalisable knowledge (Patton 2015, p. 155). Morgan (2007) argues the focus here should be on transferability, rather than on generalisability. It is a flawed assumption that an approach and researchers' methods make results "context bound" or "generalisable", rather a focus on circumstances and factors of influence within our investigation (i.e. culture or industry) should provide guidance on how our knowledge is transferable to new circumstances (Morgan, 2007, p. 72).

Another criticism levelled at the approach is that it produces "endless answers to never-ending problems" (Pawson, 2013, p. 72). Furthermore, the approach fails to answer the question, for whom is a pragmatic solution useful? (Mertens (2003) cited in Johnson and Onwuegbuzie, 2004, p. 19). Indeed, as Morgan (2007), outlines the actual process of moving between theory and data never operates only unidirectional. Importantly, the pursuit of desired ends, gaining knowledge along this journey is central to a pragmatic approach rather than the pursuit of abstract knowledge through "inquiry" only (Morgan, 2007, p. 70). Therefore, despite the criticism detailed above this approach remains the most appropriate approach to this research inquiry.

Research method

This section outlines the logic behind the decision of the research method which provides the framework upon which this inquiry is built.

Research question and objectives revisited

The objectives of this research are twofold, in the first instance the research must explore how learning agility within Technologyco sales workforce affects sales performance. Secondly, it is necessary to examine how learning agility within Technologyco sales workforce is influenced by psychological safe

climate within Technologyco along with relationship on learning consumption. In order to explore the multifaceted nature of these objectives, and to give structure to the research the following research questions are proposed:

1. Is learning agility correlated with performance? How does learning agility impact on performance?
2. Is learning agility correlated with contextual and environmental factors of psychological safe climate or learning consumption? What role do psychological safety and learning consumption play in learning agility?
3. What personality traits are associated with an enhanced ability to learn from experience? What role does personality traits play in learning from experience?

Research context

This research seeks to understand the construct of learning agility within Technologyco sales workforce. In addition, the research aims to bring to light both contextual and environmental factors related to learning agility within Technologyco.

Global organisations operating in market segments such as information technology, services and banking industries have inherent organisational characteristics which researchers must be cognisant of when choosing research methodologies. Daft (2014) describes organisations as entities within a diverse social system, striving to survive in an environment that is unpredictable and turbulent, where stakeholder demands for social and environmental responsibility are escalating, and where increasingly intense pressures to stay competitive drive strategy and leadership. In summary, and taken with this lens of organisation type, market segment and decision-making processes, the attributes of Technologyco sales organisation can be identified as;

- Fast moving and adaptive
- Engaged in extensive boundary spanning
- Numerous competitors
- Entrepreneurial spirit aligned to logical decision making, along with internal and external politics involved

Business decisions made in such organisations occur amid rapid change, and are based on context, time and operating environment. Considering this fast-changing environmental backdrop for the research,

building some element of flexibility into the research design by adopting a case study approach aligned to the pragmatism paradigm is prudent.

Stakeholders

Apart from the researcher, the Talent and Culture Leadership Team was a critical stakeholder in this inquiry. This team acted as the gatekeeper on the decision-making process on advocating or withholding support for the research or adopting any recommendations emerging from the research. Had the author proceeded via a purely postpositivist outlook to the inquiry, the ontological and epistemological assumptions of empiricisms where only one reality exists, considerations of the Talent and Culture Leadership Team's awareness, intersubjectivity and will would have been ignored.

The author recollects observing the collapse of many promising initiatives with the assumption of what leaders profess and undertake in isolation can be used as a predictor for how they might proceed as a team and vice versa. Thus, neglecting to observe feelings and interactions of the senior leadership could pose significant challenges to the research.

Profile of Technologyco sales workforce

The sales workforce within Technologyco operate within a VUCA environment, framed by a workplace characterised by *Blurred boundaries* both geographically and physically, be it country, region, global or virtual, an *Overload of work*, *Complexity* and technology *Addiction* (BOCA workplace) (Abel, Ray & Nair, 2016). Underpinning this environment and work landscape, sales makers preparation to sell, along with the mechanisms of a virtual team to support them within the sales cycle, become critical levers in their organisation's success and growth. The researcher aimed to survey approximately 352 sellers, both male and female, from a broad cross section of geographical regions, organisation sizes, operating in varying business environments and circumstances supporting a diverse customer base.

Participants / sample

Due to the nature of the research study, purposeful sampling was employed on the basis that the sales workforce within Technologyco are regarded as "knowledge people" by virtue of their professional roles, expertise and experience (Cohen, Manion and Morrison, 2011). Purposeful sampling is undertaken to achieve representativeness's and focus on learning agility within a sales audience. Furthermore, convenience sampling techniques were employed within the sales workforce based on audience availability and willingness to participate at the time (Onwuegbuzie and Leech, 2007). With limited access to sellers and research within this area within Technologyco, the research may be viewed

as suspicious due to the focus on the relationship to performance within the research question amongst the sample. As such, the researcher has reached out to several sales leaders globally, seen as "gatekeepers" to support and aid in the distribution of the survey instrument to their respective sales teams.

Research method selection

What is a Case Study?

Several influential authors offer some consensus on a case study method as an empirical inquiry that investigates a contemporary phenomenon, but opinions vary on its definition. Stake (1995, p. 2) advises, the case study "is a specific, complex, functioning thing" rather than a methodology. In contrast, Creswell (2014, p. 97) defines a case study as "real life, contemporary bounded system (a case) or systems (cases)". Verschuren (2003, p. 137) expands on this further by advising that the case study is "especially suitable for studying phenomena that are highly complex and/or embedded in their cultural context".   Yin (2013, p. 13) while broadly agreeing with Creswell, holds an opposite opinion on boundaries, defining a case study as an "empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident". It is this definition in which the researcher believes holds the most merit, in relation to the research question under investigation. Yin (2013, p. 19) goes further in identifying applications for the case study below,

- *Explain* the presumed causal links in real world interventions that are too complex for survey or experimental methods.
- *Describe* an intervention and the real-world context in which it occurred.
- *Illustrate* certain topics within an evaluation, again in a descriptive mode.
- *Enlighten* situations in which the intervention being evaluated has no clear, single set of outcomes.

(Yin, 2013, p. 19)

Traditional prejudices against Case Study critiqued and defended

Frequent criticisms of the case study methodology often centre around rigour and generalisability (Yin 2003; 2013). From a rigour perspective, some of the shortfalls identified are as a consequence of a case study researcher not following methical, systematic procedures, allowing the inclusion of ambiguous evidence or both conscious and unconscious bias to influence the orientation of findings and

conclusions (Yin 2003; 2013). An effective strategy to combat this, recommended by Yin (2003), is for the case study research to be guided by three principles for data collection (Yin 2003; 2013). Firstly, using multiple sources of evidence allows for the development of converging lines of inquiry supporting triangulation, while also mitigating against researcher bias (Yin 2003; 2013). Secondly, the creation of a case study database, separate to the investigator report, for documenting and organising the raw data collected for the case study (Yin 2003; 2013). Finally, maintain a "chain of evidence", a principal commonly used in forensic investigations, allowing any external observer to logically follow the derivation of any evidence in either direction from initial research question to conclusion, or vice versa.

A second common criticism of case study methodology is its dependence on a single case renders it incapable of scientific generalisation. Yin (1993) presented Gidden's view which judged case study methodology as "microscopic" because it "lacked a sufficient number" of cases. However, an outcome of the postpositivist concentration on generalisable research outcomes often results in rich seams of evidential data being discarded. The case study in its holistic view of multiple sources linked with converging lines of inquiry which can illustrate a rich tapestry of the event or phenomenon for the case report reader. Hamel et al. (1993) and Yin (1994) advise that the relative size of the sample, irrespective of cases used (i.e. two, ten or one hundred cases) does not transform a multiple case into a macroscopic study. The objective of the study should establish the parameters and boundaries, and these should be applied to all research within the case. Therefore, even a single case could be deemed acceptable, provided it met the established goal. Additionally, Yin (2003; 2013) strongly argued "case studies, like experiments, are generalisable to theoretical propositions and not to populations or universes" (Yin, 2013, p. 10).

In summary, the strength of the case study research approach is its ability to draw from a breadth of evidence to furnish an in dept explanation or description. Conversely, this breadth of evidential source material can prove problematic to the researcher as they must analyse and synthesis this often-unwieldy data to develop scholarly arguments. This piece of research will look at Technologyco as a case study in order to investigate the learning agility behaviour of the Technologyco sales workforce within the context of its use. Additionally, with convergent lines of inquiry, the investigation aims to explain the complexities of real-life situations of the Technologyco sales workforce.

Research context - organisation overview

For the purposes of the research, Technologyco is a pseudonym used for the company.   Technologyco is an America multinational technology company, whose headquarters are based in Texas, in the United

States. In 2016 Technologyco acquired Itco Corporation, another technology company in a $67 billion transaction, which was the largest technology acquisition in history, thus creating Technologyco. After six years trading as a private company, on February 1st, 2019 Technologyco made its return to become a publicly traded company by re-joining the New York Stock Exchange (NYSE). Technologyco reports quarterly earnings results in accordance to NYSE mandate.

Research participants

The Technologyco global sales population is approximately 27,000 sellers, made up of 106 different sales roles, supported by 3,200 global managers segmented by 49 different manager roles. The research participants within Technologyco is a mixture of both Individual Contributors and sales Leaders. The sales organisation from a customer perspective, can be viewed via two lenses, Inside sales and Outside sales. The focus of both is on business to business (B2B) customers, however, there are some noteworthy differences at a high level.

Inside sales' primary focus is the prospecting, nurturing and lead conversion to customers which takes place remotely, instead of face to face. Inside sales representatives primarily work in the office selling remotely, while Outside sales primarily work brokering face-to-face sales with customers. Typically, Inside sales involves leveraging tools such as phones, email, video, digital whiteboards and virtual meetings to connect with potential customers, while Outside sales will also include conferences, industry events and customer face to face meetings.

Inside sales schedule can be more predictable and often have a target for the number of activities they accomplish each day (e.g., number of calls, meetings booked, proposals sent). On the other hand, Outside sales will normally manage their own schedule, with workplace activities changing daily. Inside sales will normally have a more general view of the product and solution portfolio and are not required to have a deep technical understanding. They need to have the ability to explain the functionality and benefits, thus overall value of the product and solution offering to the customer, while Outside sales may be more specialist on products and solutions (i.e. the expectation may be to give an in-person demonstration or whiteboard a solution).

From a talent management pipeline perspective, the historical career ladder for sales roles would be to begin at Inside sales and then graduate to Outside sales where sales leaders often require individuals with more sales experience for the role. Both Inside and Outside sales can often be viewed as two sides of the same coin from a customer perspective, with internal collaboration critical to ensure one voice

and face for the customer. Historically, Inside sales would be viewed as a more transactional sales model identified by low-value deals and fast sales cycles. On the other hand, Outside sales can be viewed as a more relational face to face sales model, with higher value deals and long sales cycles.

Furthermore, within both Inside sales and Outside sales there is additional segmentation into Technical and Non-Technical sellers. At a very high level, while both Technical and Non-Technical sellers share many similarities, technical sellers' expertise within a sales cycle is normally specific to a core set of domain skills and knowledge in a particular subject area, product or solution set. Non-Technical sales, on the other hand, manage the sales opportunity throughout the duration of the sales cycle. Using an example, the Non-Technical sales representative is responsible for managing a potential sales opportunity, from qualifying the potential lead/customer to deal closure. The technical seller is normally requested to handle the technical portion of the sales opportunity which may include a deep technical white boarding session, demonstration and managing a proof of concept for the solution. Furthermore, the technical sales representative has the responsibility for getting the solution "technically closed", as in satisfying the wants and needs of the customer from a technical perspective. The Non-Technical sales representative is responsible for moving the opportunity to a complete closure (focusing on business value/price/deal structure/relationship etc.) resulting in a customer purchase order being submitted.

Conceptual framework used in the study

The following section outlines the conceptual framework used to investigate the research question and hypothesis. Figure 3.0 visually depicts each information source used throughout this process.

Figure 3.0 Conceptual framework – data gathering

Survey

Instrument design

A survey instrument is the primary data collection tool. The survey consists of a structured questionnaire with 66 fixed multiple-choice options for respondents (Saunders, Lewis and Thornhill, 2003). The questionnaire is designed to capture Technologyco sales workforce responses for a range of variables hypothesised within this inquiry. The variables are represented by scales that have been previously developed and validated in literature as outlined below. This survey enables the relationships between the variables to be tested in line with the research objective. A limitation of this data collection technique includes the inability to see additional relevant variables or relationships other than those included in the questionnaire.

Burke Learning Agility Instrument (BLAI)

A consequence of academia's absence from research on learning agility has been poor measurements of the construct based on assessments which have debatable validity (DeRue, Ashford and Myer, 2012). Thus, the identification of a proven measure of learning agility has been a key priority for this inquiry. A research team in Columbia University suggested that learning agility can be understood via a 38-item instrument, assessed using a 7-point Likert scale (1=Not at all to 7=Very frequently), assessing behavioural practices known as Burke Learning Agility Inventory (BLAI) (De Meuse, 2017; Drinka, 2018; Catenacci-Francois, 2018). The instrument, as outlined in table 3.4 below can be further described in two overarching behaviour dimensions, "learning" and "agility". More precisely, "learning" dimensions are measured via seven specific behaviours (collaborating, experimenting, feedback seeking, information seeking, interpersonal risk taking, performance risk taking and reflecting). Additionally, consistent with DeRue, Ashford and Myer (2012), "agility" dimensions, speed and flexibility are measured, as identified as two significant specific components of behaviour which influences an individual's learning agility capacity. Combined, these items constitute a measure of an individual's learning agility.

Table 3.3 Learning agility dimensions and definitions (Catenacci-Francois, 2018)

Learning Dimensions	Definition	Sample Item
Collaborating	The extent to which an individual tries to broker the learning process for others in his or her environment.	Ask a variety of stakeholders for their point of view.
Experimenting	The degree to which a person tries out new ideas or ways to get work done, usually through seeking out new information in the environment.	Jump into action and learn by trial and error.
Feedback seeking	The extent to which an individual solicits feedback about his or her performance.	Ask my peers to provide me with feedback on my performance.
Information seeking	The extent to which an individual continuously updates pre-existing knowledge with new information.	Seek new information on topics related to my job or field.
Interpersonal risk-taking	The extent to which a person admits failings, mistakes, and other issues on-the-job and tries to get help to right these issues.	Ask others for help when needed.
Performance risk taking	The degree to which a person places himself or herself in ambiguous situations and is unclear about the process or the outcome of the situation.	Take on new roles or assignments that are challenging.
Reflecting	The degree to which a person reflects on an experience—how something happened, why it happened, how the outcome could have been different, and how to make changes in the future.	Stop to reflect on work processes and projects

Agility Dimensions	Definition	Sample Item
Speed	The extent to which an individual is a "quick study" and is swift but not hasty while operating at his or her full potential.	Switch between different tasks or jobs as needed
Flexibility	The extent to which an individual displays adaptation, fluidity, resilience, the ability to bend under pressure, and the ability to switch between different modes of operating in his or her work.	Quickly develop solutions to problems

Since its inception, numerous research studies, both in practice and academia, have tested and confirmed the BLAI's reliability. For example, Burke (2018) advises BLAI's reliability (Cronbach's Alpha), structure and model fit (confirmatory factor analysis) were examined by testing a sample of mid-level managers (n = 393), in which, results indicated positive and moderate intercorrelations between the dimensions, illustrating while the scales are related they are also measuring unique dimensions. Thus, ensuring consistency with learning agility's theoretical underpinnings (Burke, 2018). Table 3.3 below summarizes the scale reliability (internal consistency) for each of the BLAI subscales.

Table 3.4 Burke Learning Agility Inventory (BLAI) scale summary; n=393 (Burke, 2018)

Scale	Item Count	Cronbach's Alpha
Flexibility	5	.81
Speed	5	.85
Experimenting	4	.85
Performance Risk-Taking	4	.88
Interpersonal Risk-Taking	4	.78
Collaborating	4	.88
Information Gathering	4	.81
Feedback Seeking	4	.87
Reflecting	4	.83

Furthermore, studies, exploring BLAI's construct validity, examined convergent correlational analysis and discriminant correlational analysis to test theoretically similar constructs (i.e. learning goal orientation) and unrelated constructs (i.e. risk aversion). While overlap was identified with learning goal orientation and openness to experience, they were also distinct, indicating convergent validity (Burke, 2018). As a result, utilising this instrument, the current inquiry aims to examine the aforementioned hypotheses and research questions using the BLAI.

Psychological safe climate

A moderator within this inquiry was organisational climate, as identified within DeRue, Ashford and Myer's (2012) Learning agility framework, thus is a measured variable. While organisational climate and psychological safety are generally regarded as separate constructs, in this inquiry both constructs were combined in an effort to explore the extent to which individuals' perceived Technologyco organisational climate as psychologically safe. The psychologically safe climate was measured using a subset of items (n = 18) from Garvin, Edmondson, and Gino's (2008) Learning Organisation Survey, and assessed using a 7-point Likert scale (1= Highly inaccurate to 7 = highly accurate). The original scale consisted of 56 items divided categorised into three subsections: 1) supportive learning environment, 2) concrete learning process and practices, and 3) leadership that reinforces learning. Given the focus of this inquiry was to investigate the extent in which an organisation's climate was perceived as psychologically safe, as this is a critical situational variable for creating a learning climate, items with a primary focus on a supportive learning environment where chosen. This subsection was built upon the following elements: psychological safety, valuing of differences, openness to new perspectives and time for reflection. A sample item is "in this unit, people are interested in better ways of doing things." The measure is based on an instrument by Edmondson (1999) which is widely used in research, and thus has been rigorously validated (Carmeli & Gittell, 2009; Madjar & Ortiz-Walters, 2009; Carmeli, Reiter-Palmon, & Ziv, 2010; Roussin & Webber, 2012; Roussin, MacLean & Rudolph 2016). Additionally, Newman, Donohue and Eva (2017) asserted Edmondson's assessment as the measure of choice among researchers within the psychological safety field due to its rigorous construction and extensive validation.

Table 3.5 Learning organisation (Garvin, Edmondson and Francesca, 2008)

Learning Organisation	
Building Block	**Distinguishing Characteristics (Employees)**
A Supportive learning environment	Feel safe disagreeing with others, asking naive questions, owning up to mistakes, and presenting minority viewpoints
	Recognize the value of opposing ideas
	Take risks and explore the unknown
	Take time to review organizational processes

Personality

The Ten-Item Personality Inventory (TIPI) (Gosling, Rentfrow, and Swann, 2003) is based on Goldberg's Big Five personality markers. It consists of ten pairs of adjectives (i.e. open to new experiences, complex) with two items for each of the Big Five measures. Although comparatively inferior to standard multi-item personality measures, personality within the context of this inquiry is not the primary topic of interest, thus it's use is to illuminate an indication of a supporting relationship between personality and Learning agility rather than an explanation of one. Gosling, Rentfrow & Swann (2003) postulate the instrument has reached acceptable levels in terms of test reliability and advocate for its use when researcher's time and space are in short supply and are faced with a choice of a brief measure of the Big Five personality traits rather than no measure at all. Additionally, Ehrhart et al. (2009) tested the latent factor structure and construct validity of the TIPI against a 50 item International Personality Item Pool (IPIP) Five-Factor Model (FFM) of personality and found favourable results in terms of structure and convergent validity.

Performance

From a performance perspective and supporting Technologyco mandate of quarterly earnings reports to the NYSE, an individual sellers' sales performance within Technologyco is measured in quarters. Sales performance is uniformly reported across the company using one percentage metric per individual seller, which is a representation of the sellers' sales quota or forecast in currency value, against the attainment of that quota (e.g. sales quota = $1 million, attainment = $700K, sales performance is 70%). Calculation using this method has been proven, by the Technologyco internal Sales Operations Team, to solve for any variance which may occur across variables (e.g. sales role types, account types, or geographies etc). Every seller within Technologyco receives a sales quota based on the historical data

spend of their given account base. As a result, this solves for variance by normalising across all variables (sales roles, account types, geographies etc.). Attainment for that sales representative is therefore relative to that account set, thus solving for variance. To put it another way, attainment is the percentage of a seller's goal that is achieved. The goal is the account set represented in dollar opportunity terms, has a quota based against that goal of which sales representatives are measured against. Every seller starts at the same place of zero in order to achieve their goal. Using this logic, one can then compare performance across sales roles, account sets, countries and regions as the goal takes all this variance into account.

Technologyco Sales University (learning consumption)

Learning consumption is captured for both Individual Contributors and Leaders in an internal learning ecosystem referred to as the Technologyco Sales University (TSU), which is available in seven languages (i.e. French, German, Chinese, Spanish, Brazilian Portuguese, Japanese and Korean). TSU offers the ability for team members in the Technologyco sales organisations to develop themselves in role based on their own flexibility and availability. TSU provides an 'always-on' model that allows for real-time access to assessments, reporting, and tailored learning paths for sellers and managers globally. It provides credential level guiding for sellers and managers to increase their levels of knowledge and expertise, with an agile course portfolio updated regularly in response to business needs. Figure 3.1 provides a screenshot of the TSU platform.

Figure 3.1 Technologyco Sales University platform
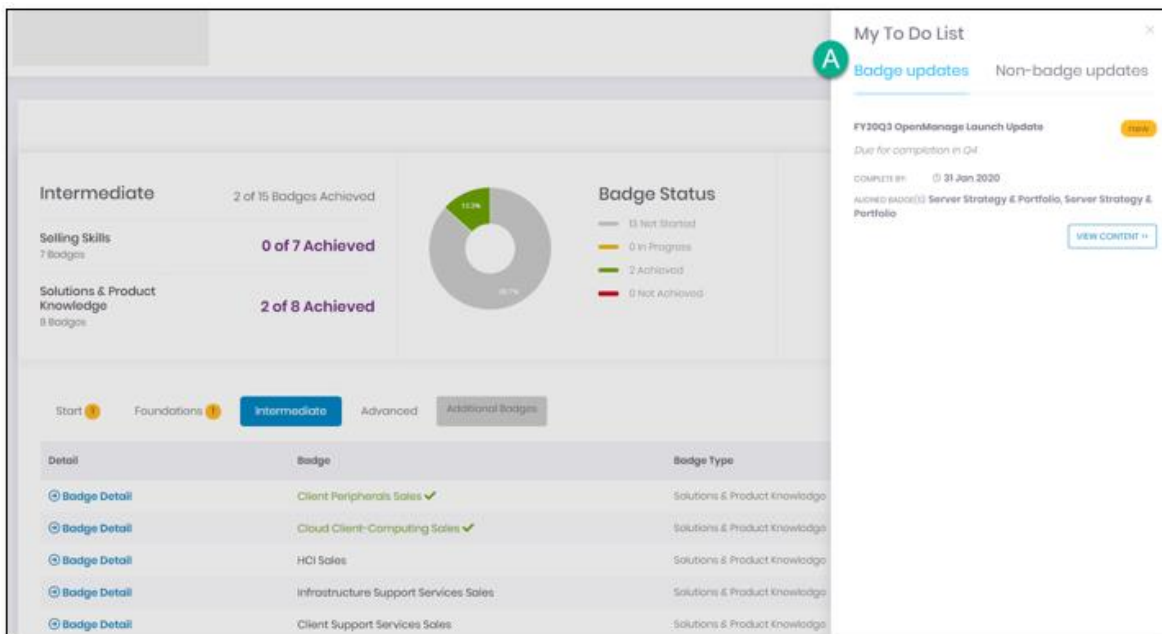
TSU is built upon a common industry taxonomy of skill acquisition following the "Dreyfus Model" (progression for beginner to expert) (Dreyfus and Dreyfus, 1980). Individuals progress through various levels of skill acquisition. From a TSU perspective, a number of courses are mapped to Individual Contributors and Leaders tailored to their role within the sales organisation collectively known as a badge. A collection of badges are required to achieve a credential level (i.e. foundations, intermediate and advanced). There are three different types of badges individuals can achieve, 1) Solutions and Product, 2) Selling Skills and 3) Leadership skills. For Solution and Product badges, individuals can take a quiz to progress to a new credential level if they feel they already have the necessary knowledge to pass. Alternatively, they may opt to peruse a learning path and successfully complete training courses aligned to that badge. For Skills badges individuals are required to complete a skills evaluation with their leader endorsing the badge upon success. However, if unsuccessful, the leader will prescribe a tailored learning path as an action plan to address development areas. Figure 3.2 shows an example breakdown of each badge type.

Figure 3.2 Technologyco Sales University badge breakdown
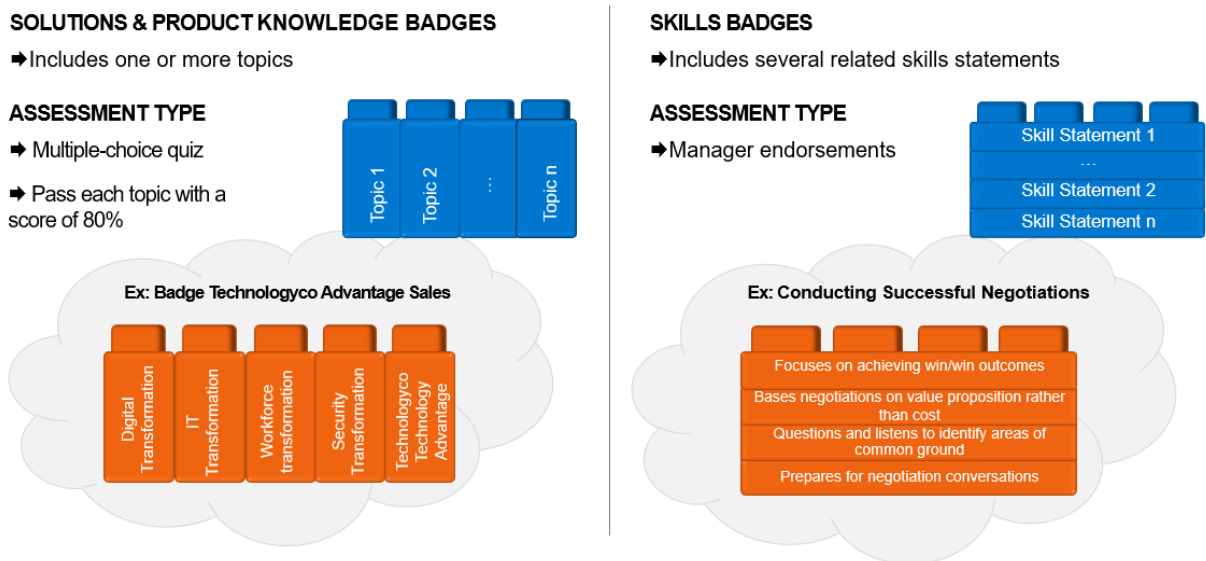
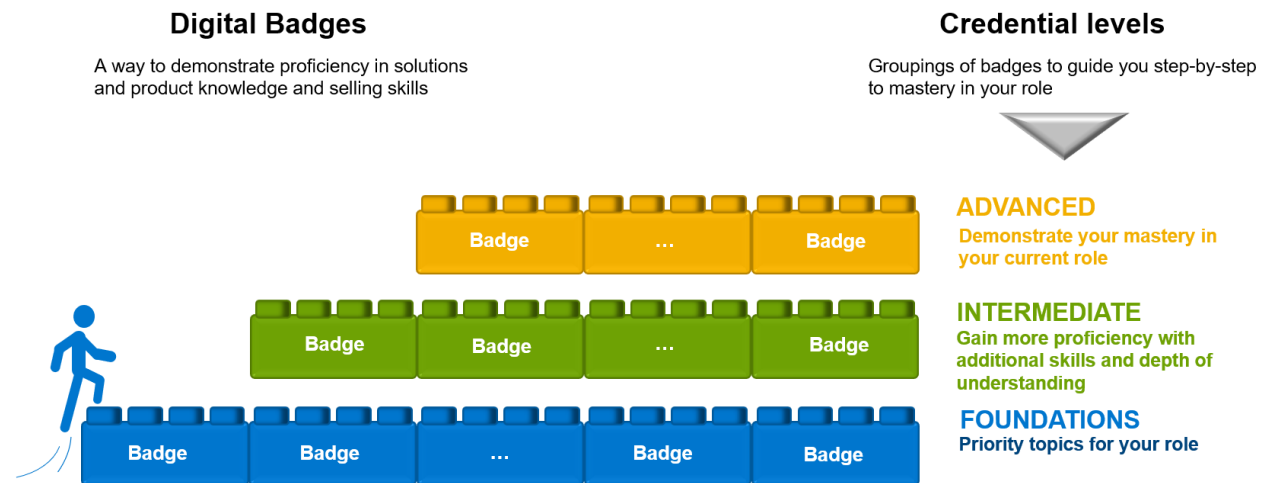Once an individual achieves the necessary badges they can then move to the next level credential level. The three credential levels within TSU are foundational, intermediate and advanced. Figure 3.3 below offers a graphical representation of the digital badge and credential levels.

Figure 3.3 Technologyco Sales University credential levels

Digital Badges

A way to demonstrate proficiency in solutions and product knowledge and selling skills

Credential levels

Groupings of badges to guide you step-by-step to mastery in your role

ADVANCED
Demonstrate your mastery in your current role

INTERMEDIATE
Gain more proficiency with additional skills and depth of understanding

FOUNDATIONS
Priority topics for your role

Pilot study

A pilot was conducted to trial the survey in order to identify any potential sources of error, as well as logistical barriers. Upon creation of the survey instrument within Qualtrics, a small pilot group (n=10) was used test the survey. The pilot informed some survey improvements, resulting in the format of the survey and the language used changing between the pilot and the main study. The pilot also provided clarification to the logistical process required to administer the survey, with minor changes (e.g. force response and default survey termination) implemented. This process was critical to ensuring an acceptable response rate for the main study.

Distribution of the questionnaire

Data collection occurred in January – February 2020, via a Qualtrics survey link (survey can be found in appendices) and takes participants approximately 10 minutes to complete. In order to meet the sample size requirement and achieve global representation, the survey was sent out to Technologyco sales leaders in various sales locations globally, representing all three regions (Europe, Middle East and Africa (EMEA), Asia, Pacific and Japan (APJ) and the Americas), who encouraged their teams of sellers to respond to the survey. Concerns regarding the use of sales leaders to support the distribution of the survey were mitigated by the voluntary nature of participation, along with the confidentiality of pseudo anonymised information of participates. A cause for concern is the national cultural variation that exists (Hofstede, 1980). However, given the phenomena of interest in this inquiry is driven at an individual level it is argued that this variation does not hinder the hypothesis investigation. Once the survey was completed, the raw data was then handed over to the Technologyco People Insights team to pseudo

anonymise with sellers' performance data for the Technologyco financial year FY21 (February 1st, 2019 – January 31st, 2020), along with relevant demographic data.

Response rate

The final data set included 165 seller surveys, representing an approximate 49% participation rate amongst all Technologyco sales workforce targeted within this research. The researcher was cognisant of Technologyco' s end of quarter, and end of year for sellers along with potential survey saturation amongst the sample group with separate survey feedback being sought in the final two weeks of January to support Technologyco' s End of Year (EOY) performance review cycle of its workforce.

Data analysis

The next phase of the research is the analysis of responses using Statistical Package for Social Sciences (SPSS) and R statistical software. The diagram below in figure 3.4 outlines the model for analysis, testing the hypothesis outlined in this inquiry.

Figure 3.4 Hypotheses testing for learning agility

Descriptive analysis

The control variables in this inquiry are categorical in nature. A descriptive analysis of the categorical data provides information on sample demographics (e.g. frequency and proportion information about gender, age, tenure). Descriptive Analysis univariate analysis is concerned with measuring one variable at a time, in order to further understand the sample and data set (Bryman, 2016). Furthermore, descriptive analysis of variable data enables understanding of response distribution (e.g. range of responses across the Likert scale). In summary, descriptive analysis allows a perspective showcasing the variability of the inquiry, in terms of both Technologyco sales workforce demographics and the diversity in responses. Once this phase of analysis is complete, the next phase of multivariate analysis can begin in order to understand the relationships between multiple variables as outlined in the hypothesis.

Multivariant analysis

Principal components analysis

While the survey instrument is made up of a 66-item scale, the focus is not on the individual response to any single item, but rather the aggregation of these items into higher level variables, namely factors. The technique for this aggregation is called factor analysis, the purpose of which is twofold (Field, 2013):

1. Factor analysis allows us to understand the structure of a set of variables.
2. Factor analysis can be used to reduce a data set to a more manageable size, in order to aid hypothesis testing.

Principal Component Analysis (PCA) is the statistical technique for identifying clusters of variables, for factor analysis within this inquiry. This technique is one of the most popular and widely used methods applied by scholars in the literature. Each construct undergoes PCA using SPSS. The output of the PCA is used to convert the individual item score to a single variable for hypothesis testing.

Correlation

Following the extraction of relevant factors for inquiry, hypothesis testing could begin. The initial inquiry tests for all association between all of the variables in the inquiry, illustrating possible relationships between variables. Pearson's Correlation Coefficient, *r,* is the most common formula used and provides a measure of the strength of the relationship between two variables (Field, 2013).

Regression and mediation testing

Further exploration of the research question and objectives requires multivariant analysis as the hypotheses are concerned with the relationships between four independent variables; performance of the sales workforce, learning agility, psychological safe climate, and personality. Additionally, the inquiry wishes to explore the relationships of reciprocity related variables. Multiple regression analysis is the most widely used method for conducting such an analysis as it allows for the prediction of the value of a relationship across multiple variables. In order to test the direct effect hypothesis, the control variables are first regressed onto the dependant variable (i.e. performance), followed by the independent variables (i.e. Learning agility, psychological safe climate and personality). The output is illustrated in terms of the probability of a relationship not existing (p-value), thus used to determine the statistical significance of any association. The total variation explained by multiple regression is identified by the "adjusted R-squared" statistic.

Finally, the study conceptualises a relationship between learning agility (predictor variable) and performance (outcome variable), however a hypothesis contends that psychological safety may support in explaining this relationship, thereby becoming a mediator (third variable). Field (2013, p. 879) asserts, "perfect mediation occurs when the relationship between a predictor variable and an outcome variable can be completely explained by their relationships to a third variable". Thus, mediation is tested within the inquiry.

Figure 3.5 Basic mediation model (Field, 2013, p. 408)
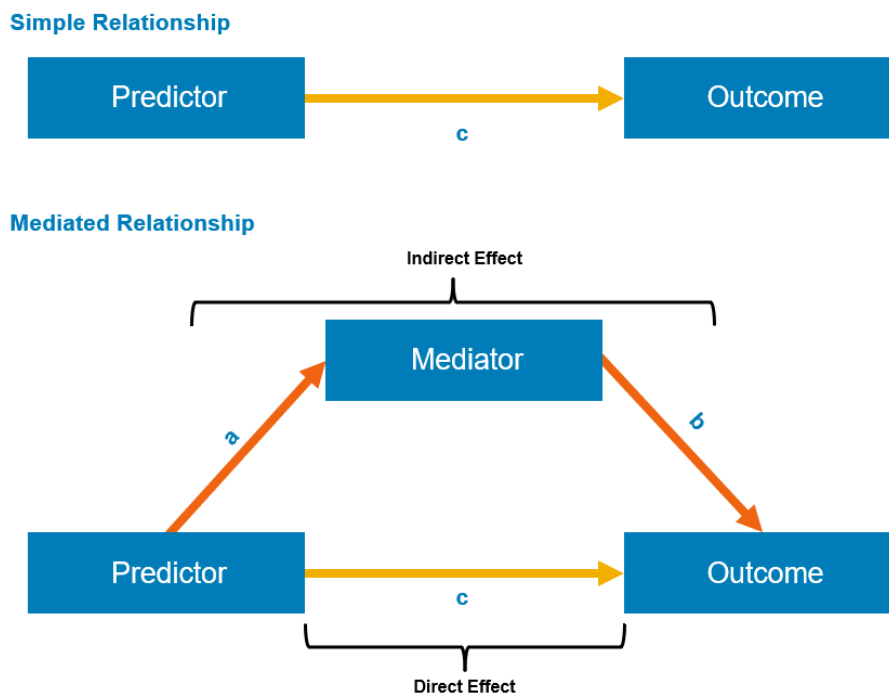
Ethical considerations

Ethical issues and precautions

Brannick and Coghlan (2007, p. 71) describe insider research as "research that is undertaken in and on their own organisation while a complete member", which in this context, means both having insider preunderstanding and access and wanting the choice to remain a member on a desired career path when the research is completed". This definition is reflective of the researcher's position as a permanent employee of the organisation under study.

Insider research is typically viewed as difficult, often disqualified due to the academic professions' perception of it not conforming to standards of intellectual rigor, for reasons including the insider researcher being too emotionally invested and having a personal stake, often being cited in the

literature (Anderson and Herr, 1999; Alvesson, 2003; Anderson, Herr and Nihlen, 2007; Brannick and Coghlan, 2007). The researcher addressed all of these concerns by ensuring strict adherence to both ethical standards (both Technologyco and DCU), along with adopting a pragmatic approach supported by the guidance of two supervisors.

Brannick and Coghlan (2007, p. 67) offer four headings under which to closer examine the significant challenges and benefits presented to the researcher as part of this study.

1. Access
2. Preunderstanding
3. Role duality
4. Organisational politics

Access:

Brannick and Coghlan (2007, p. 67) identify two types of access within the organisational system. Primary access referring to the ability for the researcher to gain access into the organisational system and being allowed to undertake research, while secondary access relates to access to documentation, data, people and meetings. The researcher, working in the role of Global Practice Lead for High Potential Solutions within the Talent and Culture Organisation secured both types of access from a Senior Vice President of Human Resources and the Technologyco Global Ethics team. The researcher is cognisant that once the research got underway a gap may appear between the aspiration toward the purity of the research and the organisation reality. Indeed, this is a natural reality of research in contributing to the academic community along with providing benefits to the organisation. Guidance has been sought on confidentiality, sensitivity to others and organisational politics from both the researcher's supervisor and one of the organisation's Senior Vice Presidents.

Preunderstanding:

Gummesson (2000, p. 57) defines preunderstanding as an individual's "knowledge, insights and experiences before they engage in a research programme". It is with this unique lens that the insider researcher can view theoretical understanding of organisational dynamics against their own lived experience within their own organisation (Brannick and Coughlan, 2007, p. 67). The numerous benefits of such preunderstanding include 1) tacit knowledge of the organisation's everyday life, 2) understanding of organisation language and jargon, 3) awareness of critical events and what they mean to the organisation, and 4) the ability to obtain richer interview data via member categorisation (i.e. a

member of the organisation) (Brannick and Coughlan, 2007, p. 69). On the reverse, the disadvantages can stem from being too close to the data, (i.e. member categorisation can lead to less probing). Critically, due to the insider researcher's position within the organisation they may not get access to certain information from a different department or function which may be available if they were an outsider researcher (Brannick and Coughlan, 2007, p. 69). In relation to this research inquiry, special care and attention was paid to "gatekeepers" and intermediaries during the course of the research, along with significant practicing of data collection instruments prior to the undertaking as recommended by Fitz and Halpin (2013) and McHugh (1994).

Role duality:

Frequently, insider researchers find it challenging when they supplement their normal organisational membership role with that of a researcher within the organisation. Common among these challenges are role conflicts, loyalty tugs, behavioural claims and identification dilemmas (Brannick and Coughlan 2007, p. 70). Consequently, role duality can affect relationships with organisational members (Alder & Alder, 1987). The flexibility offered to the researcher in taking a pragmatic approach to this research, supported by the case study method should mitigate some of the concerns with role duality. Additionally, within the case study method, the researcher adhered Yin's three guiding principles for data collection (i.e. convergent lines of inquiry, case study database and chain of evidence) in order to mitigate concerns with role duality. Within the context of this research, the common challenges around role duality was mitigated significantly twofold. Firstly, from an organisational perspective the Technologyco Global Ethics department provided guidelines and direction, along with pseudo anonymisation of secondary data with primary data. Secondly, from a researcher perspective, ongoing council from the researcher's DCU supervisors in adherence to DCU Ethics recommendations.

Organisational politics:

Often cited as one of the most important areas of insider research, organisational politics presents many issues, particularly when the researcher wishes to remain, or has career progression ambitions, within the organisation (Brannick and Coughlan, 2007, p. 71). Critical skills required by the insider researcher include maintaining credibility while becoming an astute political player, facilitated by ongoing assessment of the power and interests of relevant stakeholders in relation to the research (Brannick and Coughlan, 2007, p. 71). In the context of this inquiry, the insider researcher's seventeen years of experience within the organisation will provide enormous benefit, due to an understanding and familiarisation of the culture, roles, work practices and extended global network.

Ethics issues and precautions

Many agree that among the highest duties of academics is to make sure that the human beings they study – fellow citizens they probe, query, prod, and palpate – are treated with dignity and respect (Shea, 2000, p 28). Discussions about ethical principles in business research, and perhaps infringements of them, tend to centre on certain matters that recur in different semblances, and have been broken down into four main areas, outlined by Diener and Crandall (1978) and cited by Bryman (2016, p. 125).

1.   Harm to participants

2.   Lack of informed consent

3.   Invasion of privacy

4.   Whether deception occurred

Harm to participants:

Diener and Crandall (1978, p. 19) identify a number of elements which harm to participants can entail; physical harm, harm to participants' career advancement or self-esteem, stress, and enlisting subjects to preform deplorable acts (Bryman, 2016, p 126). Among the most frequently cited examples of research participants being harmed is Milgram's (1963) experiment on obedience to authority and the Stanford Prison Experiment (1971) on perceived power. The outcomes of both studies were psychological harm.

The concern of harm to participants is often overcome by recommending care of maintaining confidentiality of records. In essence, participants' identities and records should be maintained as confidential (Bryman, 2016, p. 127).

In relation to this research inquiry, codified participant names will be used to preserve anonymity of participants. The codified participant names will be created by the Technologyco People Insights Team when mapping performance data to survey data, in order to further protect the participants' anonymity and confidentiality. The researcher aims to adhere to the principle of 'do no harm' to the organisation or participants partaking in the research. Furthermore, given the role of an insider researcher, the author is acutely aware of the potential damaging effect negative statements resulting from research could have on career aspirations, especially given the eminent position of the organisation within the industry (Bryman, 2016, p. 127).

Informed consent:

Informed consent is based upon the principle that research participants are given all the information required about the research project to make an informed decision, understanding the risks and benefits, on whether they wish to participate in the study (Cohen, Manion and Morrison 2011, p. 78; Flick 2014, p. 54; Bryman 2016, p. 129). Informing people about the research may elicit the Hawthorne Effect or participants might adapt work behaviour due to being consciously observed (Oliver, 2010, p. 88; Cohen, Manion and Morrison, 2011, p. 8).

In the context of this inquiry, the necessary approval has been sought and granted via Technologyco Global Ethics department. The next step was the granting of approval from the Research Ethics Committee of Dublin City University, along with gaining permission to carry out the study within the organisation from the Global Senior Vice President of Human Resources in Technologyco.

All participants received a plain language statement for voluntary participation, outlining their freedom to opt in or out without fear of recrimination of any kind. Given the participants' role and responsibilities within the organisation, participants would be deemed elites or "powerful people" with academic research posing little threat to their positions (Cohen, Manion and Morrison, 2011, pp 172). As such the risk of a change in work behaviour is minimal. Furthermore, their position, would suggest that they are capable of making informed choices.

Privacy:

Privacy is intertwined with informed consent, informed consent was granted by participants on the basis of a detailed understanding of what the research participants' involvement is likely to entail, thus condoning a level of invasion of privacy within that domain (Bryman, 2016, p. 131). In the context of this inquiry, participants completed a survey in the privacy of their own surroundings at a chosen time which would not interfere with their existing business commitments. Clear commitments were given in relation to storage and sharing of data. Prior to survey undertaking, confirmation was sought to confirm their understanding of the plain language statement and their rights as participants.

Deception:

Cohen, Manion and Morrison (2011) describe deception as the act of not telling the truth. Bryman (2016) expands on this by advising deception is the act of conducting research misaligned to its stated objectives. Apart from deception infringing on most researchers' moral compasses, it also calls into

question a researchers' professional self-interest, which would have a detrimental effect on the academic profession for future participation and funding (Bryman, 2016).

The researcher conducted the research within Technologyco as an insider. Two critical steps are necessary in order to obtain ethical approval. Firstly, the researcher has spoken to a number of senior parties within Technologyco to ensure the research has received approval and is ethically of low risk. Secondly, the researcher has emailed the Technologyco Global Ethics Board/Team to secure approval along with the DCU Ethics Board.

Survey participation was a concern, as there was no guarantee the numbers sought would materialise. The sales workforce within Technologyco operate in a competitive VUCA environment. Accessing time on their calendar was a challenge and some may have been hesitant to divulge information, opinions or personal feelings for fear it may be linked back to their current job performance in role. However, the researcher adopted the approach of acquiring executive sponsorship of a number of sales leaders globally in order to support in the distribution of the survey. Concerns regarding the use of sales leaders to support the distribution of the survey were mitigated by the voluntary nature of participation, along with the confidentiality of pseudo anonymised information of participates.

Chapter 4 - Presentation and Analysis

Introduction

Following the presentation of the methodology in the previous chapter, this chapter presents the findings. This study examined the relationships between learning agility and job performance. It also examined the relationship between a psychological safe climate, personality traits and learning consumption as moderators of learning agility. To that end, the study sought to answer the following research questions.

4. Is learning agility correlated with performance? How does learning agility impact on performance?

5. Is learning agility correlated with contextual and environmental factors of psychological safe climate or learning consumption? What role do psychological safety and learning consumption play in learning agility?

6. What personality traits are associated with an enhanced ability to learn from experience? What role does personality traits play in learning from experience?

This chapter presents the results of the statistical analysis used to examine these questions. First, descriptive statistics are presented. Following this analysis, the normality of the scales used is explored via histograms and quartile-quartile (Q-Q) plots and the validity and reliability of each respective scale is examined.   Analysis of Variance (ANOVA) results are presented to determine whether learning agility scores vary by sales role, type or position. The hypotheses outlined in chapter two are tested to determine possible correlations, along with regressions in order to answer the research questions above. Finally, further exploratory analysis is conducted in light of the findings from the both the descriptive and hypotheses analysis and testing.

Preliminary analysis

Prior to data collection, Green (1991) recommends two criteria for a minimum acceptable sample size for testing the overall fit of regression models (i.e. R^2), sample size of 50 + 8k. Also, testing individual predictors (independent variables) within the model (i.e. b-values) Green recommends 104 + k. In both instances, k is the number of predictors. With ten predictor variables, the minimum sample size required would be 130, and 114 respectively. Additionally, Field (2013) cites Miles and Shevlin's (2001) recommendations for the sample size n= 150 is required for a high level of statistical power. This is based on Cohen's, (1988), benchmark of .08, depending on the number of predictors (up to 10) and size

of expected effect detected to be medium or large. My final sample size of n = 165, thus fulfils all the necessary criteria for analysis.

Reliability

As discussed in Chapter 3, the learning agility, psychological safe climate and the TIPI Big Five personality scales were adopted from previous research, the assessment of reliability is primarily confirmatory in nature. Nevertheless, a Cronbach's Alpha analysis was conducted for each of the proposed constructs, learning agility, psychological safe climate, and TIPI in order to assess scale reliability. Cronbach's Alphas were above .80 for both learning agility and psychological safe climate. As the TIPI scale is only ten items, two items per personality trait, Gosling, Rentfrow, and Swann (2003, p. 516), emphasized content validation considerations result in lower inter-item correlations. The result, as expected and in alignment with the source paper has therefore an unusually low internal consistency estimate. While George and Mallery (2003) advise a Cronbach Alpha of >.5 is good, scholars agree Cronbach alpha is quite sensitive to the number of items in a scale (TIPI scale = 10) (George and Mallery, 2003; Pallant, 2013; Perry, McMurray and Brownlow, 2014). Thus, an inter-item correlation was conducted on items within the TIPI scale which resulted in an optimal range for inter-item correlation of .15 and .4 (Clark and Watson, 2016; Briggs and Cheek, 1986). Table 4.0 below illustrates the Cronbach Alphas, means (M) and standard deviations (SD) for each of the scales.

Table 4.0 Scales means, standard deviations, and alphas

Means, Standard deviations and Alphas for Scales				
	Items	Alpha	M	SD
Learning Agility	38	.917	5.3729	.58070
Psychological Safe Climate	18	.87	4.97	.922
TIPI Big Five Personality	10	.564	5.51	.65545

Note: Learning agility is measured on a 7-point Likert scale where 1 = Not at all; 4 = Occasionally; 7 = Very frequently. Psychological safe climate is measured on a 7-point Likert scale where 1 = Highly inaccurate; 4 = Neither accurate or inaccurate; 7 = Highly accurate. Personality is measured on a 7-point Likert scale where 1 = Disagree strongly; 4 = Neither agree nor disagree; 7 = Agree strongly

Note: E, Extraversion; A, Agreeableness; C, Conscientiousness; ES, Emotional Stability; O, Openness; Personality is measured on a 7-point Likert scale where 1 = Disagree strongly; 4=Neither agree nor disagree; 7 Agree Strongly
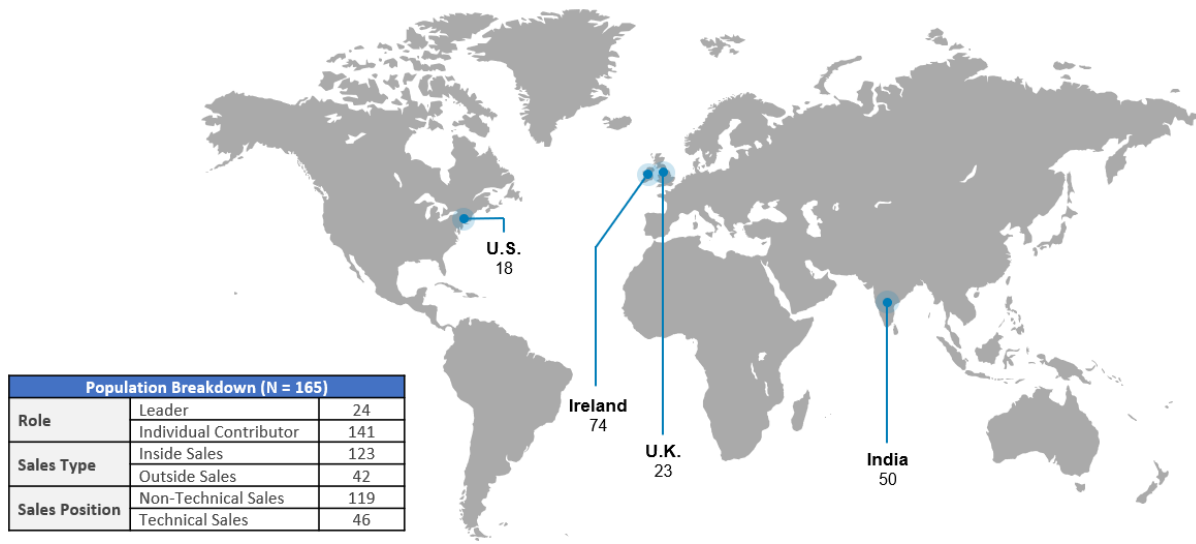
Descriptive and normality analysis

Descriptive analysis

Research population

The research population for this inquiry was the sales workforce of a global information technology organisation, more specifically across three sites in Ireland, two sites in the UK (England and Scotland), one site in India (Hyderabad) and one site in North America (Boston). The sales workforce sells hardware, software and business services to private and public sector clients, along with intermediaries (i.e. channel business partners) across all industries and market sectors globally.   The research survey was distributed to 352 sellers, with 172 completions, and 74 partial completions representing a positive 49% response rate. Seven participants were later omitted as they provided a support function to the sales business unit, rather than residing within it and therefore the same performance measures were not applicable. Thus, the final analysis was conducted on a participant sample of n = 165. The research participants (n = 165), contained both Leaders (n = 24) and Individual Contributors (n = 141) ranging from early in career front line sellers, to account executives and leaders of varying levels.   The final sample population represents both Inside and Outside sales, along with Technical and Non-Technical sellers as illustrated in figure 4.0, below. Additionally, the mean for tenure within the organisation (i.e. years of service) for Leaders was 7.44 years, and for Individual Contributors 7.23 years. Within the organisation, job roles align to a grading structure for Individual Contributors (e.g. S3, S4, S5 etc.) and Leaders (M6, M7, M8 etc.). The mean for time within career grade for Leaders was 2.14 years and Individual Contributors 2.27 years. Following this analysis of the sample breakdown, the sample was then examined via personality, learning agility, learning consumption, psychological safe climate and performance.

Figure 4.0 Research population breakdown

Population Breakdown (N = 165)		
Role	Leader	24
	Individual Contributor	141
Sales Type	Inside Sales	123
	Outside Sales	42
Sales Position	Non-Technical Sales	119
	Technical Sales	46

Personality

Preliminary findings across the Big Five personality traits, measured using the TIPI scale, indicate close similarities across sales positions, type and role. The results showed that agreeableness was the highest scored personality trait across the sample group (M = 6.24), with openness to experience being the lowest (M = 4.87), relative to the other Big Five traits measured. Emotional stability (neuroticism) was scored slightly higher in Individual Contributors (M = 5.74) than in Leaders (M = 5.31), and Inside Sellers (M = 5.76) versus Outside Sellers (M = 5.44). Additionally, extraversion was scored higher in Outside Sellers (M = 5.80) versus Inside Sellers (M = 5.27). Based on figure 4.1, it is evident that there is some variance of the Big Five across sales roles, types and positions.

Figure 4.1 Mean scores of personality across sales populations

Personality Means by Sales Population
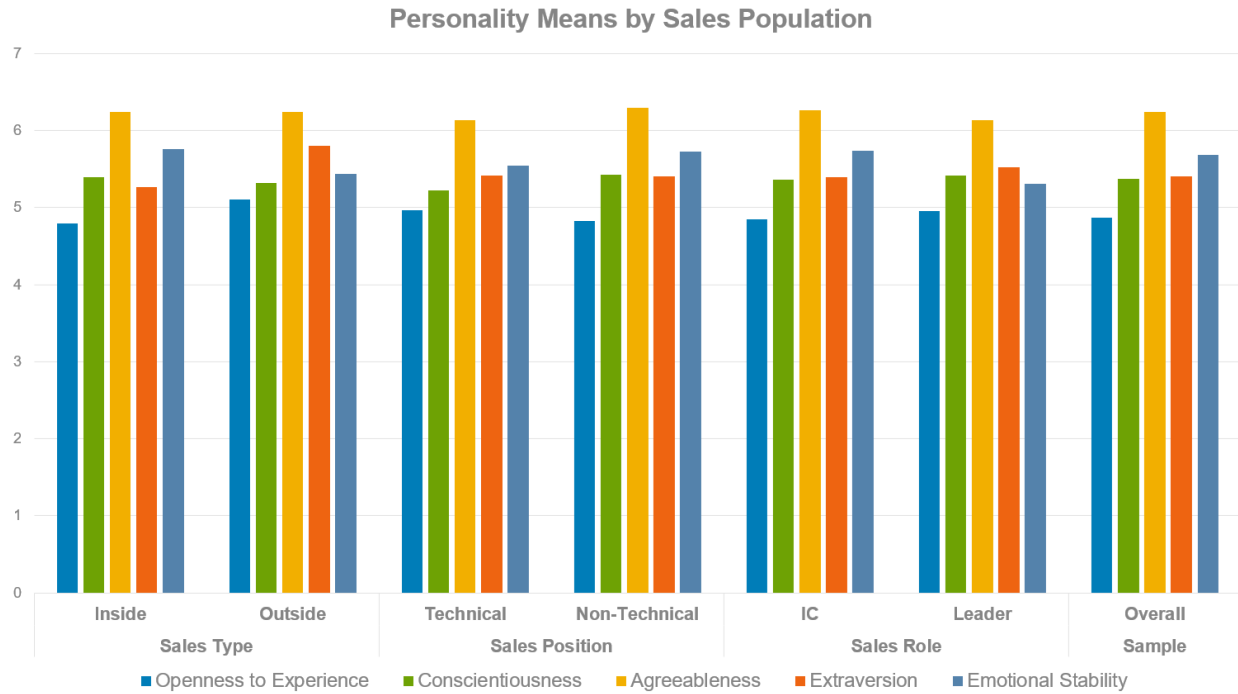
Note: Personality is measured on a 7-point Likert scale where 1 = Disagree strongly; 4 = Neither agree nor disagree; 7 = Agree strongly

Sample: Overall sample n =165; Leader n = 24; Individual Contributor n = 141; Inside sales n = 123; Outside sales n = 42; Technical sales n = 46: Non-Technical sales n = 119

Learning agility

Observed results indicated that the sample had high learning agility, which is evident by the Table 4.1 below, illustrating the mean scores of learning agility across each of the sales populations. It is noteworthy that of all sales populations Leaders (n = 24) scored highest on learning agility (M = 5.53) and Outsides Sellers (n = 42) scored lowest (M = 4.83). Additionally, Inside Sellers (n = 123) scored higher on learning agility (M = 5.34) versus Outside Sellers (n = 42), (M = 4.83), Technical Sellers (n = 46) scored higher (M = 5.52) than Non-Technical Sellers (n = 119), (M = 5.31) and Leaders (n = 24) scored higher (M = 5.53) versus Individual Contributors (n = 141), (M = 5.35).

**Table 4.1 Learning agility mean scores by sales population**

	Sales Type		Sales Position		Sales Role		Sample
	Inside	Outside	Technical	Non-Technical	IC	Leader	Overall
Learning Agility	5.34	4.83	5.52	5.31	5.35	5.53	5.37

Note: Learning agility is measured on a 7-point Likert scale where 1 = Not at all; 4 = Occasionally; 7 = Very frequently.

Sample: Overall sample n =165; Leader n = 24; Individual Contributor n = 141; Inside sales n = 123; Outside sales n = 42; Technical sales n = 46: Non-Technical sales n = 119

The bar chart below illustrates the mean of participants scoring against the nine dimensions of learning agility. Figure 4.1., below shows a graphical representation based on the mean scores for the overall sales population, along with further breakdown by sales role, type and position. Overall, the participants in the sample rated highest on the learning agility dimension of Speed (M = 5.81) and Collaboration (M = 5.61), while the lowest scores were found on Feedback Seeking (M = 4.93) and Performance Risk Taking (M = 5.03), followed closely by Experimenting (M = 5.10).

**Figure 4.2 Mean scores of learning agility across sales populations**
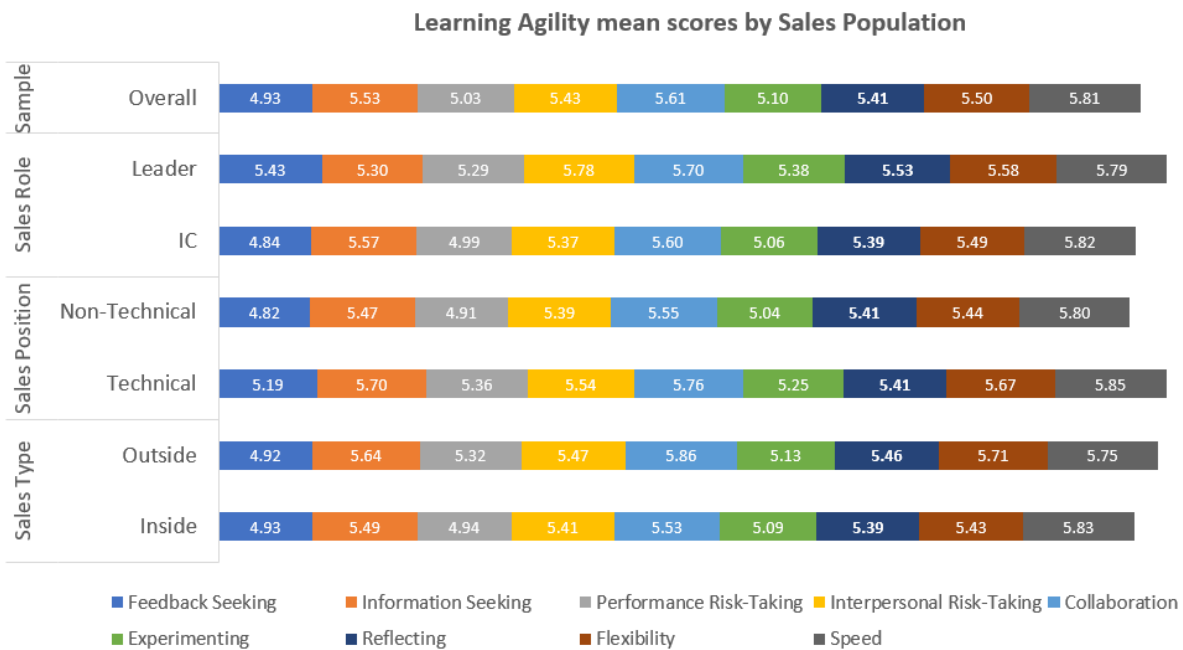
Note: Learning agility is measured on a 7-point Likert scale where 1 = Not at all; 4 = Occasionally; 7 = Very frequently.

Sample: Overall sample n =165; Leader n = 24; Individual Contributor n = 141; Inside sales n = 123; Outside sales n = 42; Technical sales n = 46: Non-Technical sales n = 119

Learning consumption

The sales workforce's total learning consumption for the duration of the Technologyco financial year, FY20 (Feb 1st 2019 – Jan 31st 2020), was 7,904 hours, with a mean of 47 hours and 32 minutes, equating to approximately 6 days of learning consumption per participant. Upon further examination, the mean for Leader's (n = 24) consumption was .5 days, while Individual Contributors (n =141) was 5.49 days respectively. Figure 4.3 below shows the overall learning consumption broken down by modality (i.e. eLearning, video, webinar) from the overall sample, with a closer examination of modality consumption by Leaders and Individual Contributors.

Figure 4.3 FY20 Learning consumption modality breakdown
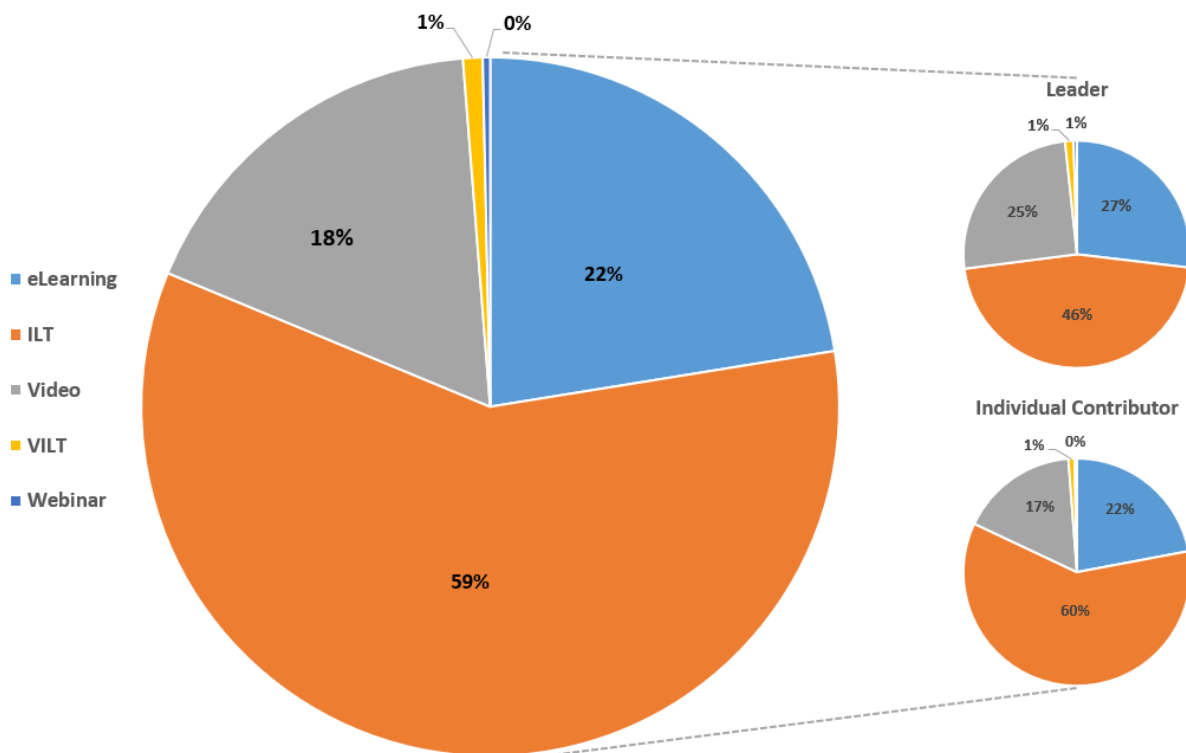
Note: Instructor Led Training = ILT, Virtual Instructor Led Training = VILT

Figure 4.4, illustrates the longitudinal view for the year of course completions, broken down by modality for the sample population (n =165). A total of 9,365 courses were undertaken with a mean of 56.76 courses per participant for the year, with two noticeable spikes at the mid-year point and end of year which were aligned to the largest product and solution release dates to the market. Also noteworthy are the spikes that are evident at the organisation's financial quarter ends where mandatory quarterly business training is required to be completed (i.e. April – end of Quarter 1, July – end of Quarter 2, Oct – end of Quarter 3 and Jan – end of Quarter 4).

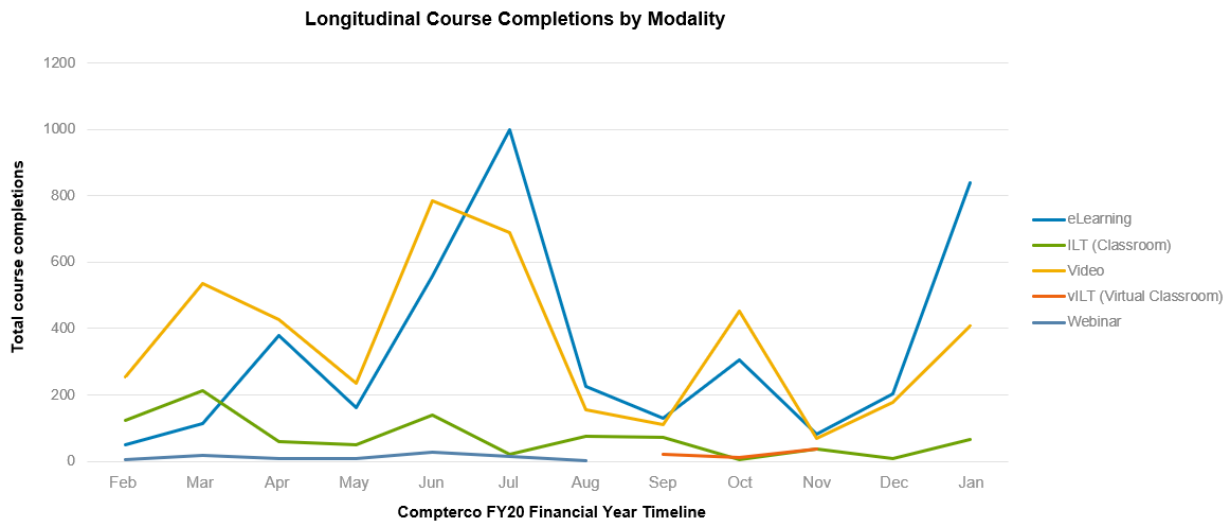**Figure 4.4 Longitudinal course completions by modality**

Table 4.2 illustrates the Technologyco Sales University (TSU) credential achievement breakdown across the sample group. The only credential level which was set as mandatory within the organisation was foundations to be achieved within the first 12 months of sellers beginning a new role.

Table 4.2 Technologyco Sales University achieved credentials

Technologyco Sales University Achieved Credentials		
	Individual Contributor	**Leader**
Foundations	57	13
Intermediate	37	7
Advanced	44	3
Total	138	23

Psychological safe climate

The results of the sales workforce overall psychological safe climate indicate a high degree of psychological safety as per Table 4.3 below. Interestingly the sub population of Leaders (n = 24) scored highest for psychological safe climate (M = 5.26), similar to learning agility, whereas Inside Sellers (n = 123) scored lowest (M = 4.83). Similar results can be observed to findings on learning agility scoring across the sales population, Technical Sellers (n = 46) scored higher on psychological safe climate (M = 5.23), than Non-Technical (n = 119), (M = 4.87), Leaders (n = 24) scored higher (M = 5.26) than Individual Contributors (n = 141), (M = 4.92). One exception, however is seen by sales type, Outside Sellers (n = 42) scored higher (M = 5.37), whereas Inside Sellers (n = 123) scored moderately lower (M = 4.83).

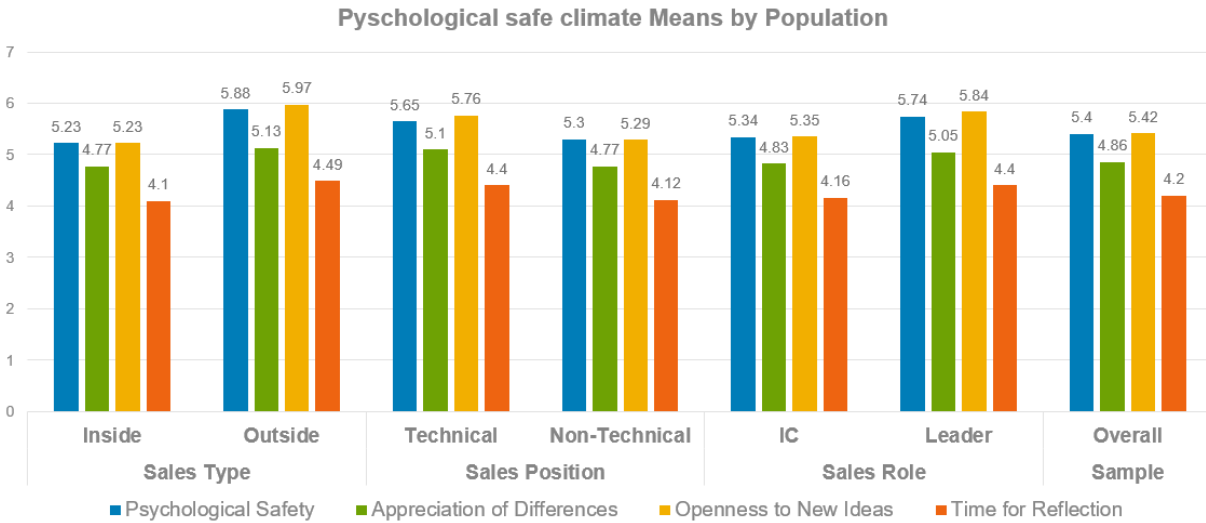**Table 4.3 Psychological safe climate mean scores by sales population**

Psychological Safe Climate mean scores by Sales Population							
	Sales Type		Sales Position		Sales Role		Sample
	Inside	Outside	Technical	Non-Technical	IC	Leader	Overall
Psychological Safe Climate	4.83	5.37	5.23	4.87	4.92	5.26	4.97

Note: Psychological safe climate is measured on a 7-point Likert scale where 1 = Highly inaccurate; 4 = Neither accurate or inaccurate; 7 = Highly accurate.

Sample: Overall sample n =165; Leader n = 24; Individual Contributor (IC) n = 141; Inside sales n = 123; Outside sales n = 42; Technical sales n = 46: Non-Technical sales n = 119

Preliminary findings strongly indicate that all four dimensions of psychological safe climate (Psychological Safety, Appreciation of Differences, Openness to New Ideas and Time for Reflection) rated similarly across job roles, Individual contributors or Leaders, and irrespective of sales position. Figure 4.5 below shows a graphical representation based on the mean scores for each sales population. Overall, the participants in the sample rated highest on the psychological safe climate dimension of Openness to New Ideas (M = 5.42), closely followed by Psychological Safety (M = 5.40) and lowest on the dimension, Time for Reflection (M = 4.20), followed by the Appreciation of Differences (M = 4.86) dimension. Within a closer examination of the population with the lens of sales role, type and position, Leaders scored higher across each dimension versus Individual Contributors, Outside Sellers scored higher across all dimensions versus inside sellers and the same is true of Technical versus Non-Technical sellers.

Figure 4.5 Mean scores of psychological safe climate across sales populations

Pyschological safe climate Means by Population

	Inside	Outside	Technical	Non-Technical	IC	Leader	Overall
Psychological Safety	5.23	5.88	5.65	5.3	5.34	5.74	5.4
Appreciation of Differences	4.77	5.13	5.1	4.77	4.83	5.05	4.86
Openness to New Ideas	5.23	5.97	5.76	5.29	5.35	5.84	5.42
Time for Reflection	4.1	4.49	4.4	4.12	4.16	4.4	4.2

Sales Type — Sales Position — Sales Role — Sample

■ Psychological Safety ■ Appreciation of Differences ■ Openness to New Ideas ■ Time for Reflection

Note: Psychological safe climate is measured on a 7-point Likert scale where 1 = Highly inaccurate; 4 = Neither accurate or inaccurate; 7 = Highly accurate.

Sample: Overall sample n =165; Leader n = 24; Individual Contributor n = 141; Inside sales n = 123; Outside sales n = 42; Technical sales n = 46: Non-Technical sales n = 119

Performance

The sample groups' performance for the Technologyco financial year, FY20 (Feb 1st 2019 – Jan 31st 2020) showed a high level of distribution, with a mean of 1.08, median of 1.03, a standard deviation of .347. A visual examination of performance was conducted via a histogram, along with a normal distribution curve. Based on a closer inspection of the histogram and an examination of the performance data, the decision was made to include the four individuals who scored over 2.0 in the dataset.
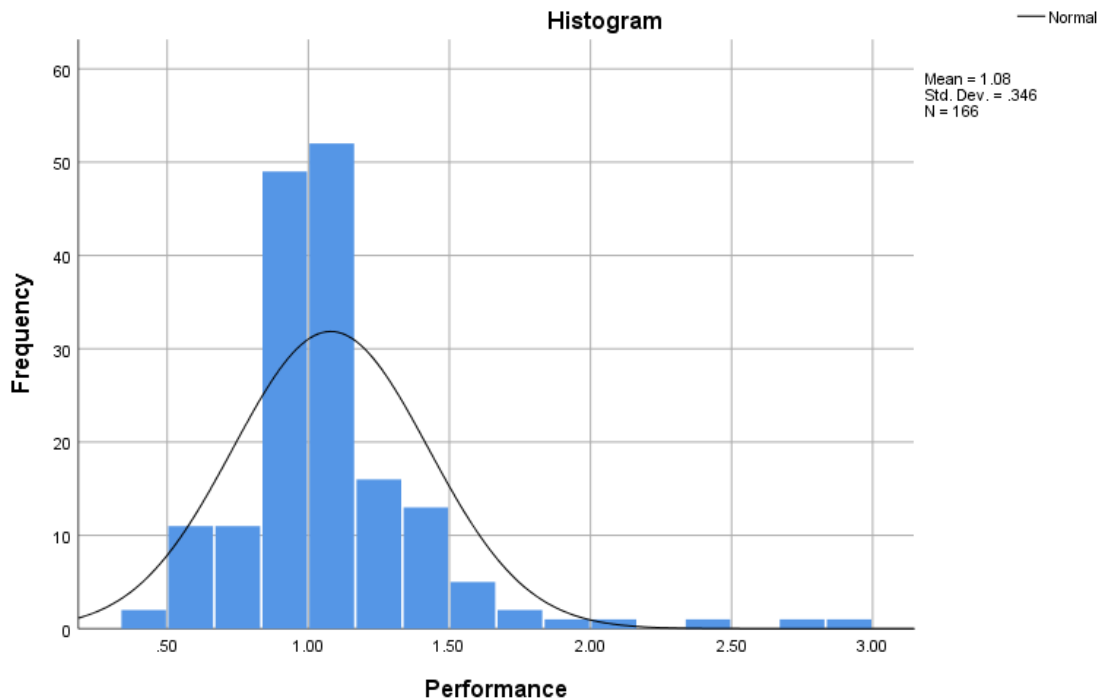
Figure 4.6 Histogram of performance

Table 4.4 provides additional insight into the performance means by sales populations, sales type, sales position and sales roles. Unlike results observed for both learning agility and psychologically safe climate Leaders (n = 24) had the lowest performance (M = 1.02), relevant to other subpopulations. Additionally, unlike learning agility and psychological safe climate Non-Technical sellers (n = 119) scored higher (M = 1.10) than Technical Sellers (n = 46), (M = 1.02), and Individual Contributors (n =141) scored higher (M = 1.09) than Leaders (n = 24), (M = 1.02). Finally, similar to findings on psychological safe climate Outside Sellers (n = 42) outperformed (M = 1.10) Inside Sellers (n = 123), (M = 1.07).

Table 4.4 Performance mean scores by sales population

	Performance mean scores by Sales Population						
	Sales Type		Sales Position		Sales Role		Sample
	Inside	Outside	Technical	Non-Technical	IC	Leader	Overall
Performance	1.07	1.10	1.02	1.10	1.09	1.02	1.02

Sample: Overall sample n =165; Leader n = 24; Individual Contributor (IC) n = 141; Inside sales n = 123; Outside sales n = 42; Technical sales n = 46: Non-Technical sales n = 119

For the purposes of statistical analysis, performance, assessed by overall blended attainment as discussed in chapter 3, was coded as per the internal organisational thresholds for sellers and leaders as per the table below. It is noteworthy, leader's performance is a combination of their overall teams (i.e. direct reports) performance.

Table 4.5 Organisation sales performance breakdown

Organisation Performance Breakdown	
< .80 (80%)	Not Performing
.80 - .95 (80-95%)	Low Performing
.95 – 1.05 (95-105%)	Performing
> 1.05 (105%)	High Performing

In summary, table 4.6 provides a consolidated view illustrating the mean scores across each of the scales for learning agility, psychological safe climate and performance with a lens of each sales population.

Table 4.6 Mean scores by sales population

	Mean scores by Sales Population						
	Sales Type		Sales Position		Sales Role		Sample
	Inside	Outside	Technical	Non-Technical	IC	Leader	Overall
Learning Agility	5.34	4.83	5.52	5.31	5.35	5.53	5.37
Psychological Safe Climate	4.83	5.37	5.23	4.87	4.92	5.26	4.97
Performance	1.07	1.10	1.02	1.10	1.09	1.02	1.02

Normality analysis

To reduce subjectivity and improve robustness of the analysis, several conditions were explored in terms of normality and reliability. To asses normality, data for learning agility and psychologically safe climate were examined visually using histograms and Q-Q plots, which indicate the extent to which a variable is normally distributed, as illustrated in the figures (4.7 - 4.10) below. Next, a Shapiro-Wilks test was conducted and subsequently rejected for both learning agility ($p > .05$) and psychological safe climate ($p > .05$), supporting the view that the data came from a normally distributed population. Normality was not explored for performance for the sample population as it was based on the actual historical performance data rather a scale. Additionally, the TIPI personality scale contains only ten items, two items per personality trait, thus limited if any insight would be deemed from the normality calculation for normal distribution.

Figure 4.7 Histogram of learning agility data

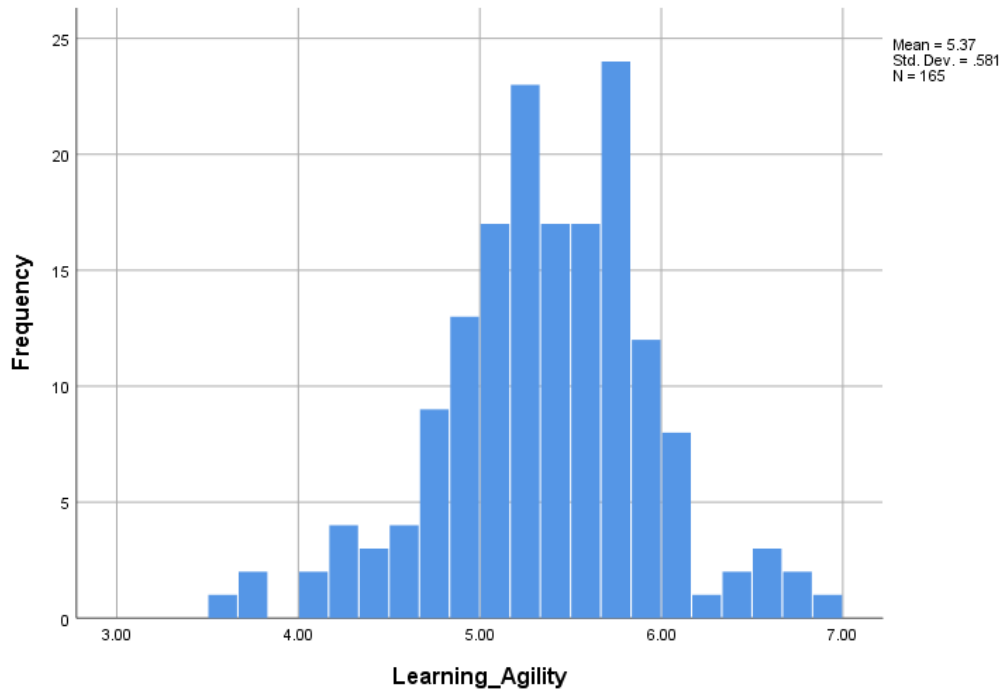Mean = 5.37
Std. Dev. = .581
N = 165

Figure 4.8 Q-Q plot of learning agility data
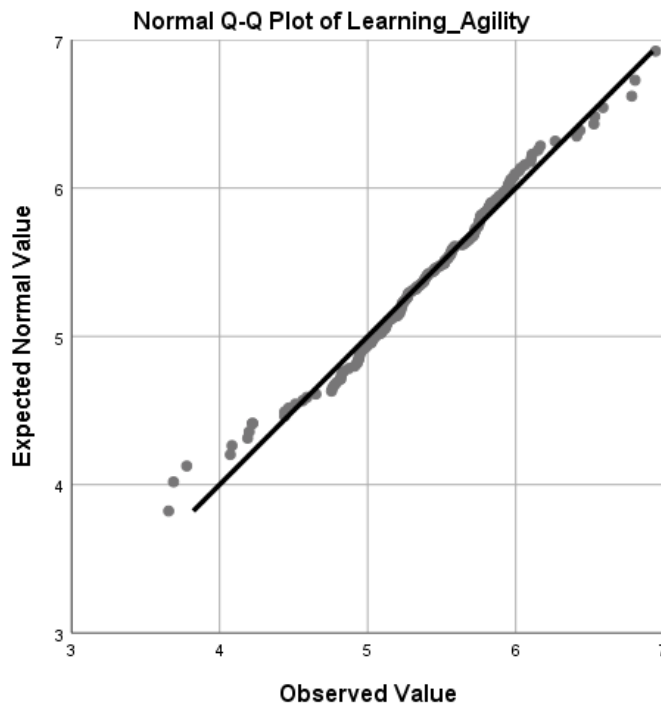
Figure 4.9 Histogram of psychological safe climate data

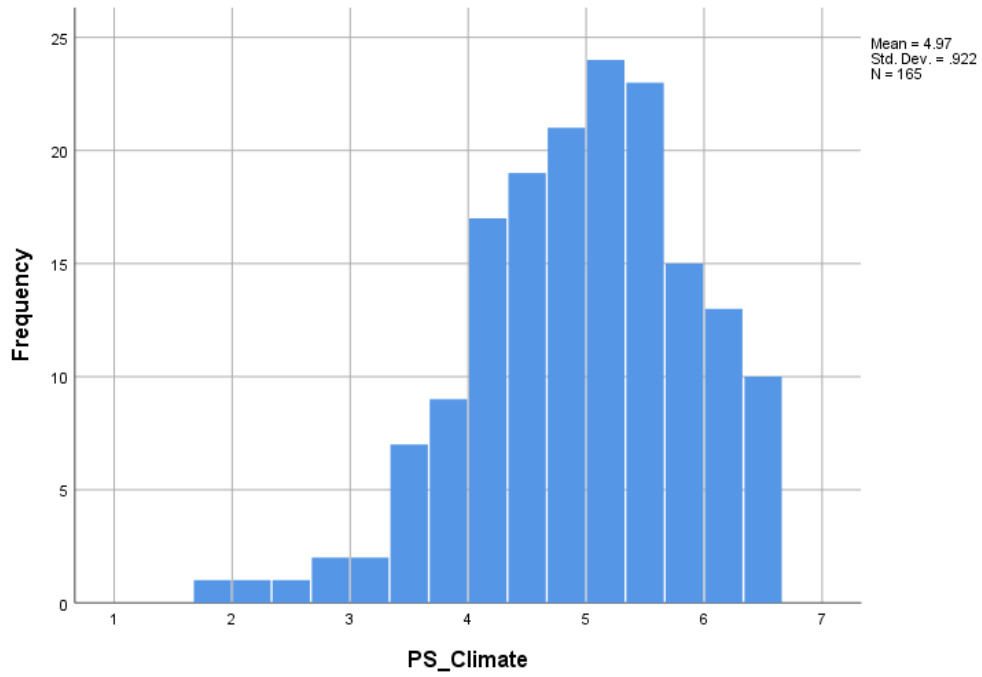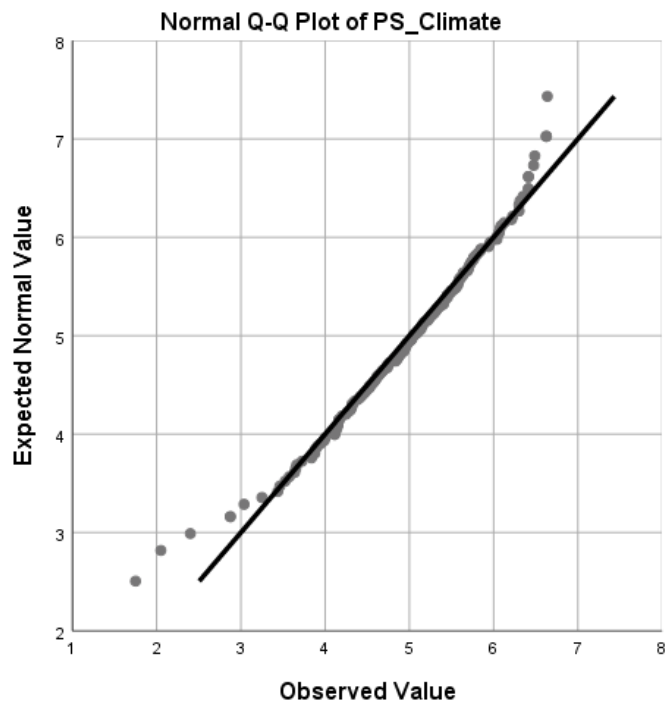Mean = 4.97
Std. Dev. = .922
N = 165

Figure 4.10 Q-Q plot of psychological safe climate data

Covariates

The possibility of including covariates was explored to determine if any exist and if covariate should be used in the main analysis. A series of Pearson correlations for continuous data were conducted, with covariates theoretically relevant considered for further examination as covariates in the main analysis. Table 4.7 below, indicated no significant correlations related to performance. Further analysis of the results confirmed the all independent variables are truly independent of the dependant variable (i.e. performance).

Table 4.7 Variable means, standard deviations, and zero-order correlations

		M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Means, Standard Deviations, and Zero-order Correlations																
1	Sales Type	.72	.450														
2	Sales Position	.75	.44	.288**													
3	Role	.85	.35	.204*	.075												
4	Career Level Tenure	2.25	2.11	-.027	-.104	.021											
5	Overall Tenure	7.27	5.95	-.292**	-.029	-.353**	-.015										
6	Learning Consumption	47.90	48.07	.210**	.260**	.176*	.007	-.339									
7	Extraversion	4.87	1.43	-.044	-.094	-.027	.005	-.033	-.111								
8	Agreeableness	5.37	1.18	.080	.024	-.016	-.085	.238**	-.032	-.061							
9	Contentiousness	6.24	.923	.076	.003	.053	-.023	.028	.131	.180*	.214**						
10	Emotional Stability	5.41	1.30	-.009	-.176*	-.036	-.051	.051	-.061	-.068	.350**	.192*					
11	Openness to Experience	5.68	.981	.084	.141	.153*	-.160*	-.039	.171*	.177*	.163*	.306**	.132				
12	Learning Agility	5.37	.58	-.163*	-.102	-.112	-.145	.013	-.026	.141	.125	.180*	.215**	.311**			
13	Psychological Safe climate	4.97	.92	-.175*	-.253**	-.130	-.069	.043	-.041	.064	.032	.255**	.198*	.119	.159*		
14	Performance	1.08	.35	.113	-.042	.068	-.005	-.031	.075	.053	.113	.147	.090	.179*	.131	.051	

Note: **Correlation is significant at the 0.01 level (2-tailed); * Correlation is significant at the 0.05 level (2-tailed). Learning agility was measured on a 7-point Likert scale where 1 = Not at all; 4 = Occasionally, 7 = Very frequently. Psychologically safe climate was measured on a 5-point Likert scale where 1 = Strongly agree; 3 = Neither disagree nor agree; 5 = Strongly agree. Sales Type was coded: 0 = Technical sales, 1 = Non-Technical sales; Sales position was coded 1 = Inside sales, 0 = Outside sales; Role was coded 1 = Individual contributor, 0 = Leader.

Further observations from the correlation table is the reassuring presence of statistically significant relationships amongst variables hypothesised in the study. Table 4.6 reveals that the personality traits, contentiousness, emotional stability and openness to experience are correlated to learning agility. In addition, psychological safe climate is also correlated to learning agility. The precise details of the relationships are outlined during the hypothesis analysis as part of a comprehensive review of empirical evidence aligned to the research methodology outlined in the previous chapter. Another observation is the strength and significance of the relationships, with several correlations detected at a p-value of less than 0.05 indicating 95% probably that the correlation is upheld in a broader population beyond the dataset.

Group difference by level

A further Analyses of Variance (ANOVAs) was conducted to determine whether learning agility scores systematically differed by role (Leader or Individual Contributor), sales type (Insider or Outside sales), sales position (technical or non-technical) or tenure. These analyses were conducted to determine

whether the sample could be analysed together or whether group differences would require the sample to be divided for further analysis. Three of the analyses produced non-significant results: role $F(137, 27)$ = .773, p = .083, sales position $F(137, 27)$ = 1.671, p = .060, tenure $F(137, 27)$ = .410, p = .410. Sales type produced a significant variance $F(137, 27)$ = 1.860, p = .031 indicating that learning agility scores vary significantly between inside or outside sellers. Each hypothesis was examined with four different lenses. The first was the overall sample. The second, even considering the ANOVA results, was by sales role due to the unique opportunity for the possible identification of differences between Individual Contributors and Leaders. A third view was by sales type, and finally by performance tiering aligned to the organisation's pre-set thresholds above.

Hypothesis testing

Hypothesis 1:

To test the hypothesis that individuals who score higher on learning agility will have achieved a higher performance, as opposed to those who score lower on learning agility, a linear regression analysis was conducted. For the analysis performance was regressed for learning agility. The overall model for the sample population was insignificant R^2 = .017, $F(1, 163)$ = 2.846, as shown in Table 4.9. Similar results were seen across the sample when examined under the lens of the subgroups, with the exception of Inside sales (n = 123) R^2 = .036, $F(1, 122)$ = 4.515, p < 0.5 and the "Performing" (n = 33) group, R^2 = .130, F1,31), p < .05. Both groups showed a low to moderately significance relationship. In other words, learning agility accounted for a 3% variance in the Inside sales group, and 13% variance in the "Performing" group. Thus, although the overall hypothesis was not supported, the low to moderate significance relationship found in both the Inside sales and "Performing" group is discussed in the next chapter.

Table 4.8 Linear regression learning agility with performance

Linear Regression Predicting Performance From Learning Agility Scores					
	B	SE B	B	t	p
Overall Sample					
Constant	.659	.251		2.626	.009
Learning Agility	.078	.046	.131	1.687	.094
Sales Role - Leaders					
Constant	.912	.420		2.169	.41
Learning Agility	.020	.076	.056	.65	.794
Sales Role – Individual Contributors					
Constant	.597	.282		2.119	.036
Learning Agility	.092	.052	.147	1.757	.081
Sales Type – Inside Sales					
Constant	.459	.290		1.579	.117
Learning Agility	.115	.054	.190	2.125	.036
Sales Type – Outside Sales					
Constant	1.535	.500		3.08	.004
Learning Agility	-.079	.091	-.135	-.864	.393
Not Performing					
Constant	.752	.243		3.099	.007
Learning Agility	-.024	.048	-.121	-.501	.623
Low Performing					
Constant	.789	.079		10.049	.000
Learning Agility	.018	.015	.213	1.255	.218
Performing					
Constant	.900	.045		20.091	.000
Learning Agility	.017	.008	.361	2.157	.039
High Performing					
Constant	.860	.380		2.262	.027
Learning Agility	.084	.071	.136	1.194	.236

Note: Overall: R^2 = .017, $F(1, 163)$ = 2.846 ; Leaders: R^2 = .003, $F(1, 22)$ = .070; Individual Contributors: R^2 = .022, $F(1,139)$ = 3.087 ; Inside sales: R^2 = .036, $F(1, 122)$ = 4.515, $p < 0.5$; Outside sales: R^2 = .018, $F(1, 40)$ = .746; Not Performing: R^2 = .015, $F(1,17)$ = .251; Low Performing: R^2 = .046, $F(1,33)$ = 1.574 ; Performing: R^2 = .130, $F(1,31)$, $p < .05$; High Performing: R^2 = .018, $F(1,76)$ = 1.425

Sample: Overall sample n =165; Leader n = 24; Individual Contributor n = 141; Inside sales n = 123; Outside sales n = 42; Technical sales n = 46: Non-Technical sales n = 119

Performance Tiering: < 80% = Not Performing, n = 19; 80-95% = Low Performing, n = 35; 95-105% = Performing, n = 33; > 105% = High Performing, n = 78

Hypothesis 2:

To test the hypothesis that learning consumption and learning agility have a predictive relationship with performance such that individuals with higher learning consumption would have a higher learning agility and performance, a multiple regression analysis was conducted. For the analysis, performance was regressed for learning agility and learning consumption. The overall model for the sample population was non-significant R^2 = .023, $F(2, 162)$ = 1.932, p =.148. Similar results were seen across the sample breakdown as illustrated in Table 4.5 below, with the exception of sales type, Inside sales (n = 123) R^2 = .048, $F(2, 120)$ = 2.993, $p < .05$. These results illustrate low significance as the model only accounted for 4% of the variance in performance. In other words, the performance variance accounted for by learning consumption and learning agility is shared with other factors. Thus, although the overall hypothesis was not supported, the low to moderate significance found within the Inside sales population is further discussed in the next chapter.

Table 4.9 Linear regression with learning consumption and learning agility predictive of performance

Linear Regression Learning Consumption and Learning Agility predictive of Performance					
	B	SE B	B	t	p
Overall Sample					
Constant	.626	.253		2.471	.015
Learning Consumption	.001	.001	.078	1.009	.315
Learning Agility	.080	.046	.133	1.712	.089
Sales Role - Leaders					
Constant	.995	.433		2.298	.032
Learning Consumption	-.002	.002	-.190	-.882	.388
Learning Agility	.013	.077	.036	.165	.870
Sales Role – Individual Contributors					
Constant	.570	.284		2.008	.047
Learning Consumption	.001	.001	.074	.876	.383
Learning Agility	.092	.052	.147	1.755	.081
Sales Type – Inside Sales					
Constant	.419	.292		1.436	.153
Learning Consumption	.001	.001	.107	1.206	.230
Learning Agility	.115	.054	.189	2.124	.036
Sales Type – Outside Sales					
Constant	1.571	.511		3.074	.004
Learning Consumption	-.001	.002	-.074	-.470	.641
Learning Agility	-.080	.092	-.137	-.867	.391
Performance – Not Performing					
Constant	.577	.237		2.434	.023
Learning Consumption	-.001	.000	-.306	-1.569	.130
Learning Agility	.029	.046	.121	.619	.542
Performance – Low Performing					
Constant	.804	.082		9.824	.000
Learning Consumption	.000	.000	-.121	-.698	.490
Learning Agility	.017	.015	.193	1.110	.275
Performance –Performing					
Constant	.900	.045		19.941	.000
Learning Consumption	.000	.000	.123	.723	.475
Learning Agility	.016	.008	.345	2.028	.052
Performance – High Performing					
Constant	.807	.375		2.152	.035
Learning Consumption	.002	.001	.209	1.871	.065
Learning Agility	.078	.069	.126	1.129	.262

Note: Overall: R^2 = .023, $F_{(2,162)}$ = 1.932; Leaders: R^2 = .039, $F_{(2, 21)}$ = .424; Individual Contributors: R^2 = .027, $F_{(2, 138)}$ = 1.925; Inside sales: R^2 = .048, $F_{(2, 120)}$ = 2.993, $p < .05$; Outside sales: R^2 = .024, $F_{(2, 39)}$ = .476; Not Performing: R^2 = .099 $F_{(2, 24)}$ = 1.324; Low Performing: R^2 = .060, $F_{(2, 32)}$ = 1.018; Performing: R^2 = .145, $F_{(2, 30)}$ = 2.551; High Performing: R^2 = .062 $F_{(2, 75)}$ = 2.486

Sample: Overall sample n =165; Leader n = 24; Individual Contributor n = 141; Inside sales n = 123; Outside sales n = 42; Technical sales n = 46: Non-Technical sales n = 119

Performance Tiering: < 80% = Not Performing, n = 19; 80-95% = Low Performing, n = 35; 95-105% = Performing, n = 33; > 105% = High Performing, n = 78

Hypothesis 3.0:

To test the hypothesis that the Big Five personality trait, openness to experience was positively associated with learning agility, a linear regression analysis was conducted. The overall model for the sample population showed a low but highly significant relationship R^2 = .097, $F_{(1,163)}$ = 17.432, $p < .01$, thus the hypothesis was supported. Pertinently, Individual Contributors (n = 141) showed a low but highly significant relationship, R^2 = .087, $F_{(1,139)}$ = 13.174, $p < .01$. Outside sales (n = 42) showed a moderate and highly significant relationship R^2 = .234, $F_{(1,40)}$ = 12.231, $p < .01$ while Inside sales (n = 123) showed a low but highly significant relationship, R^2 = .081, $F_{(1,121)}$ = 10.615, $p < .01$. Finally, the sub population of "High Performing" showed a low but highly significant relationship, R^2 = .0164, F(1,

76) = 14.646, p < .01. In other words, the highest degrees of variance for the relationship between openness to experience and learning agility was evident among Outside sales (23%) and Inside sales (8%). Additionally, the sub population groups of Leaders (n =24), "Not Performing" (n = 19), "Low Performing" (n = 35) and "Performing" (n = 33) showed no significant relationship between learning agility and the openness to experience personality trait, as show in Table 4.10 below.

Table 4.10 Linear regression learning agility and openness to experience

Linear Regression Learning Agility and Openness to Experience					
	B	SE B	B	t	p
Overall Sample					
Constant	4.329	.254		17.060	.000
Openness to Experiences	.184	.044	.311	4.175	.000
Sales Role - Leaders					
Constant	3.531	.515		6.855	.000
Openness to Experiences	.376	.096	.642	3.933	.001
Sales Role – Individual Contributors					
Constant	4.339	.281		15.421	.000
Openness to Experiences	.175	.048	.294	3.630	.000
Sales Type – Inside Sales					
Constant	4.306	.321		13.416	.000
Openness to Experiences	.179	.055	.284	3.258	.001
Sales Type – Outside Sales					
Constant	4.177	.377		11.071	.000
Openness to Experiences	.238	.068	.484	3.497	.001
Not Performing					
Constant (Not Performing)	4.635	.754		6.148	.000
Openness to Experiences	.079	.139	.137	.571	.576
Low Performing					
Constant (Low Performing)	4.942	.523		9.453	.000
Openness to Experiences	.077	.093	.142	.826	.415
Performing					
Constant (Performing)	4.640	.310		7.609	.000
Openness to Experiences	.165	.105	.272	1.571	.126
High Performing					
Constant (High Performing)	4.006	.360		11.142	.000
Openness to Experiences	.235	.061	.402	3.827	.000

Note: Overall: R^2 = .097, F(1,163) = 17.432, p < .05 ; Leaders: R^2 = .413, F(1, 22) = 15.465 ; Individual Contributors: R^2 = .087, F(1,139) = 13.174, p < .01 ; Inside sales: R^2 = .081, F(1, 121) = 10.615 p < .01; Outside sales: R^2 = .234, F(1, 40) = 12.231, p < .01; Not Performing: R^2 = .019, F(1, 17) = .326; Low Performing: R^2 = .020, F(1, 33) = .683; Performing: R^2 = .074, F(1, 31) = 2.468; High Performing: R^2 = .0164, F(1, 76) = 14.646, p < .01

Sample: Overall sample n =165; Leader n = 24; Individual Contributor n = 141; Inside sales n = 123; Outside sales n = 42; Technical sales n = 46: Non-Technical sales n = 119

Performance Tiering: < 80% = Not Performing, n = 19; 80-95% = Low Performing, n = 35; 95-105% = Performing, n = 33; > 105% = High Performing, n = 78

Hypothesis 3.1:

To test the hypothesis that the Big Five personality trait, extraversion, was positively associated with learning agility, such that individuals with higher scores for extraversion are more likely to have a higher learning agility score, a linear regression analysis was conducted. The overall model for the sample population was not significant R^2 = .014, $F(1, 163)$ = 3.307. Similar results were witnessed across all sub populations, with the exception of Leaders (n = 24), who were moderately significant, R^2 = .302, $F(1, 22)$

= 9.511, p < .05, as shown in Table 4.10. Thus, although the overall hypotheses was not supported, the model was significant for the Leader population which will be discussed further in the next chapter.

Table 4.11 Linear regression learning agility and extraversion

Linear Regression Learning Agility and Extraversion					
	B	*SE B*	B	t	p
Overall Sample					
Constant	5.094	.160		31.841	.000
Extraversion	.057	.032	.141	1.818	.071
Sales Role - Leaders					
Constant	4.518	.341		13.267	.000
Extraversion	.204	.066	.549	3.084	.005
Sales Role - Individual Contributors					
Constant	5.184	.175		29.624	.000
Extraversion	.033	.035	.082	.967	.335
Sales Type – Inside Sales					
Constant	5.019	.186		27.032	.000
Extraversion	.067	.037	.161	1.796	.075
Sales Type – Outside Sales					
Constant	5.422	.317		17.107	.000
Extraversion	.010	.060	.027	.169	.866
Not Performing					
Constant (Not Performing)	5.190	.521		9.972	.000
Extraversion	-.029	.109	-.064	-.263	.796
Low Performing					
Constant (Low Performing)	5.045	.301		16.759	.000
Extraversion	.066	.059	.191	1.116	.272
Performing					
Constant (Performing)	5.325	.392		13.577	.000
Extraversion	.052	.075	.122	.686	.498
High Performing					
Constant (High Performing)	5.087	.226		22.493	.000
Extraversion	.057	.045	.145	1.274	.207

Note: Overall: R^2 = .020, $F(1,163)$ = 3.307; Leaders: R^2 = .302, $F(1, 22)$ = 9.511, p < .05; Individual Contributors: R^2 = .007, $F(1, 139)$ = .935; Inside sales: R^2 = .081, $F(1, 121)$ = 3.227; Outside sales: R^2 = .001, $F(1, 40)$ = .029; Not Performing: R^2 = .004, $F(1, 17)$ = .069; Low Performing: R^2 = .036, $F(1, 33)$ = 1.246; Performing: R^2 = .015, $F(1, 31)$ = .471; High Performing: R^2 = .021, $F(1, 76)$ = 1.623

Sample: Overall sample n =165; Leader n = 24; Individual Contributor n = 141; Inside sales n = 123; Outside sales n = 42; Technical sales n = 46: Non-Technical sales n = 119

Performance Tiering: < 80% = Not Performing, n = 19; 80-95% = Low Performing, n = 35; 95-105% = Performing, n = 33; > 105% = High Performing, n = 78

Hypothesis 3.2:

To test the hypothesis that the Big Five personality trait, conscientiousness, was positively associated with learning agility, such that individuals with higher scores for conscientiousness are more likely to have a higher learning agility score, a linear regression analysis was conducted. The overall model for the sample population was marginal and moderately significant R^2 = .032, $F(1,163)$ = 5.456, p < .05, as shown in Table 4.12. Thus, the hypothesis was supported. An examination across subpopulations illustrated no relationship between learning agility and the personality trait conscientiousness amongst Leaders (n = 24), Inside sales (n=123) and "low performers" (n =19). All other subpopulations showcased a relationship to varying degrees (e.g. a variance of between 1% and 22%). The largest noticeable difference between the personality trait conscientiousness and learning agility was evident

among Inside sales (n = 123) where no relationship was present, and Outside sales (n = 42) were there was a moderate and significant relationship present, R^2 = .22, $F(1, 40)$ = 11.251, p < .05.

Table 4.12 Linear regression learning agility and conscientiousness

Linear Regression Learning Agility and Conscientiousness					
	B	*SE B*	B	t	p
Overall Sample					
Constant	4.666	*.306*		15.261	.000
Conscientiousness	.113	.048	.180	2.336	.021
Sales Role - Leaders					
Constant	4.786	.731		6.551	.000
Conscientiousness	.121	.118	.214	1.029	.315
Sales Role – Individual Contributors					
Constant	4.616	.335		13.780	.000
Conscientiousness	.117	.053	.184	2.202	.029
Sales Type – Inside Sales					
Constant	4.928	.365		13.486	.000
Conscientiousness	.066	.058	.103	1.136	.258
Sales Type – Outside Sales					
Constant	3.791	.507		7.480	.000
Conscientiousness	.270	.080	.469	3.354	.002
Not Performing					
Constant	3.645	.689		5.290	.000
Conscientiousness	.306	.108	.454	2.841	.008
Low Performing					
Constant	5.805	.601		9.662	.000
Conscientiousness	-.071	.097	-.127	-.734	.468
Performing					
Constant	3.645	.689		5.290	.000
Conscientiousness	.306	.108	.454	2.841	.008
High Performing					
Constant	4.461	.453		9.855	.000
Conscientiousness	.141	.070	.255	2.012	.048

Note: Overall: R^2 = .032, F(1,163) = 5.456, p < .05; Leaders: R^2 = .046, F(1, 22) = 1.059; Individual Contributors: R^2 = .034, F(1, 139) = 4.851, p< .05; Inside sales: R^2 = .011, F(1, 121) = 1.291; Outside sales: R^2 = .22, F(1, 40) = 11.251, p < .05; Not Performing: R^2 =.098, F(1, 17) = 1.840, p < .05; Low Performing: R^2 = .016, F(1, 33) = 5.39; Performing: R^2 = .207, F(1, 31) = 8.071, p < .05; High Performing: R^2 = .051, F(1, 76) = 4.047, p < 0.5

Sample: Overall sample n =165; Leader n = 24; Individual Contributor n = 141; Inside sales n = 123; Outside sales n = 42; Technical sales n = 46: Non-Technical sales n = 119

Performance Tiering: < 80% = Not Performing, n = 19; 80-95% = Low Performing, n = 35; 95-105% = Performing, n = 33; > 105% = High Performing, n = 78

Hypothesis 3.3:

To test the hypothesis that the Big Five personality trait, agreeableness was negatively associated with learning agility, individuals with higher scores for agreeableness are more likely to have a low learning agility score, a linear regression analysis was conducted. The overall model for the sample population was insignificant R^2 = .016, $F(1,163)$ = 2.590, as shown in Table 4.13. With the exception of the "Performing" (n = 33) group, R^2 = .207, $F(1, 31)$ = 8.071, p < .05, showcasing a moderate and significant positive relationship between learning agility and agreeableness. Therefore, this limited evidence refutes this hypothesis for this subpopulation. In other words, agreeableness accounted for 20% variance in learning agility among the "Performing" group. All other sample subpopulations showed no significant relationship, thus, the hypothesis was not supported.

Table 4.13 Linear regression learning agility and agreeableness

Linear Regression Learning Agility and Agreeableness					
	B	SE B	B	t	p
Overall Sample					
Constant	5.043	.210		24.018	.000
Agreeableness	.061	.038	.125	1.609	.109
Sales Role - Leaders					
Constant (Leaders)	6.019	.720		8.362	.000
Agreeableness	-.090	.131	-.145	-.686	.500
Sales Role – Individual Contributors					
Constant (Individual Contributors)	4.961	.220		22.552	.000
Agreeableness	.072	.040	.151	1.795	.075
Sales Type – Inside Sales					
Constant	4.976	.254		19.561	.000
Agreeableness	.067	.046	.132	1.459	.147
Sales Type – Outside Sales					
Constant	5.208	.360		14.484	.000
Agreeableness	.050	.066	.119	.760	.452
Performance - Not Performing					
Constant (Not Performing)	5.309	.599		8.862	.000
Agreeableness	-.050	.117	-.104	-.429	.673
Performance - Low Performing					
Constant (Low Performing)	5.490	.412		13.333	.000
Agreeableness	.076	.076	-.053	-.303	.764
Performance – Performing					
Constant (Performing)	4.643	.429		10.816	.000
Agreeableness	.177	.079	.375	2.255	.031
Performance - High Performing					
Constant (High Performing)	5.093	.323		15.747	.000
Agreeableness	.049	.057	.097	.853	.397

Note: Overall: R^2 = .016, $F(1,163)$ = 2.590 ; Leaders: R^2 = .021, $F(1, 22)$ = .471; Individual Contributors: R^2 = .023, $F(1, 139)$ = 3.222; Inside sales: R^2 = .017, $F(1, 121)$ = 2.129; Outside sales: R^2 = .014, $F(1, 40)$ = .577; Not Performing: R^2 =.098, $F(1, 17)$ = 1.840; Low Performing: R^2 = .016, $F(1, 33)$ = 5.39; Performing: R^2 = .207, $F(1, 31)$ = 8.071, $p < .05$; High Performing: R^2 = .051, $F(1, 76)$ = 4.047

Sample: Overall sample n =165; Leader n = 24; Individual Contributor n = 141; Inside sales n = 123; Outside sales n = 42; Technical sales n = 46: Non-Technical sales n = 119

Performance Tiering: < 80% = Not Performing, n = 19; 80-95% = Low Performing, n = 35; 95-105% = Performing, n = 33; > 105% = High Performing, n = 78

Hypothesis 3.4:

To test the hypothesis that the Big Five personality trait, neuroticism (emotional stability) was negatively associated with learning agility, individuals with lower scores for neuroticism are more likely to have a low learning agility score, a linear regression analysis was conducted. The overall model for the sample population was marginal but highly significant R^2 = .046, $F(1,163)$ = 7.885, $p < .01$ as shown in Table 4.14, thus Hypothesis 7 was supported. On further analysis, with the lens of the subpopulation groups there is a clear, low and strongly significant relationship between neuroticism and learning agility within Individual Contributors (n = 141), R^2 = .074, $F(1, 139)$ = 11.067 $p < .01$, but no relationship present for Leaders (n = 24). Similar results can be seen between the Inside sales population (n = 123), R^2 = .033, $F(1, 121)$ = 4.148, $p < .05$ as opposed to the Outside sales (n = 42) population. Additionally, the findings showcase a clear difference between those who are performing groups ("Performing" (n = 33) and "High Performing" (n = 78)), as opposed to those non-performing groups ("Not Performing" (n = 19) and "Low Performing" (n = 35)). While the variance between neuroticism and learning agility is low amongst the

groups, it is present (i.e. between 4%-7%), additionally, there is a high degree of significance which will be explored further in the next chapter.

Table 4.14 Linear regression learning agility and emotional stability (neuroticism)

Linear Regression Learning Agility and Emotional Stability					
	B	SE B	B	t	p
Overall Sample					
Constant	4.856	.189		25.656	.000
Emotional Stability	.096	.034	.215	2.808	.006
Sales Role – Leader					
Constant	5.788	.420		13.789	.000
Emotional Stability	-.047	.074	-.134	-.635	.532
Sales Role – Individual Contributor					
Constant	4.672	.208		22.438	.000
Emotional Stability	.125	.038	.272	3.327	.001
Sales Type – Inside Sales					
Constant	4.893	.225		21.718	.000
Emotional Stability	.085	.42	.182	2.037	.044
Sales Type – Outside Sales					
Constant	4.846	.363		13.353	.000
Emotional Stability	.108	.061	.269	1.770	.084
Performance – Not Performing					
Constant	4.840	.770		6.285	.000
Emotional Stability	.041	.142	.070	.289	.776
Performance – Low Performing					
Constant	5.053	.320		15.811	.000
Emotional Stability	.059	.058	.175	1.022	.314
Performance – Performing					
Constant	4.839	.359		13.468	.000
Emotional Stability	.143	.066	.362	2.159	.039
Performance – High Performing					
Constant	4.856	.189		25.656	.000
Emotional Stability	.096	.034	.215	2.808	.006

Note: R^2 = .046, $F(1,163)$ = 7.885 p < .01; Leaders: R^2 = .018, $F(1, 22)$ = .403; Individual Contributors: R^2 = .074, $F(1, 139)$ = 11.067 p < .01; Inside sales: R^2 = .033, $F(1, 121)$ = 4.148, p < .05; Outside sales: R^2 = .073, $F(1, 40)$ = 3.131; Not Performing: R^2 = .005, $F(1, 17)$ = .083; Low Performing: R^2 = .031, $F(1, 33)$ = 1.044; Performing: R^2 = .131, $F(1, 31)$ = 4.663, p < .05; High Performing: R^2 = .046, $F(1, 163)$ = 7.885, p < .05

Sample: Overall sample n =165; Leader n = 24; Individual Contributor n = 141; Inside sales n = 123; Outside sales n = 42; Technical sales n = 46: Non-Technical sales n = 119

Performance Tiering: < 80% = Not Performing, n = 19; 80-95% = Low Performing, n = 35; 95-105% = Performing, n = 33; > 105% = High Performing, n = 78

Hypothesis 4:

To test the hypothesis that psychological safe climate is positively associated with learning agility, individuals with a higher perceived psychological safe climate are more likely to have a higher learning agility score, a linear regression analysis was conducted. The overall model for the sample population (n = 165) was low but significant R^2 = .025, $F(1, 163)$ = 4.216, p < .05 as shown in Table 4.15, thus the hypothesis was supported. Further analysis illustrates the relationship between psychological safe climate and learning agility is low but significant within the Individual Contributors and "High Performing" population samples, with a variance of 3% - 6%, respectively. However, the strongest and most significant relationship was demonstrated within the "Not Performing" (n = 19) group, with a variance of 20% and the Outside sales (n = 42) with a variance of 25%. It is also noteworthy, results

indicated no evidence of a relationship for Leaders, and the sub populations of Inside sales, "Low Performing" and "Performing".

Table 4.15 Linear regression learning agility and psychological safe climate

Linear Regression Psychological safe climate associated with learning agility					
	B	SE B	B	t	p
Overall Sample					
Constant	4.876	.246		19.817	.000
Learning Agility	.100	.049	.159	2.053	.042
Sales Role - Leader					
Constant	6.303	.855		7.373	.000
Learning Agility	-.147	.161	-.191	-.911	.372
Sales Role – Individual Contributor					
Constant	4.796	.258		18.560	.000
Learning Agility	.112	.052	.181	2.170	.032
Sales Type – Inside Sales					
Constant	5.188	.289		17.972	.000
Learning Agility	.031	.059	.048	.531	.596
Sales Type – Outside Sales					
Constant	3.696	.482		7.662	.000
Learning Agility	.331	.089	.508	3.725	.001
Performance – Not Performing					
Constant	3.857	.595		6.478	.000
Learning Agility	.251	.122	.447	.2060	.055
Performance – Low Performing					
Constant	4.829	.413		11.701	.000
Learning Agility	.111	.083	.226	1.332	.192
Performance - Performing					
Constant	5.054	.623		7.995	.000
Learning Agility	.108	.126	.151	.851	.401
Performance – High Performing					
Constant	4.628	.323		14.314	.000
Learning Agility	.155	.065	.250	2.377	.020

Note: R^2 = .025, $F_{(1,163)}$ = 4.216, p < .05; Leaders: R^2 = .036, $F_{(1, 22)}$ = .830; Individual Contributors: R^2 = .033, $F_{(1, 139)}$ = 4.707, p < .05; Inside sales: R^2 = .002, $F_{(1, 121)}$ = .282; Outside sales: R^2 = .258, $F_{(1, 40)}$ = 13.878, p < .01; Not Performing: R^2 = .200, $F_{(1, 17)}$ = 4.242, p < .05 ; Low Performing: R^2 = .051, $F_{(1, 33)}$ = 1.774; Performing: R^2 = .023, $F_{(1, 31)}$ = .724; High Performing: R^2 = .062, $F_{(1, 85)}$ = 5.649, p < .05

Sample: Overall sample n =165; Leader n = 24; Individual Contributor n = 141; Inside sales n = 123; Outside sales n = 42; Technical sales n = 46: Non-Technical sales n = 119

Performance Tiering: < 80% = Not Performing, n = 19; 80-95% = Low Performing, n = 35; 95-105% = Performing, n = 33; > 105% = High Performing, n = 78

Exploratory analysis

Given the rich triangulated dataset collected from a number of sources on the sample population, a number of exploratory analysis were examined in an attempt to explain the results that were not in line with the expected theory. The following is a presentation of this exploratory analysis with links made to the hypothesis examined above.

Learning consumption

Upon analysing Leaders and Individual Contributor's data, contradictory results on H2 (a potential relationship between learning consumption and learning agility with performance) emerged. Therefore, further analysis was required to attempt to explain the results that were not in line with theory. Firstly,

an examination was conducted to illuminate the relationship, if any, between learning consumption and tenure (years of experience).

A Pearson correlation was conducted on the full sample population (n = 165) between total learning consumption and tenure, showcasing a negative and strongly significant correlation (r = -.339**, p < .01). Next, linear regression analysis was conducted with results indicating that tenure had a low to moderate, but significant negative predictor effect on learning consumption, R^2 = .115, $F(1,163)$ = 21.192, p < .01 as seen in the table below. In other words, tenure explains 11% variance in learning consumption, which will be explored further in the next chapter.

Table 4.16 Learning consumption association with tenure

Linear Regression Learning Consumption association with Tenure					
	B	*SE B*	B	t	p
Constant (Learning Consumption)	67.832	5.588		12.139	.000
Tenure	-2.742	.596	-.339	-4.603	.000

 Note: R^2 = .115, $F(1,163)$ = 21.192, p < .01; n =165

Secondly, further analysis was conducted on learning modalities (i.e. eLearning, video, Instructor Lead Training, Virtual Instructor Lead Training and webinar) to establish if there was a relationship with performance. A Pearson correlation was conducted as illustrated in the Table 4.17 below.

Table 4.17 Means, standard deviations and zero-order correlations on learning modalities

Means, Standard Deviations, and Zero-order Correlations									
		M	SD	1	2	3	4	5	6	7
1	Instructor Led Training	44.02	50.26							
2	eLearning	10.87	6.334	.031						
3	Video	8.42	4.096	.219**	.256**					
4	Virtual Instructor Led Training	1.41	.983	.067	-.157	.488**				
5	Webinar	.36	.1253	-.089	-.200	.195	.315*			
6	Total Learning Consumption	48.06	48.11	.197	.382*	.095	-.077	.315*		
7	Performance	1.08	.3473	.075	.983**	.478**	.091	-.077	.011	

**Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Following this analysis, a multiple regression test was conducted to establish if any modality was a predictor variable for performance with results indicating no significance R2 = .554, $F(4,5)$ = 1.553.

Table 4.18 Linear regression learning modalities predictive of performance

Linear Regression Learning Modalities predictive of Performance					
	B	SE B	B	t	p
Overall Sample					
Constant	.924	.088		10.549	.000
eLearning	-.012	.008	-.772	-1.564	.179
Video	.003	.005	.201	.496	.641
Virtual Instructor Lead Training	.060	.028	.894	2.125	.087
Instructor Lead Training (excluded variable)	B	.	.	.	.000

Learning agility

Due to the contradictory results found on several hypotheses testing learning agility, a series of multiple regression analyses were undertaken in order to establish what, if any mix of variables could be identified to support the prediction of performance. For the first phase of the multiple regression, a forced entry regression method was conducted with a phased approach with all predictors forced into the model simultaneously. Field (2013, p. 212) advises some scholars (i.e. Studenmund & Cassidy, 1987) advocate strongly for this method as the only appropriate method for theory testing as other techniques (i.e. Stepwise) are influenced by random variations in data, thus rarely giving replicable results if the model is retested.

The first phase of multiple regression tested the Big Five independent predictor variables (i.e. openness, conscientiousness, agreeableness, extraversion and emotional stability), along with learning agility and psychological safe climate to performance with no significant results found R^2 = .047, $F(7, 133)$ = .9421. Next, learning consumption was added to the regression with no significant results found, R^2 = .05029, $F(8, 132)$ = .08737. Finally, career level tenure was added to the regression model with similar results of no significance R^2 = .05119, $F(9, 131)$ = .7853.

When considering contextual variables that influence the relationship between learning agility and performance, an individual's personality traits make sense as potential moderators. Therefore, an exploratory analysis was conducted to examine this hypothesis with the possibility of an interaction effect. Since a leader's performance, is a culmination of their teams' performance, Leaders (n = 24) were removed from the dataset for this analysis, thus leaving only Individual Contributors (n = 141). A multiple regression analysis was conducted using the statistical analysis program, R, a language and environment for statistical computing and graphics.

An examination of the interactive effect on the coefficient of all Big Five variables (openness, extraversion, agreeableness, conscientiousness and emotional stability), along with learning agility and psychological safe climate is illustrated below.

Table 4.19 Learning agility interaction effect regression

Performance Predicted from Learning Agility, Psychological Safe Climate and Big Five	B	SE B	t	p
Constant	2.32676	3.39860	0.685	0.4948
Learning Agility	-0.33468	0.64072	-0.522	0.6023
Openness to Experience	-0.68549	0.35653	-1.923	0.0568*
Conscientiousness	0.06842	0.34452	0.199	0.8429
Agreeableness	0.32853	0.30696	1.070	0.2865
Extraversion	-0.19434	0.23421	-0.830	0.4082
Emotional Stability	-0.09822	0.27099	-0.362	0.7176
Psychological safe climate	0.34813	0.33307	1.045	0.2979
Learning Agility * Openness	0.13736	0.06612	2.078	0.0398*
Learning Agility * Emotional Stability	0.01749	0.05108	0.342	0.7326
Learning Agility * Conscientiousness	-0.01073	-0.164	--0.164	0.8697
Learning Agility * Agreeableness	-0.05744	0.05751	-0.999	0.3198
Learning Agility * Extraversion	0.03779	0. 04310	0.877	0.3822
Learning Agility * Psychological Safe Climate	-0.06284	0.06084	-1.033	0.3036

Note: R^2 = .09366, $F(1.01$ on $13, 127) = 1.9108$; n =141

The results presented in the Table 4.19 above, indicate learning agility interacting with openness to experience is a significant predictor for performance. In other words, one unit change of the interaction effect of learning agility and openness to experience outputs a change of .13736 in performance. As a result, of all personality traits that learning agility interacts with in the current population sample, the evidence suggests openness to experience is the strongest predictor of performance.

Figure 4.11 Openness interaction with learning agility
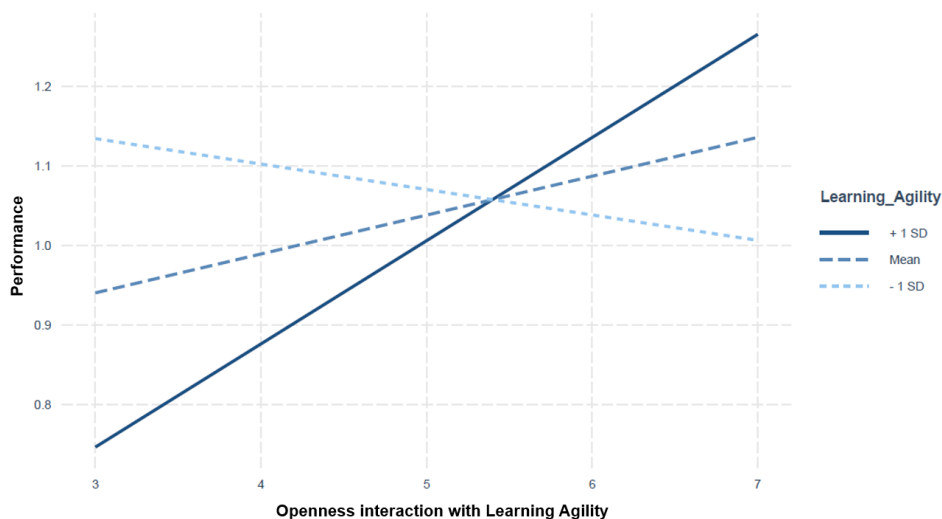
A point to note is that neither learning agility or openness to experience are categorical variables (i.e. made up of categories (e.g. male or female)), but instead continuous variables. Field (2015, p. 9) defines continuous variables as giving a "score for each persona and can take on any value on the measurement scale". Figure 4.13 depicts the graphical representation of the interaction effects of learning agility on

openness to experience with relation to performance. The default behaviour of this plot is to mean-centre all continuous variables not involved in the interaction so that predictive values are more easily understood. As a result, by default, figure 4.13 illustrates three lines, the standard deviation +1 above, the mean and the standard deviation -1 below. This illustrates how openness is being interacted with learning agility as performance increases. The mean slope indicates the upward positive relationship of the interaction effect of learning agility on openness to experience when you look at performance.

Sales position as a moderator

When considering contextual variables that influence the relationship between learning agility and performance, an individual's sales type and sales position make sense as potential moderators. Therefore, an exploratory analysis was conducted to examine this notion, separately. A multiple regression analysis was conducted using PROCESS, a statistical extension that can enhance the interpretability of moderation analysis (Field, 2009). Firstly, learning agility and performance were included as independent and dependant variables, respectively, sales position (i.e. Technical or Non-Technical sales) was added as a moderator with no covariates included as per previous hypothesis testing. The results as seen in Table 4.20 below indicate significance. PROCESS automatically mean-centred learning agility and dummy-coded sales position prior to analysis.

Table 4.20 Performance predicted from learning agility and sales type

Performance Predicted from Learning Agility and Sales Position						
	B	SE B	t	p	LLCI	ULCI
Constant (Overall Sample)	1.0274	.0524	19.6100	.0000	.9239	1.1308
Learning Agility	-.0675	.981	-.6886	.4921	-.2612	.1261
Sales Position	.0852	.0611	1.3946	.1650	-.0354	.2058
Learning Agility * Sales Position	.2054	.113	1.8451	.0669	-.0144	.4253

Note: R^2 = .05, $F(3, 161)$ = 3.1654, p < .05; n =165

Results revealed that the overall model significant, indicating that the variables in the model predicted performance better than chance, R^2 = .05, $F(3, 161)$ = 3.165, p < .05. There was no main effect for learning agility $t(161)$ = -.6886, non-significant, or sales type, $t(161)$ = 1.3946, non-significant. Additionally, an interaction between learning agility and sales position was not observed $t(161)$ = 1.8451, p = .0669. A similar examination was conducted using sales type as a moderator with similar results presented in the table below, R^2 = .0344, F(3, 161) = 1.9108; n =165.

Table 4.21 Performance predicted from learning agility and sales position

Performance Predicted from Learning Agility and Sales Type						
	B	SE B	t	p	LLCI	ULCI
Constant (Overall Sample)	1.1127	.0542	20.5304	.0000	1.0057	1.2197
Learning Agility	-.0786	.1047	-.7503.4542	-.2854	.1283	.1283
Sales Type	-.0371	.0625	-.5931	.5539	-.1605	.0863
Learning Agility * Sales Type	.1934	.1169	1.6542	.1000	-.0375	.4244

Note: R^2 = .0344, $F(3, 161)$ = 1.9108; n =165

Personality

Given the findings of correlations in Table 4.7, an exploratory analysis was conducted examining the Big Five personality traits relationship with performance, specifically with lens of sales type (i.e. Individual Contributor or Leader). Although personality was measured using a short scale of ten items, a series or linear regressions where conducted to examine performance against a Big Five personality trait (i.e. agreeableness) and performance. The findings indicate of all Big Five personality traits regressed for performance for Leaders, agreeableness R^2 = .178, $F(1,22)$ = 4.773, $p < .05$ and conscientiousness R^2 = .238, $F(1,22)$ = 6.865, $p < .05$ where both moderate and significant. In other words, agreeableness is accounts for 17% variance and conscientiousness accounts for 23% variance in performance. On the other hand, the only Big Five personality trait of significant for Individual Contributors regressed with performance was openness to experience, R^2 = .031, $F(1,139)$ = 4.511, $p < .05$.

Table 4.22 Big Five personality traits as predictors for performance

Linear Regression Big Five Personality traits predictive of Performance					
	B	SE B	B	t	p
Leader – Openness to Experience					
Constant	.899	.238		3.782	.001
Openness to Experience	.023	.044	.112	.530	.602
Individual Contributor - Openness to Experience					
Constant	.711	.181		3.926	.000
Openness to Experience	.066	.031	.177	2.124	.035
Leader - Conscientiousness					
Constant	.421	.232		1.811	.084
Conscientiousness	.098	.038	.488	2.620	.016
Individual Contributor - Conscientiousness					
Constant	.795	.211		3.762	.000
Conscientiousness	.047	.033	.119	1.407	.162
Leader – Agreeableness					
Constant	.516	.235		2.200	.039
Agreeableness	.094	.043	.422	2.185	.040
Individual Contributor - Agreeableness					
Constant	.933	.138		6.745	.000
Agreeableness	.029	.025	.098	1.161	.248
Leader - Extraversion					
Constant	.986	.145		6.814	.000
Extraversion	.007	.028	.056	.262	.796
Individual Contributor - Extraversion					
Constant	1.020	.110		9.315	.000
Extraversion	.014	.022	.056	.663	.508
Leader – Emotional Stability					
Constant	.953	.150		6.361	.000
Emotional Stability	.013	.026	.102	.479	.637
Individual Contributor – Emotional Stability					
Constant	.943	.135		7.008	.000
Emotional Stability	.027	.024	.095	1.121	.264

Note: Openness to experience: Leader - R^2 = .013, $F(1, 22)$ = .281; Individual Contributor - R^2 = .031, $F(1,139)$ = 4.511, $p < .05$; Conscientiousness: Leader R^2 = .238, $F(1,22)$ = 6.865, $p < .05$; Individual Contributor - R^2 = .014, $F(1,139)$ = 1.981, Agreeableness: Leader R^2 = .178, $F(1,22)$ = 4.773, $p < .05$; Individual Contributor – R^2 = .01, $F(1,139)$ = 1.347; Extraversion: Leader - R^2 = .003, $F(1,22)$ = .069 ; Individual Contributor - R^2 = .003, $F(1,139)$ = .440; Emotional Stability: Leader - R^2 = .010, $F(1,22)$ = .230; Individual Contributor R^2 = .009, $F(1,139)$ = 1.256

Note: Individual Contributor n = 141; Leader n = 24

It is noteworthy that in the context of the short instrument used due to it being only part of the focus of this inquiry, rather than the central. These findings provide an insight into further areas exploration research around personality and performance, more specifically in differences between both an individual contributor or leader role.

Psychological safe climate

Given the results of hypothesis 4, and the relationship of psychological safe climate on learning agility, the final exploratory analysis considering the dataset available explored the notion of psychological safe climate on performance. To that end, Pearson correlation analysis was conducted to explore the strength and direction if any, of the relationship showcasing. Non-significant results were returned across the overall population, with the exception of the "Non-Performing" subgroup population. Results indicated, a negative and strongly significant correlation (r = -.635**, $p < .01$). Linear regression was conducted in order to explore a relationship, if any, with the results indicating no overall significant result on the sample. Similar results were seen across all sub population groups with one exception,

"Low Performing" (n = 19) R^2 = 0.403, $F(1, 17)$ = 11.482, p < .01. Results indicate a moderate and strongly significant relationship between psychological safe climate and performance. In other words, psychological safe climate explains 40% variance in performance of this sub group alone, which will be explored further in the next chapter.

Table 4.23 Psychological safe climate a predictor of performance

Linear Regression Psychological safe climate predictor of Performance					
	B	SE B	B	t	p
Overall Sample					
Constant	.985	.149		6.613	.000
Psychological Safe Climate	.019	.029	.051	.653	.515
Sales Role - Leader					
Constant	.954	.309		3.082	.005
Psychological Safe Climate	.013	.058	.048	.225	.824
Sales Role – Individual Contributor					
Constant	.973	.164		5.939	.000
Psychological Safe Climate	.025	.033	.061	.726	.469
Sales Type – Inside Sales					
Constant	.973	.175		5.567	.000
Psychological Safe Climate	.020	.036	.052	.575	.566
Sales Type – Outside Sales					
Constant	1.109	.325		3.410	.001
Psychological Safe Climate	-.001	.060	-.002	-.013	.990
Performance – Not Performing					
Constant	.969	.102		9.515	.000
Psychological Safe Climate	-.071	.021	-.635	-3.3888	.003
Performance – Low Performing					
Constant	.863	.036		23.947	.000
Psychological Safe Climate	.005	.007	.118	.683	.499
Performance - Performing					
Constant	.952	.029		32.416	.000
Psychological Safe Climate	.009	.006	.266	1.534	.135
Performance – High Performing					
Constant	1.384	.238		5.807	.000
Psychological Safe Climate	-.014	.046	-.036	-.310	.757

Note: R^2 = .003, $F(1,163)$ = .426; Leaders: R^2 = .002, $F(1, 22)$ = .051; Individual Contributors: R^2 = .004, $F(1, 139)$ = 0.528; Inside sales: R^2 = .003, $F(1, 121)$ = .331; Outside sales: R^2 = .000, $F(1, 40)$ = 0.000; Not Performing: R^2 = 0.403, $F(1, 17)$ = 11.482, p < .01; Low Performing: R^2 = .014, $F(1, 33)$ = 0.467; Performing: R^2 = .071, $F(1, 31)$ = 2.352; High Performing: R^2 = .001, $F(1, 76)$ = .096

Sample: Overall sample n =165; Leader n = 24; Individual Contributor n = 141; Inside sales n = 123; Outside sales n = 42; Technical sales n = 46: Non-Technical sales n = 119

Performance Tiering: < 80% = Not Performing, n = 19; 80-95% = Low Performing, n = 35; 95-105% = Performing, n = 33; > 105% = High Performing, n = 78

Impact of regional culture

Given the phenomena of interest in this inquiry is driven at an individual level it is argued that this variation does not hinder the hypothesis investigation. Furthermore, there is possibility that many of the sample sales population may originate from a different country or region from their current location and target markets in which they support. However, given the global nature of the overall population sample a view was taken of the learning agility, psychological safe climate and performance across regions as indicated below.

Table 4.24 Regional mean scores by sales population

Regional Mean scores by Sales Population				
	APJ	**EMEA**	**US**	**Overall**
Learning Agility	5.5641	5.2193	5.6698	5.37
Psychological Safe Climate	4.65	5.03	5.55	4.97
Performance	1.1949	1.02	1.061167	1.02

Sample: Overall sample n= 165; APJ n = 50; EMEA n = 97; US n = 18

Additional analysis was conducted to explore if any relationship existed between learning agility and performance. Non-significant results were returned across the regional sample populations. Further analysis was conducted to investigate if a relationship existed between psychological safe climate and learning agility, from a regional perspective. While the results for both APJ and the US were non-significant, a low but significant relationship was found in EMEA, R^2 = .041, $F(1, 95)$ = 4.040, p < .05 as shown in Table 4.25. While outside the bounds of this research, future research in this area may prove fruitful.

Table 4.25 Regional psychological safe climate associated with learning agility

Linear Regression Psychological Safe Climate associated with Learning Agility					
	B	**SE B**	**B**	**t**	**p**
APJ					
Constant	5.348	.382		14.006	.000
Learning Agility	.046	.081	.083	.577	.567
EMEA					
Constant	4.537	.344		13.174	.000
Learning Agility	.136	.068	.202	2.010	.047
US					
Constant	4.375	.675		6.484	.000
Learning Agility	.233	.120	.437	1.941	.070

Note: APJ: R^2 = .007, F(1, 48) = 0.333; EMEA: R^2 = .041, F(1, 95) = 4.040; US: R^2 = .191, F(1, 16) = 3.767; **Coded:** APJ = 1; EMEA = 0; US = 2

Sample: Overall sample n= 165; APJ n = 50; EMEA n = 97; US n = 18

Summary

The present study examined the relationships between learning agility and job performance. Accordingly, a measure of learning agility, psychological Safe climate and personality traits was administered to 165 participants and assessed against their historical performance and learning consumption. Each of the scales (learning agility, psychological safe climate) were examined and found to have good internal consistent reliability, except for the TIPI (personality) scale which aligned to the authors' findings of a reliance on content validity (Gosling, Rentfrow, and Swann,2003). An analysis of variance (ANOVA) indicated that a learning agility score did not vary based on sales role, position or tenure. However, variation was seen by sales type (i.e. Inside sales or Outside sales). Consequently,

sales type, along with performance was used for analysis. Additionally, given the unique opportunity sales role (i.e. Individual Contributor and Leader) was also used.

In summary, several key findings emerge from the analysis. Firstly, personality traits were found to be similar across the workforce, however depending on the role and responsibility (i.e. Individual Contributors and Leaders) and environment (Inside sellers vs. Outside sellers) within the workforce some sub groups score stronger on some personality traits as opposed to others. Overall, the sample is representative of a highly learning agile workforce, exemplified with strong scores in the learning agility dimension of speed and collaboration, while the lower scores were found on feedback seeking, performance risk taking and experimenting. From a learning consumption perspective, strong learning consumption was observed throughout the year, with two obvious peaks aligned to product and solutions launches to the market. Pertinently Individual Contributors experience far more learning consumption than Leaders. From a psychological climate perspective, depending on the role and area of the business psychological safe climate is experienced differently among the sample.

In examining the hypothesis, the following observations were noted, with a summary illustrated in Table 4.26.

- **H1** - No relationship found between learning agility and performance. However small exception within the Inside sales group (4% variance) and the "Performing" group (13%)

- **H2** - No relationship was found between learning consumption mediating the relationship between learning agility and performance, with only a very small level (4% variance) found within the Inside sales audience.

- **H3.0** - A significant relationship exists between the Big Five personality trait openness to experience and learning agility. Of all populations, a large variance within the Outside sales population (23%). It is also noteworthy, there was no significant relationship among the performance tiering categories of "Not Performing", "Low Performing" and "Performing".

- **H3.1** - No relationship between learning agility and extraversion, apart from Leaders where there was a strong relationship as indicated with a high level of variance (30%)

- **H3.2** - A very low relationship (3% variance) exists between conscientiousness and learning agility. Interestingly a moderate and significant relationship is present among Outside Sellers (22% variance)

- **H3.3** - No relationship exists between agreeableness and learning agility, with the exception of the "Performing" group where a relationship was found (20% variance).

- ***H3.4*** - A low variance relationship exists between neuroticism (emotional stability) and learning agility.
- ***H4*** - A low but significant relationship exists between learning agility and psychological safe climate. This is especially true for the "Not Performing" group (20% variance) and the Outside sales group (25% variance).

Table 4.26 Summary hypothesis supported and unsupported results

| Hypothesis | Overall | Sales Role | | Sales Type | | Performance | | | |
		Individual Contributor	Leader	Inside Sales	Outside Sales	Not Performing	Low Performing	Performing	High Performing
H1 Learning Agility predictive of Performance	Not suppported	Not suppported	Not suppported	Supported	Not supported	Not supported	Not supported	Supported	Not supported
H2 Learning Agility and Learning Consumption predictive of Performance	Not suppported	Not suppported	Not suppported	Supported	Not suppported	Not suppported	Not suppported	Not supported	Not suppported
H3.0 Learning Agility positive association with Opennness to Experience	Supported	Supported	Not suppported	Supported	Supported	Not suppported	Not suppported	Not suppported	Supported
H3.1 Learning Agility positive association with Extraversion	Not suppported	Not suppported	Supported	Not suppported	Not suppported	Not suppported	Not suppported	Not suppported	Not suppported
H3.2 Learning Agility positive association with Conscientiousness	Supported	Supported	Not suppported	Not supported	Supported	Supported	Not supported	Supported	Supported
H3.3 Learning Agility negative association with Agreeableness	Not suppported	Not suppported	Not suppported	Not suppported	Not supported	Not supported	Not supported	Supported	Not supported
H3.4 Learning Agility negative association with Neuroticism	Supported	Supported	Not suppported	Supported	Not supported	Not supported	Not supported	Supported	Supported
H4 Learning Agility positively association with Pyschological Safe Climate	Supported	Supported	Not suppported	Not suppported	Supported	Supported	Not supported	Not supported	Supported

Due to some contradictory results in exploring the hypothesis, additional exploratory analysis was undertaken with the following findings. A significant positive interaction effect was found between learning agility and openness to experience indicating it to be a strong predictor of performance, illustrating one unit change of the interaction effect of learning agility and openness to experience outputs a change of .13736 in performance. The analysis and exploratory analysis contribute significantly to the study, by both informing the research questions and identifying further research opportunities. The next chapter will discuss these findings in the overall context of the literature.

Chapter 5 - Discussion and Conclusion

This chapter discusses the findings of the present study and considers the implications and applications of the results. Each of the hypotheses are reviewed in light of the findings and the relationship with current literature and research. Study limitations along with suggested future research will be presented. Finally, implications applicable to the organisation will be outlined.

This study was an examination of the learning agility construct, the ability to quickly grasp one's understanding of a situation and move across perspectives flexibly in service of learning (DeRue, Ashford & Myers 2012). More specifically, this took place under the lens of De Rue, Ashford and Myer's (2012) learning agility conceptual framework encapsulating the underlying processes associated with learning agility. The primary objective of the research was an examination, within a sales workforce, the relationship learning agility has as a predictor to sales performance. Additionally, the research also examines the individual antecedents (i.e. Big Five personality traits), contextual and environmental factors (i.e. psychological safe climate and learning consumption) which influence learning agility in order to expand our narrow understanding of the construct.

Bedford (2011) uses an apt analogy, in that if learning agility were a painting it would be from the impressionist school. From a distance it seems to have form and definition, but as you look more closely, it becomes increasingly difficult to make out the details. This study sought to sharpen the brush strokes and provide some evidence to better understand the role learning agility in job performance. Additionally, this study sought to examine personality traits, contextual factors, culture and climate which can play a role in influencing a learning agile workforce and workplace. The study examined the following hypothesis:

1. Learning agility is positively associated with performance. Those individuals with high learning agility are likely to have associated high performance.
2. Learning consumption mediates the relationship between learning agility and performance
3.0 Learning agility is positively associated with openness to experience. Those individuals with high learning agility are likely to have associated high scores for openness to experience.
3.1 Learning agility is positively associated with extraversion. Those individuals with high learning agility are likely to have associated high scores for extraversion.
3.2 Learning agility is negatively associated with conscientiousness. Those individuals with high learning agility are likely to have associated low scores for conscientiousness.

3.3 Learning agility is positively associated with agreeableness. Those individuals with high learning agility are likely to have associated high scores for agreeableness.

3.4 Learning agility is negatively associated with neuroticism. Those individuals with high learning agility are likely to have associated low scores for neuroticism.

4. Psychological safe climate is positively associated with learning agility. Those individuals with higher perceived psychological safe climate are more likely to be associated with higher learning agility.

The present chapter is broken into three sections. The first section provides an overview, in the form of a discussion of the findings, at first a macro level, examining the contributions to knowledge from the overall research study, before then moving into a micro level perspective of the findings specifically related to the hypotheses. The second section discusses the exploratory analysis of the learning agility construct in relation to the overarching research questions. The final section discusses the study's limitations, along with recommendations for future research.

Contribution to knowledge

Broadly speaking for research to be useful, it must fulfil two fundamental criteria; the research study must contribute originality to theory and the body of knowledge; and it must further practitioners' understanding with the result of improving practices (Lawler et al., 1999). This study has aimed to improve both academic and practitioner understanding of learning agility as a predictor of performance, along with illuminating the understanding of contextual and environmental factors which may influence this relationship. Thus, adding to the growing body of knowledge in this field and providing insights for future research.

In academic terms, the study has involved the empirical investigation of hypotheses derived from the literature. The study examines the existing theorical learning agility construct proposed by DeRue, Ashford and Myer (2012) and applies it in a new context of a sales workforce, made up of both individual contributors and leaders, within an IT multinational. This study not only investigated this existing framework of learning agility but sought to progress the existing literature by also addressing the conceptual boundaries and their causal relationships of learning agility in the form of individual level antecedents, contextual and environmental factors. This has enabled a platform for the discovery of the significance of these boundaries' influence on learning agility in relation to performance. The domains and extent of contributions made to each field is summarised in table 5.0.

Table 5.0: Domains and extent of contribution

Domains of Contribution	Extent of Contribution		
	What has been supported	**What has been developed**	**What has been found which is new**
Theoretical Knowledge	The conceptualisation of the learning agility framework within a broader nomological network of related constructs.	Conceptual boundaries and causal relationships in the form of individual level antecedents (i.e. openness to experience), contextual and environmental factors (i.e. psychological safe climate) within the learning agility framework.	No relationship has been found between learning agility and either performance or learning consumption on a longitudinal basis. The significance of understanding the influence individual level antecedents (i.e. openness to experience, conscientiousness and neuroticism) and contextual factors (i.e. psychological safe climate) on learning agility.
Context	VUCA nature of sales climate and environment within large IT multinationals.	The first study in learning agility literature to examine learning agility in an IT multinational among a sales workforce of both leaders and individual contributors.	Non-predictive nature of learning agility on sales performance within a VUCA climate and environment. Influence of environmental factors which moderate the effects of learning agility within a sales environment.
Empirical Evidence	Inconclusive relationship between learning agility and performance. While no relationship exists for the overall population, a relationship was found for two subpopulations. Learning agility was positively association with	The context and different characteristics of the inconclusive relationship between learning agility and performance. The context and different characteristics of learning agility's positive	Learning agility is not associated with learning consumption. Learning agility is positively associated with a psychological safe climate within the sales workforce of the organisation.

	Big Five personality trait of openness to experience. The importance of adopting a broad definition of learning agility independent of any particular experience type.	association with openness to experience.	Learning agility is associated with conscientiousness and neuroticism. Learning agility's interaction effect with openness to experience.
Methodological approaches	The value of a pragmatic case study approach using quantitative analysis when the construct being explored has multiple variables.	A pragmatic approach to studying the learning agility construct in relation to performance.	The value of combining objective longitudinal performance data, learning consumption and a survey assessing learning agility, psychological safe climate and personality traits with a pragmatic approach.
Knowledge of Practice	The inconsistency in measuring performance and learning agility.	The use of a longitudinal measure of performance and learning consumption.	The need for ensuring a psychological safe climate is in place within the workplace to extrapolate the benefits of learning agility. Strong learning agility is beneficial within the workforce, however not all job roles require the same level of learning agility to be successful. Difference between leaders' and individual contributor's learning consumption behaviours.

Source: Adapted from Farndale (2004)

Conceptualisation of learning agility

This research study has supported the narrowing of the conceptualisation of learning agility, utilising DeRue, Ashford and Myer's (2012) model of learning agility, within a broader nomological network of related constructs. Thus, adding to the growing learning agility literature by answering DeRue, Ashford

and Myer's (2012) call to address the need of adding clarity and removing some of the discourse within the field around conceptual clarity and theoretical grounding. Historically, within the literature numerous measures of learning agility have been used, as learning agility has garnered interest at a faster pace in industry than empirical substantiation from academia. However, this research addresses this need for additional empirical research and supports the use of the BLAI survey to assess learning agility. The BLAI survey is a targeted measure of learning agility that is reliable, valid, and empirically differentiates between speed and flexibility thus allowing for researchers to assess variances explained by learning agility beyond other related constructs. With this added clarity of a more focused concept and measure, the landscape can be assessed more precisely allowing knowledge to accumulate and the field to advance the understanding of how individuals and organisations can realise the beneficial outcomes related to a learning agile workforce.

The study indicated, with empirical evidence, there is no relationship between learning agility and performance across the overall sample population, although within two subpopulations ("Inside sales" and "Performing") a relationship exists. Consequently, although the findings are inconclusive, they do support findings within the field which are discussed in more detail within the respective hypothesis below.

Contextual conceptual boundaries and causal relationships

Furthermore, the research has contributed to the gaps in the literature by addressing the conceptual boundaries and causal relationships in the context of an IT multinational's sales workforce of both leaders and individual contributors. In the past, debate for the importance of learning agility is innately contextualised, as it elicits the dynamic and multifaceted nature of organisations and their environments. This research study illuminates the role of context in shaping the benefits of learning agility for both individuals and organisations. Thus, by shedding much needed light on individual level antecedents (i.e. openness to experience) and contextual and environmental factors (i.e. psychological safe climate and learning consumption) organisations can foster in supporting learning agility in their employees. By demonstrating the individual level antecedents and contextual and environment factors, the study has provided an empirical basis for greater theoretical exploration of the influence on learning agility.

Significance of variables within learning agility model

The study, through empirical evidence, has discovered several new findings which contribute to the field. Firstly, the significance and influence of individual antecedents (i.e. openness to experience,

conscientiousness and neuroticism), and the underlying contextual and environmental factors (psychological safe climate and learning consumption) on learning agility among a sales workforce of leaders and individual contributors. One of the most interesting findings of this study was the discovery of a relationship between conscientiousness and neuroticism with learning agility, in contrast to some previous scholarly suggestions (De Meuse, 2017). Additionally, another important development, contributing new knowledge to the existing literature are the findings from the exploratory analysis discovered an interaction effect between learning agility and openness to experience, no previous research has provided evidence of this relationship.

Given the pertinent findings above, it is also worthy to note the methodological approach deployed. A pragmatic framework allowed the use of multiple sources of historical archival longitudinal data, to obtain an individual's performance results and learning behaviour. Additionally, multiple individual instruments collated to assess an individual's learning agility, personality traits and psychological safe climate. Consequently, at a research design level, the study has provided a framework for further research while allowing for stronger conclusions to be made about learning agility and performance given the longitudinal nature of data collection.

Practical implications

At a macro level, this research has implications for the practice of learning and development within the context of the organisation and sales workforce. While no relationship was found between learning agility and performance, an abundance of evidence exists advocating the benefits of agile learners within the workplace enabling organisations to be suitability positioned to adapt to change (Gravett and Caldwell, 2016). Within the context of this research study, psychological safe climate had a significantly positive relationship in influencing the learning agility of the sales workforce. Thus, organisations should focus on ensuring measures are in place to ensure individuals feel psychologically safe (i.e. feel they can take risks, explore different opinions without concern of losing professional credibility) within their work environment to reap the benefits of a learning agile workforce.

While, learning agility is clearly beneficial within the workforce, this study found not all job roles may require the same level of learning agility to be successful. In practical terms, organisations should focus on identifying individuals with high learning agility and matching them to complex roles, and those of lower learning agility to more task orientated roles which could see the most beneficial outcomes. Additional practical implications are discussed further in the next section which examines the micro level perspective of each of the hypotheses, along with exploratory analysis.

Preliminary descriptive analysis

The results of the descriptive analysis within this study indicated a VUCA environment, as identified within the literature, in which individuals and organisations operate within in the backdrop of unprecedented change. This was highlighted in the present study, with the subdimension of "time for reflection" within the psychological safe climate scale scoring lowest across the overall sample population. Overall the high score for psychological safe climate for the overall population, which as highlighted within the literature, indicates an environment conducive for learning agility and team effectiveness (Edmondson, 2001; Duhigg, 2016). It can thus be interpreted, that the sales workforce operates within an environment where individuals feel safe for interpersonal risk taking, including exploring differing opinions and seeking feedback. Given this context, it is not surprising the sales workforce scored high on learning agility. It is worth noting, the two sub dimensions within the learning agility scale of speed and flexibility scored highly across the overall population indicating, as noted within the literature this ability for individuals to get up to speed quickly and think flexibly within an experience and also across experiences, both underpinning the structure and set of behaviours of learning agility (DeRue, Ashford and Myers, 2012).

The one-way ANOVA that examined learning agility across various groupings across the sample population (i.e. sales roles (Leader and Individual Contributor), sales types (Inside or Outside sales), sales position (Technical or Non-Technical)) along with tenure revealed a significant difference only by the sales type (Inside or Outside sales) group. Although further analysis was conducted with additional groupings, from a practical standpoint, this result is important. Although a statistically low, but significant difference was discovered between Inside and Outside sellers, this result highlights that within the same specific profession (i.e. sales) and industry (i.e. technology) learning agility may differ between groups based on job type.

The ability to learn from experience is a critical competency regardless of the workplace is widely acknowledged from numerous scholars within the literature (Spreitzer, McCall, & Mahoney, 1997; Kaiser & Craig, 2004). However, the findings highlight learning agility differs between groups and adds empirical evidence to De Meuse's (2017) assertion that learning agility is not required at the same level across job roles. The findings of no correlation between learning agility and experience (i.e. tenure in role or workplace) also compliment Yip and Wilson (2010) findings that experience does not explain an individual's ability to learn from experience, and the assertion by many scholars that individuals learn at different rates and require different learning experiences (Zaccaro & Klimoski, 2001; Mumford, et al.,

2000; Day, Zaccaro & Halpin, 2004; Lord & Hall, 2005). In essence, experience within a job role or workplace alone is insufficient, but rather individuals distilling learning from the experience in service of behavioural change, flexibility and individual growth all need to be performed well (De Meuse, 2019). To put another way, the results strengthens the concept that learning agility is not necessity about how much one knows, instead the ability for one to "pick up" information, extract what is important, and apply what one knows. In this way, the assertion of meta cognitive ability (namely practical intelligence and tacit knowledge (Sternberg et al., 1995)) as an antecedent with DeRue, Ashford and Myer's (2012) learning agility model seems apt.

One final area worthy of note, is the study's resulting difference in learning consumption within the sales workforce, between Leaders and Individual Contributors. Due to learning consumption measuring only formal learning, these results need to be interpreted with caution. As noted within the literature, leaders learn from experience which can take many forms; formal classroom programs, coaching, mentoring or on the job assignments. Thus, the learning consumption has captured only a portion of these experiences which leaders maybe embarking upon. Although outside the bounds of this research, further investigation seems warranted.

Hypothesis 1: Learning agility is positively associated with performance

Based on substantial previous research an ambivalent relationship has been found between learning agility and performance (Spreitzer, McCall and Mahoney, 1997; De Meuse, 2017; De Meuse, 2019). The findings from this current research study and analysis were among the most interesting results. Firstly, for the overall sample, learning agility and performance were not found to be significantly correlated to each other. Follow up analysis indicated that learning agility did not account for a statistically significant, unique portion of variance in performance. Although no relationship between learning agility and performance for Leaders was found to be present, it should be noted that performance for Leaders is measured as a culmination of their teams' performance rather than their individual performance. Contradictory to these findings, when analysis was conducted at a group level examining the sales type and performance, both the Inside Sellers and "Performing" subpopulations groups indicated that learning agility did account for a statistically significant, unique portion of variance in performance, all be it low at 3% and 13%, respectively. These findings support the notion of influence both contextual and environmental factors have on the learning agility construct.

When learning agility and performance was examined in previous research, the overall results are inconclusive. While some researchers (i.e. Spreitzer, McCall and Mahoney, 1997; Drinka, 2018;

Catenacci-Francois, 2018) have found that there is no relationship between the two variables, a higher number of researchers (Eichinger and Lombardo, 2004, Connolly, 2001, De Meuse, 2017, De Meuse, 2019) have found that such a relationship did exist, including the meta-analysis on the relationship between learning agility and leader success (De Meuse, 2017). The findings within this current study, have added empirical evidence to both perspectives. While there was no relationship found in the overall sample, two subpopulations indicated a relationship existed.

Several overarching observations, within the context of literature, support in explaining these findings. Firstly, a substantial portion of the previous research has focused on leaders rather than individual contributors. For example, De Meuse's (2019) meta-analysis of twenty field studies examine the relationship of learning agility and leader success. Secondly, there has been a lack of consistency in the measurement of performance (De Meuse, 2017), with many reporting on a snapshot, point in time view, dependant on numerous self-rating or multi-rator scales being deployed (De Meuse, 2017, De Meuse, 2019). A common limitation within the approach presents the challenge of subjectivity and bias in the measurements of performance. Finally, there has been a lack of consistency in the measure of the learning agility construct with multiple different instruments used (i.e. viaEDGE, TALENTx7, BLAI etc.) (De Meuse, 2017).

This research differentiates itself from existing literature with its primary focus on individual contributors along with leaders operating in a dynamic fast paced environment. While Connolly's (2001) study concentrates solely on individual contributors, one limitation to the generalizability of the findings is the focus on law enforcement officers. The context and environment in which law enforcement officers work value following orders and standardised procedures with limited questioning of status quo. Within this context of this study, the overall findings further emphasize that the relationship between learning agility and performance is likely dependent upon contextual variables (Lewin, 1936). Taking this perspective, aids in explaining why a relationship was seen for some subpopulations within the group and not others, or the overall population.

Secondly, it addresses the criticism in a substantial portion of previous research of a lack of consistency in performance measures by using a consistent sales performance measurement over a longitudinal period of twelve months, that is objective and unbiased (sales quota vs. sales attainment). Thirdly, this study offers consistency in the measurement of learning agility by utilising the DeRue, Ashford and Myer (2012) learning agility model as a framework in which to conduct the study, along with BLAI scale to measure learning agility (i.e. Drinka, 2018; Catenacci-Francois, 2018).

A pertinent and significant finding when compared across all roles examined, was that Leaders demonstrated the highest levels of learning agility when compared to Individual Contributors. This may support the notion that learning agility is an important capability for roles which have fewer prescribed tasks and are seen as more complex, such as leadership (De Meuse, 2017). Put another way, the subdimensions of the learning agility construct (feedback seeking, be open to risk taking, collaboration, experimentation and reflection while demonstrating flexibility and speed) may prove more beneficial traits to have in some roles (i.e. Leaders) as opposed to others (i.e. Individual Contributors) which may not require these traits at the same level to achieve effective performance. This perspective may also be further supported when viewing Leaders' approach to learning consumption as opposed to Individual Contributors.

Hypothesis 2: Learning consumption mediates the relationship between learning agility and performance

The present study found no significance in learning consumption mediating the relationship between learning agility and performance within the overall sample population. Similar results were seen across all subpopulation groups, with the exception of Inside sales (n = 123) where a statistically low, but significant, relationship was seen. However, caution should be exercised in any conclusion drawn from this result given it accounted for only a 4% variance. The overall sample population demonstrated a healthy consumption of learning in a continuous fashion throughout the year, aside from Leaders which were a notable exception when contrasted to Individual Contributors. In the context of current literature, specifically Lombardo and Eichinger's (2000) original view of the learning agility construct, defined as the ability to "learn new competencies in order to perform under first-time, tough, or different conditions" (p. 323) this result is not overtly surprising.   Of all subpopulation groups Inside sellers would be seen as a generalist role, as opposed to specialist role, dealing with a large product and solutions portfolio thus leading to a wider variety of first-time, tough, or different conditions.

Another perspective is training is often viewed as either formal (i.e. classroom, eLearning, virtual instructor led etc.), or informal (i.e. on the job experiences, coaching, mentoring etc.), two sides of the same coin if you will. While formal training can be measured via consumption, measuring informal training by its very nature is far more difficult. Within this study, a narrow focus on individuals training was taken, in that the learning consumption measurement is a reflection of only formal training captured, rather than "informal training or training that occurs as part of day to day on-the-job experiences trial and error, and learning by doing" (Garavan et al., 2019). Furthermore, within the workplace, learning has become more socially embedded and is "increasingly controlled by the learner

and frequently occurs outside the classroom" (Noe, Clarke and Klein, 2014). The notion that learning agility would have a stronger influence if the ability to measure informal learning via a variable was possible seems more likely. By its very nature, during informal training the locus of knowledge acquisition to knowledge application is far shorter and can often happen in the "flow of work" which seems closer in alignment to learning agility construct and definition. In this light, it seems intuitive as to why Leaders would have such a low learning consumption score, in contrast to obtaining the highest learning agility score of all sub population groups. It further supports the notion that different jobs require different levels of learning agility, specifically roles which require risk-taking, experimenting and collaboration (i.e. Leaders).

Hypothesis 3.0: Openness to experience as a predictor of learning agility

As predicted openness to experience accounted for a small, but statistically significant, unique portion of variance in learning agility. Within the literature, Connolly's (2001) research painted a somewhat murky picture of the relationship between personality traits and learning agility. While Connolly's (2001) research concluded no relationship between the overarching construct of learning agility and openness to experience, a relationship between two of Lombardo and Eichinger's (2000) four sub factors which make up the learning agility construct was reported. The findings of this research add weight and evidence to De Meuse's (2017) conventional wisdom of a relationship between openness to experience and learning agility. Furthermore, the findings could compliment Major, Turner and Fletcher's (2006) research between openness to experience and motivation to learn (i.e. feedback and information seeking). On an intuitive level, this makes a great deal of sense. A person who scores high in openness to experience (i.e. curious, inquisitive and has strong intelligence) will be more motivated in pursuing opportunities to learn and will engage in "continuous learning", including formal and informal. Additionally, to be successfully in a such endeavours an individual would be required to be an agile learner, seeking feedback, open to risk taking, collaboration, experimentation and reflection while demonstrating flexibility and speed, thus demonstrating learning agility.

Hypothesis 3.1: Extraversion as a predictor of learning agility

The Big Five personality trait of extraversion was predicted to be positively associated with learning agility. A linear regression analysis indicated that extraversion did not account for a statistically significant unique portion of variance in learning agility. This finding refutes the notion put forward by De Meuse (2017) that extraversion is related to learning agility, while also supports Connolly's (2001) findings of no relationship. Interestingly, Leaders scored higher than Individual Contributors on

extraversion supporting the research from scholars who identified the correlation between leader emergence and effectiveness with extraversion (Barrick & Mount, 1991; Hough, Ones & Viswesvaran, 1998; Judge et al., 2002). The hallmarks of individuals who score high for extraversion are seen to display high degrees of sociability, assertiveness and talkativeness. Consequently, research within the adult learning and development field suggests that extraversion enhances learning opportunities (e.g. networking, mentoring etc.) (Crant and Bateman, 2000; Major, Turner and Fletcher, 2006). With that said, learning agility is not the pursuit of learning opportunities in isolation, but rather is the ability to quickly grasp one's understanding of a situation and move across perspectives flexibly in the service or learning (DeRue, Ashford & Myers, 2012). In other words, successful individuals are inclined to learn from experiences far quicker than unsuccessful individuals, and are more agile when adapting to new, rapidly-changing circumstances (McCauley et al., 1994; Spreitzer, McCall, & Mahoney, 1997; McCall, 2010; De Meuse et al., 2017). In this light, it is not the seeking of more experiences, but rather the distilling of what is important within them and how to apply what ones knows as result.

Hypothesis 3.2: Conscientiousness as a predictor of learning agility

As predicted the Big Five personality trait of conscientiousness accounted for a small, but statistically significant, unique portion of variance in learning agility. Of note, is that although the overall sample variance was very low (3%), it was considerably higher for the "Performing" and slightly higher for "High Performing" groups, at 20% and 5% respectively. No relationship between conscientiousness and learning agility was found for the "Leaders" subgroup. The findings with empirical evidence refute De Meuse's (2017) suggestion that conscientiousness is negatively related to the overall learning agility construct. In addition, while Connolly (2001) found no relationship with either the learning agility construct or the four sub factors making up this construct, the finding in this research present a clear significant positive relationship, albeit low. These findings seem intuitive as an individual scoring high for conscientiousness is deemed to disciplined, organised, along with hardworking, persistent and ambitious while also displaying strong self-regulation (Judge et al., 1999; Major, Turner and Fletcher, 2006; David et al., 2010; Komarraju et al., 2011; De Meuse, 2017). It is easy to see how individuals would associate these characteristics with an agile learner, an individual high in learning agility. The findings also add additional support to Komarraju et al.'s (2011) findings that conscientiousness is a critical trait for learning and academic performance.

Hypothesis 3.3: Agreeableness as a predictor of learning agility

The present study found no significant relationship between the Big Five personality trait of agreeableness and learning agility. The impact of agreeableness seems to be shared with other factors to such a degree that it does not uniquely account for a significant portion of variance. The findings echo the research of Connolly (2001), on both the overall learning agility construct and sub factors. They also add evidence and clarity to existing literature which while generally recognising agreeableness as a valuable trait, with emphasis on interpersonal skills (i.e. trusting of others, collaborative), it's correlations to learning agility were unclear (De Meuse, 2017). Interestingly, of all Big Five personality traits agreeableness scored highest across the whole sample and subgroupings, while of the nine subdimensions of learning agility examined in this research, collaboration, scored second highest across the whole sample and subgroups. Given the sample groups environment and context this would make sense as "Winning Together" is a foundational value of the Technologyco Culture code (Dell 2016) while Relationships, Humility and Selflessness are all of the key Leadership Principles.

Hypothesis 3.4: Neuroticism as a predictor of learning agility

As predicted neuroticism was negatively correlated to learning agility and accounted for a small, but statistically significant, unique portion of variance. The findings add weight to De Meuse's (2017) assertion that neuroticism is negatively related to learning agility. This is in contrast to Connolly's (2001) findings of no relationship, either to the learning agility construct or sub factors. However, it is noteworthy that Connolly's (2001) sample population of law enforcement officers is vastly different in job role and environment to sellers in a large IT multinational. Intuitively, this makes sense, neuroticism by is characteristic as the degree of emotional stability. For example, an individual with low levels of neuroticism, thereby displaying high resilience, tolerance for failures and shortcomings, willingness to learn from mistakes and appreciate feedback from others, would be expected to be more learning agile. This is assumed because a number of these characteristics have an obvious overlay to the learning agility sub dimensions (i.e. feedback seeking, risk tasking and experimenting). Indeed, Lombardo & Eichinger (2000) identified individuals high in learning agility as being open to different types of people, ideas and situations which are new and complex (e.g. stressful). Interestingly, Individual Contributors demonstrated a negative relationship between learning agility and neuroticism, while Leaders showed no relationship. As mentioned above, Individual Contributors were seen to be less learning agile when compared to Leaders. Furthermore, Individual Contributors displayed higher levels of neuroticism.

Therefore, this negative correlation between neuroticism and learning agility found for Individual Contributors would be expected i.e. those that are highly neurotic also showed lower learning agility.

Hypothesis 4: Psychological safe climate is positively associated with learning agility

A lack of support for hypothesis 2 provided further rationale for why the empirical examination of the relationship between learning agility and performance is dependent upon additional contextual factors (i.e. psychological safe environment). Neither learning agility nor perceptions of psychological safe climate predicted performance at this organisation. Thus, psychological safe climate is neither a moderator or mediator between learning agility and performance. However, in some of the most interesting findings of the study a relationship was found between psychological safe climate and learning agility. As predicted a psychological safe climate accounted for a small, but statistically significant, unique portion of variance in learning agility. Consequently, psychological safe climate can be viewed as an antecedent to learning agility, adding to a growing corpus of research which has identified psychological safe climate as an antecedent to learning (i.e. Edmondson, 1999; Huang, Chu, Jiang, 2008; Tucker, 2007; Nembhard & Tucker, 2011; Choo, Linderman and Schroeder., 2004; Mu & Gnyawali, 2003; Tjosvold, Yu and Hui, 2004).

Drinka (2018) and Catenacci-Francois' (2018) studies of psychological safe climate and learning agility found no relationship and therefore called for more research in this area. This research has addressed this need while providing evidence to the contrary. These opposing conflicting findings may be due to several differences in the research methods that may affect how participants rated psychological safety, specifically around participant recruitment (by offering compensation, use of crowd sourcing from different organisations) and performance measures (including executive partner ratings, self- reporting). The current study negated these limitations by recruiting voluntary participants from the same organisation thereby, the same culture and climate and also using a consistent and unbiased measure of performance that was longitudinal in nature.

In summary on an intuitive level, the correlation between psychological safe climate and learning agility makes a great deal of sense. It is inherently known that people perform best when operating within a psychologically safe climate. Building on this it is not difficult to envision how critical this would be to learning agility, specifically as De Rue, Ashford and Myer (2012) suggests how the environment may affect the speed of learning, or the degree in which individuals can be flexible across different points of view or competing ideas. In the backdrop of the challenges posed by the uncertainty and complexity of the future of work (i.e. automation, machine learning, artificial intelligence), a powerful force in

addressing these challenges will be effective collaboration underpinned by people feeling comfortable speaking up with ideas and questions without fear of ridicule or punishment (Edmondson & Lei, 2014). Furthermore, a workforce that is high in learning agility, underpinned by a strong foundation of psychological safe climate would seem well positioned for embracing the challenges related to the future of work.   Indeed, the Technologyco Culture code (Dell 2016) values of "Winning Together", "Integrity", coupled with the Leadership Principles of "Relationships", "Judgement", "Humility" and "Selflessness" place a strong emphasis on an environment open to new ideas, an appreciation of differences built upon a foundation of trust. Supporting this perspective are several external accolades from within the industry, including Ethisphere 2020 Worlds Most Ethical Companies (Dell, 2020), which is a recognition of setting the global standards of business integrity and corporate citizenship. Furthermore, a recent announcement by Technologyco on the pursuit of Moon-Shot 2030 goals (Dell 2019), with one of the three pillars specifically looking at "cultivating inclusion" within the organisations this further underpins the standing and focus of a psychological safe climate within the organisation.

Exploratory analysis

The primary objective of the research study was to determine the effect learning agility had on performance. A secondary objective was to illuminate our understanding of the learning agility construct, as part of a nomological network, to fully extrapolate the benefits of learning agility within the workplace. Thus, the following section is framed by discussing the exploratory analysis regarding individual antecedents (i.e. goal orientation, cognitive ability and openness to experience), and then the contextual and environmental factors (i.e. learning consumption, sales position and psychological safe climate). Within this context, the exploratory analysis is discussed with contributions noted and areas of further research identified to develop a fuller picture.

Learning agility interaction effect with openness to experience

With respect to the first research question, in determining the effect learning agility has on performance, further exploratory analysis along this line of inquiry seemed prudent. One of the most interesting findings within the exploratory analysis was the discovery of the interacting effect of learning agility with openness to experience as a predictor of performance. The findings illustrate a low to moderate, significant interacting relationship. In other words, one unit change of the interaction effect of learning agility and openness to experience outputs a change of .13736 in performance. These findings provide evidence of the unique relationship of the antecedent openness to experience, as proposed as individual difference exemplar (DeRue, Ashford and Myer, 2012), with learning agility.

Ideally future research, utilising a more detailed and robust personality scale would further examine learning agility interacting with the Big Five personality trait openness to experience as a predictor of performance which warrants further examination.

Personality

Given the findings on the personality related hypotheses a brief examination was conducted on the relationship between personality traits and performance. This examination specifically investigated differences, if any, between Individual Contributors and Leaders within a sales environment. It is noteworthy to highlight, given that the primary focus of the research was not on personality a shorter scale of ten items was used. The results indicated the Big Five personality trait of agreeableness and conscientiousness both had a low to moderate, significant variance to Leaders' performance. While for Individual Contributors, openness to experience had a low, but significant relationship with performance. A mature body of research already exists within the area of personality traits and performance. For example, Strang and Kuhnert (2009) found conscientiousness significantly predicted leader performance as measured by average ratings of three sources (subordinate, peer, and supervisor), while Mumford et. al (2000) suggested patterns of personality can impact on leader skill development and performance. However, given the differing results of personality traits as predictors of performance between Individual Contributors and Leaders further examination may be warranted.

Learning consumption and tenure

Within the learning agility construct, learning consumption may be viewed as an indicator of individual antecedents pertaining to goal orientation and as a contextual and environmental factor indicating the organisational climate for learning. As such further exploration examination was warranted, revealing a low to moderate, but significant negative relationship between an individual's tenure and their learning consumption. This may reflect a belief by tenured individuals within the organisation that believe they have already reached a level of proficiency and therefore are incrementally adding to an existing skills base as opposed to those shorter in tenure as they continue to "ramp" to proficiency. It may also suggest the transition of goal orientation within individuals from learning goals (earlier tenure) and performance goals (senior tenure) (e.g. VandeWalle, Nerstad and Dysvik, 2019; Button, Mathieu and Zajac., 1996; VandeWalle, 1997; Dweck, 1986). The longer an individual is in an organisation the more they may lean towards a performance goal orientation rather than a learning goal orientation, particularly within a sales environment, where sales target achievement is a quarterly pursuit. Recent research within Microsoft, a similar organisation in the same industry, has shown the benefits of

addressing a cultural shift of instilling a growth mindset, moving from "know-it-all's" to "learn-it-all's" (Ibarra, Rattan & Johnston, 2018). Further examination of goal orientation in this regard, may provide additional and/or more specific insight into workplace behaviours in relation to learning agility.

Sales position as a moderator of learning agility

Within the learning agility construct, contextual and environment factors play a key underlying role which may moderate the effects of learning agility. While sales type (Inside and Outside sales) groups were identified via ANOVA, as having significantly different learning agility scores, further exploratory analysis looked at the potential importance of sales position as a moderator. The findings illustrate that sales position (i.e. Technical and Non-Technical sales) accounted for a small, but statistically significant, unique variance in the relationship between learning agility and performance. Thus, these findings compliment insights from Hypothesis 1, and further support De Meuse (2017) suggestion that learning agility may not be required to the same degree for all job roles. For example, specific sub dimensions of the learning agility construct, (i.e. risk taking and experimenting) may not be relevant to some job roles (i.e. technical, rote or task-based roles). In contrast, roles which require dealing in ambiguity, being flexible, and understanding other's needs, preferences, and values would place considerable weighted importance on specific sub dimensions of the learning agility construct (i.e. risk taking, experimenting, collaboration and reflection). Future research should continue to examine how job role influences the relationship between learning agility and performance in different organisations and industries.

Psychological safe climate

Although outside of the scope of this research study, an interesting discovery was made when exploring the relationship between psychological safe climate and performance. Firstly, no relationship was present in either the overall group or each of the sub populations when examined apart from the "Non-Performing" group. Although these results seem counter-intuitive in nature, that is psychological safe climate does not seem to be an influencing factor across populations, or when performance is being achieved. However, when performance is not being met it becomes a strongly significant factor. Interpretation of the results indicates that the lower an individual is in performance the greater their perception is of an environment being psychologically unsafe. Given the context of a sales environment heavily driven by competitive performance, if performance is not being met by individuals it is not difficult to imagine feelings of anxiety and incompetence increasing. Furthermore, people who are not performing are unlikely to offer ideas, admit mistakes, ask for help, or provide feedback if performance is not being met, thus by its very nature feeling psychologically unsafe (Edmondson & Lei, 2014).

Further research should be cognisant of psychological safe climate in relation to performance within populations.

Study limitations

While there are many strengths to this study, there are also some limitations. Almost three quarters of the sample was comprised of Individual Contributors (n = 141). While the Leader population (n=24) was smaller in size, significant insights and deductions were discovered. Furthermore, the inquiry was conducted in a single organisation, along with a focus localized to a specific profession (i.e. sales), thus the findings may be viewed as idiosyncratic artefacts of that particular setting. While the findings add to the growing literature, further empirical evidence is required to explore the application in broader organisational and occupational environments. Although the findings may not be generalisable in any strict sense, numerous characteristics of the inquiry are common to many organisations.

Within the case study, a survey instrument was chosen as the data collection tool. The limitations of this technique include the inability to see additional relationships or relevant variables other than those included in the survey, as well as concern for measurement error (Saunders, Lewis and Thornhill, 2003). While the survey enabled sophisticated statistical analysis in terms of the regression and interaction effect, it is important to be cognisant that the tool will provide the direction of causation but will not capture the reasons, motivations or opinions that underlie these results.

From an analysis perspective the research wished to run an association rules analysis on the dataset. The objective of this analysis would have been to establish the "profile" or "persona" of different seller types based on performance in relation to learning agility, personality traits and psychological safe climate. However, the size of the sample (n = 165) was a limiting factor for conducting such analysis. Personality traits associated with learning agility were not the primary focus of the research, hence the decision to utilize Gosling, Rentfrow and Swann's (2003) concise TIPI personality scale. The Psychological Safe Climate scale (Garvin, Edmondson, & Gino, 2008) utilizes the "supporting learning environment" section of the instrument, omitting "learning process and practices" and "leadership that reinforces learning". While all scales demonstrated validity and reliability (i.e. QQ-plots and histograms (figure 4.7 – 4.10) and Cronbach Alpha (table 4.0)) measuring separate constructs (i.e. personality, psychological safe climate), thus addressing any concerns of common method bias. While pertinent and interesting results were discovered, opportunities for architecting future research and investigation utilising expanded scales, could use this research as a template and framework.

Recommendations for future directions

In addition to the areas of future research highlighted above, there are further opportunities with key implications for future research which emerge as the themes presented below.

First and foremost, several past research papers (i.e. Connolly, 2001, Smith, 2015; Catenacci-Francois, 2018, Drinka, 2018) noted the reliance of subjective performance evaluations with solely objective criteria being problematic in exploring the relationship between learning agility and performance as it did not explain the entire story. A strength of this research was that performance data was objective in nature and collected over a longitudinal period of 12 months. Additional proxies exist which were unavailable for this inquiry due to legal privacy and data protection standards but could have been beneficial supporting material for a clearer overall data set. Such things as, or perhaps a weighted combination of, customer satisfaction, peer level and team feedback, direct supervisor feedback and performance reviews, would have been helpful and might give a more holistic insight. These criteria may present a significant opportunity for future research if the data was able to be measured, both legally and practically.

Secondly, based on the limitations discussed above on both the psychological safe climate and personality scales, and equally applicable to the learning agility scale, it is suggested that in future the data is obtained from several sources in order to minimise bias and potential high correlations often resulting from self-reporting scales. One approach would be to collect learning agility data using a 360-degree data collection method that would ask peers and subordinates, as well as managers to provide feedback about the participant. Further analysis could indicate whether scores are affected by the relationship of the rater to the participant to highlight bias.

The current study reveals significant opportunity to explore other antecedents of learning agility, specifically the role of contextual and environment factors have on the learning agility construct. Specifically, the role of team structure and leader behaviours via psychological safety. For example, Edmondson (2004) suggested that leaders who demonstrate a willingness to entertain alternative points of view through active listening and questioning, along with demonstrating an openness and fallibility may be important antecedents to psychological safety, which may be antecedent of learning agility. Extensive research suggests psychological safety enables teams and organisations to learn (Bunderson & Boumgarden, 2010, Carmeli, 2007, Carmeli & Gittell, 2009, Edmondson, 1999, Tucker, 2007) and perform (Carmeli, Tishler and Edmondson, 2012; Collins & Smith, 2006, Schaubroeck, Lam and Peng, 2011). Several research inquiries have found a significant relationship between team structure and

team learning, with psychological safety mediating the relationship (i.e. Bunderson & Boumgarden, 2010; Bresman & Zellmer-Bruhn, 2013). Some studies have investigated leadership as an important antecedent of trust or psychological safety's mediating effects on learning or performance (Carmeli, Tishler & Edmondson, 2012; Hirak et al., 2012; Schaubroeck, Lam and Peng, 2011; Roussin, 2008). All of the above factors are appropriate considerations within DeRue, Ashford and Myer (2012) learning agility construct, specifically when considering the contextual and environment factors. These potential antecedents may be part of the same nomological network, defined as a representation of related concepts, their observable manifestations and the interrelationships between similar construct.

Finally, while outside the remit of this inquiry, based on current research learning agility is an appropriate predictor of potential (i.e. future success). Many scholars have advocated that learning agility is an early indicator of leadership effectiveness (e.g. De Meuse, Day & Hallenbeck 2010; Lombardo & Eichinger, 2000; Spreitzer, McCall & Mahoney, 1997). Little focus thus far has been on learning agility as an early indicator on individual contributor effectiveness. Whereas the current research adds additional insight in this area, the basic question of whether one should judge the efficacy of learning agility in terms of potential is appropriate to ask. Thus, the measurement of learning agility to gauge how individuals would perform in future roles is also germane.   More importantly, future researchers should try to isolate individual and leadership development from performance and potential when testing the effects of the learning agility construct.

In addition, future research could also examine the learning agility construct and potential in relation to the "gig economy". Given the economic uncertainty and unprecedented technology changes, many individuals and organisations have embraced independent work or contingent workers, respectively, who are loosely connected to organisations or selling directly to the market (Ashford, George, and Blatt, 2007; Cappelli and Keller, 2013) in a fast growing ''gig economy'' (McKinsey, 2016). Indeed, as organisations continue to become flatter and the "war for talent" continues many organisations are adopting this approach to support internal talent mobility in the form of an internal gig or talent marketplace (i.e. Unilever, Schneider Electric) (Bersin, 2019). Those individuals who excel have already developed or innately maintain some of the characteristics associated with learning agility – curiosity, collaboration, experimentation, ambition, openness to new ideas or methods. In a similar vein, organisations who adopted an approach to create an environment which fosters comfort with uncertainty by providing opportunities for employee "gigs" or assignments (i.e. internal marketplace opportunities or international assignments) in order to stretch them and further develop skills and

abilities not currently at their disposal. These "gigs" or stretch assignments (i.e. International assignments) are intended to foster additional behaviours like flexibility and awareness of strengths and limitations. This line of inquiry would align to the significant body of literature and evidence on learning agility's predictive relationship with potential (De Meuse, 2017; De Meuse, 2019).

Another interpretation is not to view learning agility from an antecedent perspective, with suggested exemplars of goal orientation, cognitive ability and/or personality trait perspective because learning from experience is not solely reliant on a combination of these alone. An alternative view of learning agility may be a shift to focus on the collection of the underlying cognitive (i.e. cognitive simulations, counterfactual thinking and pattern recognition) and behavioural processes (i.e. feedback seeking, experimentation and reflection) (DeRue, Ashford and Myer, 2012). Taking this lens, frameworks could be developed to support individuals and be integrated into their approach to investigating new situations and solving problems.

Conclusion

The implications of this research are broad, and applications of the findings are widespread. This is the first study within learning agility literature to examine learning agility in the context of an IT multinational, among a sales workforce operating in a VUCA environment of both Leaders and Individual Contributors. In addition, underpinned by a pragmatic methodological approach, it is also the first study to combine objective longitudinal sales performance and learning consumption data, with survey data assessing learning agility, psychological safe climate and the Big Five personality traits. Thus, supporting and illuminating the conceptualisation of the learning agility framework (DeRue, Ashford and Myers, 2012) within a broader nomological network of related constructs. As a result, this research provides clarity to the literature on learning agility.

From a theoretical knowledge perspective, the research has further developed the conceptual boundaries and causal relationships in the form of individual level antecedents (i.e. openness to experience, conscientiousness and neuroticism) and contextual factors (i.e. psychological safe climate and learning consumption) within the learning agility framework. Additionally, the research study has contributed new knowledge to the field by emphasising the significance of understanding the influence of associated variables (individual level antecedents and contextual factors) on learning agility in relation to longitudinal performance. These contributions are supported by empirical evidence showcasing learning agility's relationship with the Big Five personality traits, namely openness to experience, conscientiousness and neuroticism, along with illuminating psychological safe climate as a contextual

influence. In addition, the empirical discoveries of no association between learning agility and learning consumption, albeit formal training only, and learning agility's interaction effect with openness to experience are both unique contributions to the field which warrant further examination.

The contribution of this research to practice is omnipresent. Firstly, the need for organisations to ensure a psychological safe climate is a critical factor to support the extrapolation of the benefits of learning agility. Pertinently, while strong learning agility is beneficial within the workforce, not all job roles (i.e. task-based roles with low degrees of risk taking, experimenting, collaboration or reflection) may require the same level of learning agility to be successful. Additionally, empirical findings highlighting the differences in Leaders and Individual Contributors' learning consumption behaviours supports the notion of a personalised formal and informal training approach for individuals within the organisation. In conclusion, this research has shown that learning agility is not solely dependent on personality traits or psychological safe climate in predicting performance. The findings of this study add empirical evidence to the learning agility construct supporting the notion that learning from experience is behavioural and can be fostered to enable the learning within and across situations or experiences.

These findings provide insights to allow a renewed focus on how organisations can realise the beneficial outcomes of learning agility in service of supporting a learning agile workforce. Based on the literature in the field, and further supported by the findings of this inquiry, the role of contextual and environmental factors requires further exploration. As a consequence, further research into this area could provide fruitful insights for individuals and organisations alike in seeking to foster and nurture learning agile behaviours.

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Appendices

Appendix A

Hypothesis list

Labels	Text Explanation
H1	Learning agility is positively associated with performance. Those individuals with high learning agility are likely to have associated high performance.
H2	Learning consumption mediates the relationship between learning agility and performance
H3.0	Learning agility is positively associated with openness to experience. Those individuals with high learning agility are likely to have associated high scores for openness to experience.
H3.1	Learning agility is positively associated with extraversion. Those individuals with high learning agility are likely to have associated high scores for extraversion.
H3.2	Learning agility is negatively associated with conscientiousness. Those individuals with high learning agility are likely to have associated low scores for extraversion.
H3.3	Learning agility is positively associated with agreeableness. Those individuals with high learning agility are likely to have associated high scores for agreeableness.
H3.4	Learning agility is positively associated with neuroticism. Those individuals with high learning agility are likely to have associated low scores for neuroticism.
H4	Psychological safety is positively associated with learning agility. Those individuals with higher perceived psychological safety are more likely to be associated with higher learning agility.

Plain language statement

THE STUDY:

How does Learning Agility affect performance of a Sales workforce in Dell Technologies?

This study is being undertaken by Mr. Mark Miley, Dublin City University (DCU) Institute of Education, in order to fulfil the requirements of the Doctor of Education programme in DCU. The research is being conducted under the supervision of Professor David Collings and Dr Justin Rami (of DCU Business School and DCU Institute of Education, respectively).

The purpose of this quantitative study is to explore in detail how Learning Agility affects the performance of Dell Technologies' Sales workforce.

WHAT IS REQUIRED FROM PARTICIPANTS

This is a quantitative study. Should you choose to participate in this research, you will be asked a series of closed questions in the following survey. This should take no longer than 10-12 minutes to complete.

All responses will be correlated anonymously to Dell Sales performance data.

CONFIDENTIALITY

Confidentiality of respondents is protected within the limitations of the law. Should you choose to participate, your responses will be treated in a confidential manner and no individual will be identifiable in the reporting of findings.

While personal data remains confidential, there is some risk that the programme itself (the Doctor of Education) and the institution (Dublin City University) may be identifiable to a reader. This is due to the fact that the researcher will be submitting the thesis for consideration for the same award at the same institution.

HOW WILL DATA BE USED?

Your data and the data from other participants will be used to publish the findings in a thesis to be submitted for the award of Doctor of Education. On successful completion of the award, the thesis will be published online via DCU's Open Access Repository (DORAS. www.doras.dcu.ie). The findings of the study may also be published in academic articles or presented at conferences. In all instances, no identifying personal information will be used in these publications/presentations.

HANDLING OF PERSONAL DATA – GDPR COMPLIANCE

- The data controller for the study is the researcher, Mr. Mark Miley. If you have any queries regarding your personal data, or any other aspect of the study, he can be contacted at: mark.miley3@mail.dcu.ie.
- If you have any concerns regarding your personal data you can contact the DCU Data Protection Officer, Mr. Martin Ward at data.protection@dcu.ie.
- Any data collected will be retained by the data controller and stored electronically on an encrypted laptop, in a password-protected computer file.
- Data may be shared with the supervisors for the purposes of validating the findings, however, all identifiers will be removed prior to sharing the data.
- The data will be retained for a maximum of five years.

GIVING INFORMED CONSENT

This is a voluntary study and you may choose to withdraw from the research study at any point. However, due to the anonymous nature of the data correlation, it may not be possible to withdraw your data once the survey has been completed and submitted.

If you wish to participate you must give informed consent by completing the informed consent section at the start of the online survey.

RESEARCHER DISCLOSURE

The researcher, Mr. Mark Miley, is both a student on the Doctor of Education programme at DCU as well as a full-time employee of the Dell Technologies. The researcher is undertaking this research in his capacity as a student, for the purposes of satisfying the requirements of the award sought.

If participants have concerns about this study and wish to contact an independent person, please contact:

The Secretary

DCU Research Ethics Committee

c/o Research and Innovation Support

Dublin City University, Dublin 9

rec@dcu.ie

Appendix C

Informed consent

I have read the plain language statement and I know what is expected of me if I choose to participate.

I understand the purpose of the study and the information provided to me.

I have had sufficient time to consider whether I want to take part in this study.

I understand I can withdraw from the study up to the point of submitting the survey.

I understand that it may not be possible to withdraw my data once the anonymous survey has been submitted.

I understand that there will be no negative repercussions if I choose not to participate.

I understand that my data will be treated with confidence, within the limitations of the law.

I understand that my anonymised data may be shared with the researcher's supervisory panel.

I understand my participation is voluntary.

Appendix D

Wording for solicitation of research participants

Greetings,

I hope this email finds you well.

My name is Mark Miley, Global Practice lead for High Potential Solutions working within the Talent and Culture organisation.

I am currently completing a Doctorate in Leadership and Education with Dublin City University, as part of this course I am conducting research exploring Learning Agility and its effects on a sales audience within Dell Technologies. I have received approval for the research study from both Dell Technologies Privacy and Compliance along with Dublin City University.

I am inviting sellers across multiple business segments and geographies to participate in this study. This involves a short survey which you can access here.

https://dcubusinessschool.eu.qualtrics.com/jfe/form/SV_4NQEJGAqWzQZ9hH

The time commitment is minimal, no longer than 10 minutes. I really appreciate your support and participation in advance.

Your participation in the survey is completely voluntary. Of course, if you have any questions or concerns, please do not hesitate to reach out to me.

Yours sincerely,

Mark Miley

Appendix E

Burke Learning Agility Inventory (BLAI)

Burke Learning Agility Inventory (BLAI)	
# of Questions	38
Duration	10-12 mins
Likert Scale	1-7
Sections	# of Questions
Feedback Seeking	4
Information Seeking	4
Performance Risk-Taking	4
Interpersonal Risk-Taking	4
Collaborating	4
Experimenting	4
Reflecting	4
Flexibility	5
Speed	5

Instructions: Please consider how often you engage in the following behaviours at work.

Scale: 1 = Not at all; 4 = Occasionally; 7 = Very Frequently

Dimensions	Section	Definition	Question #	Question
Learning	Feeback Seeking	The extent to which an individual solicits feedback about his or her performance.	1	Ask my peers to provide me with feedback on my performance
			2	Seek feedback from my manager about my performance
			3	Discuss my potential for advancement within the organization with my manager
			4	Directly ask others for their thoughts on how I can improve my performance
	Information Seeking	The extent to which an individual continuously updates preexisting knowledge with new information.	1	Seek new information on topics related to my job or field
			2	Update my knowledge and expertise through formal training or education
			3	Read trade journals, newspaper articles, books, or other sources to stay informed
			4	Collect data to increase my knowledge, evaluate my progress, and inform my next steps
	Performance Risk-Taking	The degree to which a person places himself or herself in ambiguous situations and are unclear about the process or the outcome of the situation.	1	Take on new roles or assignments that are challenging
			2	Engage in tasks that are ambiguous in terms of how to succeed
			3	Embrace work that is risky, even if the outcomes are uncertain
			4	Volunteer for assignments or projects that involve the possibility of failure
	Interpersonal Risk-Taking	The extent to which a person admits failings, mistakes, and other issues on-the-job and tries to get help to right these issues.	1	Bring up problems and tough issues with others
			2	Ask others for help when needed
			3	Discuss my mistakes with others
			4	Challenge others' ideas and opinions even when they are shared by many people
	Collaborating	The extent to which an individual tries to broker the learning process for others in their environment.	1	Look for ways to leverage the unique skills, knowledge, and talents of others
			2	Work with colleagues from different backgrounds or job functions to share perspectives
			3	Collaborate with people in other parts of the organization
			4	Ask a variety of stakeholders for their points of view
	Experimenting	The degree to which a person tries out new ideas or ways to get work done, usually through seeking out new information in their environment.	1	Evaluate new techniques or different ways of solving problems
			2	Experiment with unproven ideas by testing them out
			3	Try different approaches to see which one generates the best results
			4	Jump into action and learn by trial and error
	Reflecting	The degree to which a person reflects on an experience – how something happened, why it happened, how the outcome could have been different, and how to make changes in the future.	1	Stop to reflect on work processes and projects
			2	Take time to reflect on how to be more effective
			3	Consider the reasons for and consequences of my actions or recent events
			4	Critically evaluate work-related events with others in order to understand what happened

Dimensions	Section	Definition	Question #	Question
Agility	Flexibility	The extent to which an individual displays adaptation, fluidity, resilience, the ability to bend under pressure, and the ability to switch between different modes of operating in their work.	1	Consider many different options before taking action
			2	Switch between different tasks or jobs as needed
			3	Find common themes among opposing points of view
			4	Articulate seemingly competing ideas or perspectives
			5	Propose solutions that others see as innovative
	Speed	The extent to which an individual is a "quick study" and is swift but not hasty while operating at their full potential.	1	Quickly develop solutions to problems
			2	Get up to speed quickly on new tasks or projects
			3	Acquire new skills and knowledge rapidly and easily
			4	React well to unexpected problems
			5	Readily grasp new ideas or concepts

Psychological safe climate

(Portions taken from Garvin, Edmondson, & Gino, 2008)

Instructions: Please think about your primary group or department at work. Then, rate the extent to which you agree or disagree with the following items:

Scale: 1 = Highly inaccurate; 4 = Neither accurate nor inaccurate; 7 = Highly accurate

(R) – Item should be reverse scored.

Psychological Safety

1. In my work unit, it is easy to speak up about what is on your mind.
2. If you make a mistake, it is often held against you. (R)
3. People in this unit are usually comfortable talking about problems and disagreements.
4. People in my unit are eager to share information about what does and does not work.
5. Keeping your cards close to your vest is the best way to get ahead in this unit. (R)

Appreciation of Differences

6. Differences in opinion are welcome in this unit.
7. Unless an opinion is consistent with what most people in this unit believe, it won't be valued. (R)
8. This unit tends to handle differences of opinion privately or off-line, rather than addressing them directly with the group.
9. In this unit, people are open to alternative ways of getting work done.

Openness to New Ideas

10. In this unit, people value new ideas.
11. Unless an idea has been around for a long time, no in this unit wants to hear it. (R)
12. In this unit, people are interested in better ways of doing things.
13. In this unit, people often resist untried approaches. (R)

Time for Reflection

14. People in this unit are overly stressed. (R)
15. Despite the workload, people in this unit find time to review how the work is going.

16. In this unit, schedule pressure gets in the way of doing a good job. (R)

17. In this unit, people are too busy to invest time in improvement. (R)

18. There is simply no time for reflection in this unit. (R)

Personality

Source: Gosling Rentfrow Swann (2003) Brief Measure of the Big Five personality domains

Here are a number of personality traits that may or may not apply to you. Please evaluate each statement to indicate the extent to which you agree or disagree with that statement. You should rate the extent to which the pair of traits applies to you, even if one characteristic applies more strongly than the other.

Scale: 1 = Disagree Strongly; 4 = Neither agree nor disagree; 7 = Agree Strongly

 I see myself as:

1. _____ Extraverted, enthusiastic.
2. _____ Critical, quarrelsome.
3. _____ Dependable, self-disciplined.
4. _____ Anxious, easily upset.
5. _____ Open to new experiences, complex.
6. _____ Reserved, quiet.
7. _____ Sympatric, warm.
8. _____ Disorganized, careless.
9. _____ Calm, emotionally stable.
10. _____ Conventional, uncreative.

TIPI scale scoring ("R" denotes reverse-scored items): Extraversion: 1, 6R; Agreeableness: 2R, 7; Conscientiousness 3, 8R; Emotionally Stability; 4R, 9; Openness to Experience; 5, 10R.

Appendix H

Sample demographics, learning Consumption and performance

Workday Field	Notes
Work Region	Work region of residence
Work Country	Work country of residence
Individual Contributor / Management level	Management indicator
Hire Date	Start date within the organisation
Years of Service	Overall tenure within the organisation
Career level years	Tenure within that grade level within the organisation
Technologyco Sales University	
Sales University Role	SalesU role in which the person has been validated
Credential Level	Credential level which the person is currently working towards
Instructor Led Training Duration	N/A
eLearning Duration	N/A
Video Duration	N/A
Virtual Instructor Led Duration	N/A
Total Learning Consumption Duration	Total learning consumption duration across all modalities for the year
Sales Performance	
Blended Attainment Score	Sales performance for the year