

**A Study of Career Resilience, Personality and
Competencies in the Context of Career Uncertainty and
Future of Work**

HENLEY BUSINESS SCHOOL

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Declaration

I confirm that this is my own work and the use of all material from other sources has been properly and fully acknowledged.

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Acknowledgments

I was naïve at the start of this DBA in knowing just what it takes to study at doctorate level, I might have not started if I had realised! The reason I could complete is because I have had the best supervisors, colleagues, family and friends.

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Dedication

I dedicate this work to my son who has encouraged me throughout my studies.

Abstract

The thesis provides an outline of the careers literature, which reflects a pattern of how industry and work have evolved and contributed to career theory and applications for a new world of work. Moving from the early 20th century industrial age of career permanence into career transformation in the 21st century, the literature shows there has been a change from traditional career theory to postmodernist contemporary career theory, suggesting that life-long careers have disappeared and volatility in careers is now commonplace. As such, it is important that service delivery on career and people development should also acknowledge that a career, an organisation, and people are all subject to unexpected change. In addition, literature on the future of work suggests that this level of uncertainty and nonlinearity in careers will increase further, with many authors suggesting greater levels of occupational hybridisation and contingent jobs with the rise of artificial intelligence in the workplace. Consequently, asking people to 'choose and follow' a certain career path becomes irrelevant, given that certainty in careers may either disappear or change beyond recognition. This thesis argues that both career and HR practitioners should move toward a delivery model that supports individuals to develop their career paths in a way that ensures they adopt adaptive qualities and skills that would increase their prospects of life-long employability and greater economic success, especially for future of work scenarios. This rationale mirrors that of organisational strategy in terms of how firms can maintain a competitive advantage by adopting a change-oriented approach, as described in the Dynamic Capabilities model.

The study also examines a crucial factor of maintaining career success, defined in the literature as career resilience, which is the ability to bounce back from difficulties by building resilience. One outcome of this study is the development of an amended scale that measures career resilience, which after further testing, could be of value to practitioners in the field. The study also compares 'linear' and 'nonlinear' careers. By including graduate career destination data a year after completing a programme, this thesis aims to address the gaps in current careers knowledge by conducting a detailed comparative exploration of career choices that were nonlinear and uncertain, compared to those that were linear and certain, and explore the factors that differentiated between the two. A quantitative methodology was adopted to consider career success literature on nonlinear career paths. First, a sample of postgraduate business management students (n=153) completed a questionnaire on their personality, competencies and career resilience. Secondly, at the end of their studies, their marks and grades were recorded. Finally, a year after graduation a follow-up survey was conducted to gather data on career paths chosen by the cohort and the data was then categorized into jobs that were linear and traditional, contrasted with those

that were nonlinear and non-traditional. The factors in the questionnaires were mapped against the literature on future of work qualities as well as those identified within literature on dynamic capabilities. A factor analysis of the Career Resilience scale produced five factors which measured: positive Self Concept, Adaptability and Risk, Self-Reliance, Ambition and Networking, and Motivation to Learn. The Cronbach α reliability coefficients on these ranged from .607 to .812. The Big Five Personality scale used was BFI (Big Five Instrument) developed by the University of California, Berkeley. It measures Extraversion, Conscientiousness, Openness to Experience, Agreeableness and Neuroticism (vs. Emotional Stability). Competencies were measured by the Dulewicz 12 Supra-competencies scale covering Strategic, Analysis, Planning, Leadership, Persuasiveness, Assertiveness, Sensitivity, Oral Communication, Resilience and Adaptability, Energy and Initiative, Achievement and Business Sense. The dependent variables in the models tested were overall career resilience, exam results and the employment survey results, augmented by social media tracking.

Results were presented in two separate chapters. Results I presented the descriptive statistics of the sample and the results of the analyses for each of the 13 hypotheses, using correlation analysis and t-tests. Nine hypotheses were fully or partially supported. Results II summarized the results obtained for three separate models using regression and discriminant multi-variate analysis to help understand the relationships within the three different areas of research. Regression analyses were undertaken to examine the relationship between the continuous variables and discriminant analysis for the categorical dependant variable current job.

The results from the employment outcomes groups dynamic (nonlinear) and traditional (linear) showed that those who chose nonlinear jobs with change and uncertainty from the outset had different qualities from those that chose traditional, linear jobs, for example in Self-reliance, Analytical Ability and Conscientiousness. These findings supported postmodern and contemporary careers literature on qualities associated with managing nonlinear, uncertain careers. These findings also align with research from organisational strategy and employability factors within Dynamic Capabilities, and specifically the qualities required for individuals to be able to work under uncertainty dynamic careers by showing qualities more associated with 'future work' skills. They were brought together in a proposed new 3-part model called Career Dynamism.

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1 Introduction

Careers guidance operates at the interface between the individual and society, between self and opportunity, between aspiration and realism. It facilitates the allocation of life chances. Within a society in which such life chances are unequally distributed, it faces the issue of whether it serves to reinforce such inequalities or to reduce them

(Watts, 1996, 351)

1.1 My purpose in pursuing this study

This study arose from insights from my own career in managing careers services, as well as my desire to undertake doctoral research that could contribute to professional practice and academe. Current practices of careers delivery are often based on traditional career models and are not designed to offer career support for a new generation of workers moving into a world that will be more uncertain and subject to many changes - including future work scenarios predicted with the advancement of technology and organisational changes. Therefore, the ability to manage uncertainty is a significant personal attribute to cultivate (Kwok, 2018). I felt the DBA would be an ideal programme for me to undertake in order to develop new concepts and frameworks grounded in research, for careers professionals to adopt for practice, plus potentially for the HR profession to consider adopting in relation to talent management. This is a bold ambition as despite the expectations on universities to deliver both a better student experience and to better equip students with necessary skills for work, the positioning of careers is peripheral in most institutions, and HR departments are similarly often not placed in the centre of corporate structures and decision making. In addition, career choice for an individual is subject to many influences including internal factors (personality, skills and knowledge and traits), external factors (job market, the economy, competencies and skills shortages) and individuals' motivations (Baruch, 2004). Furthermore, the world of work is anticipated to become more uncertain and changeable, and consequently traditional career delivery models may not be an apposite process for contemporary career development, which is expected to be subject to more ambiguous, chaos led and changeable market forces (Hall and Mirvis, 2013; Bright and Pryor, 2005). As Mitchell and Krumboltz (1996, 263) state:

“trying to place an evolving person into the changing work environment is like trying to hit a butterfly with a boomerang”.

My aim is to offer new knowledge in the field of careers development and to consider future of work scenarios, especially on career uncertainty, and therefore consider my own leadership and research in this area in order to make changes to professional practice.

Thus, my personal objectives were to research into key factors and traits that are related to managing career uncertainty, in order to contribute to literature and practice on life-long employability. For this ambition to happen I needed to advance my leadership and active research skills to support this and develop:

1. *My competencies as a practitioner-leader* in order to influence, persuade and transform career practice *and*;
2. *My competencies as a researcher* in order to be able to undertake doctorate level study, with the purpose of being able to share findings that have real-world value

1.2 Background to the research problem

Career Services, both in the UK and globally, are considered the key facilitators of employment outcomes, as student employability forms a fundamental aspect of key performance indicators at higher education institutions. This performance measure has even more prominence at business schools with the additional influence of international business school rankings and accreditations with greater emphasis on careers outcomes and professional development. Careers teams are therefore under growing pressure from students and universities to deliver exceptional careers development results for students, as well as to meet employer expectations - which are mounting in demand and complexity. Most Careers professionals work with empathy and commitment to enable their students and clients to achieve career success against growing expectations, but they are also now more mindful of the complexities in making career choices, as Tomlinson (2007, 286) says:

There has therefore been a tendency to view students in “universalistic” terms; that is, as rational investors in education who approach the labour market in uniformed and stereotypical ways. Such assumptions typically negate the different orientations and work-related identities learners develop in relation to their future labour market activities.

The definition of employability development often used is by Hillage and Pollard, (1998, 2) which demonstrates that the service delivered should have long-term and even lifelong impact where “employability is the capability to move self-sufficiently within the labour market to realise potential through sustainable employment.” In the current labour market, many employers expect graduates and professionals leaving business schools and universities to be in possession of a full and comprehensive set of attributes and skills - as required by their organisation - in order to make an immediate impact to their business. This applies to graduate internships as well as managerial level posts, and across a range of industries and occupations (Fugate et al 2004). Pressures from the government also add to the weight of expectations, with the UK government placing greater performance indicators on

employability outcomes through the development of appropriate skills (TEF Data, Office for Students, 2017).

Indeed, governments often address the skills agenda and its importance and impact on productivity. For example, the UK Chancellor of the Exchequer suggested in a CBI speech that the current slowing of productivity in the UK is partly because companies are not embracing skills in adopting new technologies fast enough and they need to do this quickly to meet economic challenges of a rapidly changing world of work (Gov.UK Speeches, 2018).

According to the Bank of England (BoE) Chief Economist (Haldane, 2018), improved productivity is key to the UK's success against the backdrop of a world adopting technology at a fast rate. Both the BoE and Chancellor warned of the need for universities to do more to equip graduates with the right skills to work in a new world that is more AI influenced, not least to manage effectively within an economic change and uncertainty, saying;

“A young person born today can be expected to live a 100-year life. That being the case, it is likely they will have a career of 60, perhaps 70, years. Given changes to the future world of work, multiple changes of career, not just job, are likely during a lifetime. This has never before happened in human history. The second secular shift is in the demand for skills.... Put differently, demand for skills of the “head” (cognitive) have dominated those of the “hands” (technical) and, to a lesser extent, those of the “heart” (social) over the past 300 years. In the century ahead, those skill-shifts may be about to go into reverse... perhaps the biggest potential growth area of all, is social skills (“hearts”). That is, tasks requiring emotional intelligence (such as sympathy and empathy, relationship-building and negotiation skills, resilience and character) rather than cognitive intelligence alone.”

(Haldane, Bank of England Speeches, 2018, 15).

Haldane further describes crucial personality traits that contribute to corporate success, identifying *networking* and *motivation to learn* as key. The Bank of England's suggests that these two traits, for example, are highly aligned in companies that achieve higher productivity. Indeed, the BoE's research shows that networking active companies had higher productivity in the UK, as well as being lower in companies that show low productivity.

Haldane stated that;

“Connectivity proxies a company's ability, through its board, to draw on the experience of other companies when learning about and adopting new practices, products and processes”

(Bank of England, Haldane Speeches 2018, p.12).

Similarly, the work by Teece (1997) in the field of *Dynamic Capabilities* demonstrates that organisational cultures that enable *Openness* and to be *Networked* allows people to display more of a mindset of taking risks, which can influence both competitive advantage and productivity results – in uncertainty. This suggests that not only is there alignment to

corporate traits of development, with individual career management traits, but that having key skills such as an ability in *building relationships* and networks is an essential career quality. Likewise, Shaffer and Zalewski (2011) argue that the new labour market requires a diverse approach to gain entry compared to previous times and the skills needed to manage in this new world of work are different. These skills are - to a certain extent - divergent to existing employability skills because the nature of work is predicted to be different due to the rise in automation, machine learning, and robotics, in what has been described as the 'fourth industrial revolution' (Schäfer, 2018). Lo Presti et al (2018) also highlighted the changes predicted in the economy in their study, including a greater number of jobs that are temporary, contingent, hybridized and nonlinear, thus reflecting an increasing diversification of the workforce and organisations. Consequently, modern career theories have also evolved to reflect the changing world of work - as an essential part of delivery. As Gothard (2001, 24) says

“People need to prepare for changing work tasks, not assume that occupations will remain stable.”

As such, support for employability development practices that lead to sustained and lifelong employment, will require new research into career insights, knowledge and models, and these models will have to consider managing *career uncertainty*. This leads to my research questions below.

Research Question

The research question developed to address these problems is:

What is the relationship between career resilience, personality, and competencies in the context of career uncertainty and future of work?

The sub-questions are:

Research Question One: What is the relationship between career resilience, competencies and personality?

Research Question Two: What is the relationship between academic outcomes, personality, career resilience and competencies?

Research question three: What is the relationship between career resilience, personality and competencies on employment in the context of the future of work and career uncertainty?

1.3 Practical value of the study

The purpose of this doctoral study is to explore the relationships between career resilience, personality and competencies - within the context of uncertainty, and to understand potential influences on academic success and employment outcomes. In recognising that career uncertainty is growing, it looks to offer new thinking on ways to develop particular skills and methods for taking control of the unpredictability of the world – in order to make positive improvements. The study therefore, considers both career and academic outcomes of an individual and identifies the competencies and personality traits required to drive forward a career within a changeable work landscape. Its purpose is to provide careers practitioners with insight and tools on career development in a complex, shifting and challenging environment. Therefore, this study will explore key relationships that relate to both employment and academic outcomes, specifically considering those that relate to the development of employability competencies. Furthermore, a key aspect of the study is to investigate the role resilience plays in employability and future of work predictions, as there is an increased expectation for students to have higher levels of resilience to withstand the rigours of the shifting and uncertain jobs market, and indeed many employers are stating resilience is one of their key recruiting criteria (Grissom, 2015). The literature review shows there are diverse and interacting employability components related to the new world of work, with higher levels of automation and adoption of more digital solutions. These workplace changes, anticipated to be present in graduate and postgraduate career opportunities, may be also shaped by changes from the future increase in digitisation of jobs (Kinsinger and Walch, 2012). Thus, the study will also focus on the characteristic of *career resilience*, as well as related skills such as dynamic capabilities, and the key attributes predicted to be part of the *future of work*.

1.4 Academic contribution of the study

The pursuit of a Doctorate in Business Administration (DBA) has a strong emphasis on applicability as it enables a researcher to contribute practical and applied research so that the research is 'sympathetic' towards an end-user as well as offer contribution to academia that is described by Sternberg and Ben Zeev (2001) as "forward incrementation". This study will contribute to the existing academic literature on career planning and development by researching factors that influence an individual in making career choices, such as their career resilience and their personality, and as such, this study contributes to the field of career development in the design of an adapted 5-factor scale to measure Career

Resilience. The scale should be tested and re-tested further with different sample groups to test further its validity and reliability, in order to offer greater rigour and cogency for future users. As stated by Heale and Twycross (2015, 67), this offers a process for determining a greater level of agreement between users. The thesis will, therefore, refer to the scale to as an adapted scale, but with the recognition that further testing needs to be undertaken.

In addition, this study through its research on career choices that are non-traditional and nonlinear will also contribute to postmodern and contemporary career theory such as Chaos Theory of Careers and Ecosystems Career Theory, which have given the rise in the literature on nonlinear career paths. Indeed, Hirschi (2010, 39) states:

“In recent years, there has been increasing theorizing about the effects of unplanned events in career decision making and career development.”

Furthermore, the study also offers new insights on the importance of careers within the context of organisational strategy, a field that has scant literature. Much of the existing literature on careers is focussed on ‘the individual’ and not on ‘the employer’. However, it could be argued that career development is a lifelong pursuit and a narrow view is restricting wider evolvment (Arthur and Rousseau, 1996). Thus, considering career development qualities as part of organisational strategy ought to be a significant area for management research also, which this study proposes. Indeed, as Inkson and King (2011, 38) suggest:

“employment relationships is widely recognized by managers seeking competitive advantage, by workers seeking advantage in their employment conditions, and by academics developing balanced employment relations theory”.

This approach advocates that a more ‘fluid’ way of approaching career development is needed to also meet employer requirements as well as that of the individual, thereby proposing an inter-related stance on addressing both organisational needs and worker needs. As such, the study contributes to organisational strategy research, specifically to the field of Dynamic Capabilities, an academic field that offers empirical support on how firms gain competitive advantage (Teece, 1997). Dynamic capability research considers factors that enable a firm to adapt to its environment to achieve success and durability, a similar process that individuals might adopt to retain lifelong employability. This study examines the parallels of individual worker behaviours and employability characteristics that correlate to dynamic capabilities and offer new insights and a foundation for further study into this emerging area of literature. Findings from the study show close alignment of key individual qualities to organisational Dynamic Capabilities. These findings are counter-intuitive to existing career philosophy that endeavours to enable clients to seek permanence in career choice as an ideal outcome. Rather, the findings from this study showed that those that chose nonlinear paths (non-traditional, non-permanent jobs) exhibited traits and skills more

associated with key employability requirements as well as those outlined in the more 'change orientated' dynamic capabilities theory.

1.5 Thesis structure

Chapter 1 serves as a brief introduction to the research study and its aims.

Chapter 2 begins with outlining 'career uncertainty' literature. It then introduces academic assumptions underpinning this study and so covers both the theories and models in career development, both past and present, showing traditional career theory such as Trait and Factor, and postmodern career theories such as Chaos Theory of Careers. It also discusses theories of Careers in Career Ecosystems Theory and Systems Theory to highlight key attributes related to career development and career uncertainty. The chapter also draws on employability literature, to consider both present work and future of work expectations from academic research, corporate research and government-commissioned reports. It includes literature on the personal factors needed to manage careers and employability in uncertainty, and therefore discusses Career Resilience literature.

Chapter 3 focuses on the methodology and describes the tools and methods used in this study. The research draws on a sample of postgraduate management students with over 35 nationalities represented. It has wide applicability and the methodology is quantitative, which will produce insights that can be utilised in a variety of settings.

Chapter 4 and Chapter 5 are the data analysis chapters. They present the results from the preliminary studies, providing evidence from practice for the theorising that forms the basis of this research. Chapter 4 covers hypothesis testing and Chapter 5 model testing. Regression analysis is used to predict the value of variables based on the value of other variables. Discriminant Analysis is used to examine differences in groups to highlight key attributes of graduates moving into careers that require more of the skills needed as a result of the new world of work. Correlation analysis used as a method of evaluation is used to study the strength of a relationship between the variables, especially to establish possible connections between the variables of personality, competencies and career resilience.

Chapter 6 is the discussion of results from the previous chapters, and here the contribution to both knowledge and academe is discussed as well as offering a proposal for a model to be used by career and HR professionals.

Chapter 7 is the conclusion and will provide recommendations for practitioners, food for thought for further research as well as outlining limitations in this study, and reflections on personal development and learning.

2 Literature review

The way in which our careers develop is a complex process involving many different and changing factors

Gothard et al. (2006, 10)

2.1 Introduction

A key observation in the literature is how research and practice reflect the changing nature of how people experience a career through the ages. Workers during the majority of the last century experienced careers that were linear. Their careers followed steadfast pathways and were generally predictable. Accordingly, research on careers and work during this era was congruent with this 'job-for-life' experience and consequently, the careers advice given was to enable workers to enter steady career paths. However, the literature on modern careers indicates that work (and therefore careers) are not linear and open to sudden change and chaos – even if a worker stayed within a single employer, as such, practices needs to adapt (Bright and Pryor, 2005).

Definition of 'Career' for uncertain times

A definition of Career is provided by Baruch & Rosenstein (1992, 478) which suggests that a Career is "a process of development of the employee along a path of experience and jobs in one or more organisations". This definition offers a contemporary perspective on career development, in that it suggests a 'career' is dynamic in nature. Baruch (2004) suggests that in previous times occupations were obtained and retained by workers, which did not allow for much movement as people followed mostly linear career paths – often because of the ordered and hierarchical structures that organisations held. Baruch (2004) suggests that workers in modern-day society are now subject to a multiplicity of changes within a Volatile Uncertain Complex Ambiguous (VUCA) world. VUCA is a term, as stated by Kinsinger and Walch (2012), to describe a changeable work environment, and as such, careers are nonlinear and more 'multi-directional'. This definition and concept provide the theoretical 'lens' for the study.

2.2 Career uncertainty and nonlinear career choices

A focus of the literature is to examine careers and career self-management in the current world of work and also anticipate what work will be like for the next 20-30 years. It will centre on literature associated with chaos careers and the associated literature on personal factors needed to manage within a changing world. For example, Kinsinger and Walch (2012, 3) argue that new personal factors are needed for VUCA working, such as the ability to be

adaptable to change and being more resilient to balance the forces of change, as well as being able to build effective networks.

Modern career and employability literature suggests there is a greater emphasis on people being able to self-manage their careers by being more open to the nonlinear, non-permanent nature of modern employment. According to Shaffer and Zalewski (2011, 64), the shift from certainty to uncertainty is growing and has meant a different approach to career thinking, arguing:

“From the beginning in the last decade of the 20th-century American business and industry noted that fundamental forces of change were reshaping the employment realities of the knowledge-driven, post-industrial economy”.

Shaffer and Zalewski (2011) contend that new graduates are now entering a VUCA environment. They suggest that the last 20 years of careers advice settings that support graduates for permanent secure roles within traditional careers with lifelong security and opportunities for financial success, are no longer valid in a new VUCA labour and economic climate. Indeed, Shaffer and Zalewski argue that many graduates will encounter taking on additional part-time work, self-employment, contract work, frequent job changes and other forms of non-permanent jobs, as part of their career and they suggest career skills need to be adapted accordingly;

In a VUCA work environment, job security does not result from having a job, but from purposely and self-consciously maintaining a currency of skill and special knowledge that assures employability.

(Shaffer and Zalewski, 2011, 69)

Career theory developed as a response to the processes and progress of economic and geopolitical industrialisation. Much of current-day career practice is still however related to theory linked to how work was structured in the 20th century, where there was a higher degree of career certainty. Career development is a process that an individual undertakes throughout their lifetime and therefore career development will need to change, be more fluid and adaptive to a changing world of work, especially visible with trends towards downsizing and restructuring (Donald et al, 2017).

Arthur and Rousseau (1996) argued that companies now build flatter structures and undo the ‘company career ladders’ that previously enabled staff to move steadily up through an organisation hierarchy. Instead, many organisations use a greater number of outsourced services and staff, especially for skills they cannot grow in-house. This has meant a rise in contingent/gig working, more short-term contracts, and companies readily making redundancies and divesting themselves of workers that no longer have the skill-set needed. (Arthur and Rousseau, 1996; Bernstein, 2003; Bridgstock, 2009; Lautsch, 2002; Lazarova

and Taylor, 2009; Royal and Althausen, 2003; Waterman, Waterman, and Collard, 1994). As discussed, the new careers terminology that has grown subsequently such as portfolio careers (Cooper, 2002; Handy, 1996; Nash, 2018), protean careers (Hall, 1996; Hall and Moss, 1998; Sullivan, 1999), and boundaryless careers (Arthur and Rousseau, 1996; Lazarova and Taylor, 2009; Mirvis and Hall, 1994), demonstrates that much of the postmodern career theorists are focussed on the changeability, uncertainty and impermanence of work.

In examining the type of constructs such as the qualities, competencies, the personality of people who undertake more traditional/stable jobs, and who instead choose uncertainty and impermanent careers, there are potentially important findings from this type of research that can inform modern and future careers practice. Indeed, research by Morris and Vekker (2001) who studied workers who chose careers that were temporary and impermanent showed that there were positive reasons for this choice and their results showed such workers displayed a desire for greater flexibility. Muzzolon et al. (2015) also found similar positive reasons for workers choosing temporary work but cited that this positivity was present when seen as a choice and voluntary, not an involuntary imposition. Shaffer and Zalewski (2011, 70) argue graduates are now expected to show a different skill set, with a greater emphasis on “the new contract, the preferred pattern of employee development involves continuous experimentation and growth as well as increased adaptability”.

Lo Presti et al. (2018), showed that workers who voluntarily chose uncertain and non-permanent work displayed behaviours that were more in-line with those related to higher levels of career self-management behaviours as described within SCCT Career Theory, Chaos Career Theory, Protean and Boundaryless Career Theories, and included; *self-reliance, pro-activity and relationship orientated*. In their study of ‘Are Freelancers A Breed Apart?’ they found that people undertaking freelance and temporary work had higher levels of employability skills and demonstrated skills and qualities associated with both protean careers and those required by employers for promotion such as *high communication and relationship building skills* (Lo Presti et al. 2018). These ‘uncertain career’ behaviours are also described as *flexible, open, self-reliant and self-driven* forms of career behaviour (Hall, 1996, 2002). A recent study of university students and recent graduates in work showed that a protean career orientation predicts proactive career behaviours and career satisfaction, which was beyond a proactive disposition and core self-evaluations (Herrmann et al. 2015). In a study by Briscoe et al. (2012) in examining how people coping with an insecure employment environment, indicated that those demonstrating protean and boundaryless career orientations were positively correlated with not only higher skills in relationship

building, networking and people/relationship skills, but also higher levels of psychological wellbeing.

Chambel (2015) studied people choosing non-permanent jobs and their motivation in a study of Self-Determination Theory (SDT) in New Work Arrangements (NWA). NWA was defined as jobs that were not permanent, nonlinear and uncertain, and SDT is defined as an individual's motivation for; *Competence* - an individual's drive toward mastery, *Relatedness* an individual's need for networks and connections, and *Autonomy* an individual's need for control over their life (Ryan and Deci, 2000). Chambel found that with the rise in non-permanent work because of a more VUCA working world, workers that choose more temporary/nonlinear work have developed behaviours that are adaptive and indeed driven by SDT motivation. She also found that NWA workers undertaking temporary and contractual work had high-level work skills. She further suggests that these workers are actually more skilled in providing organisations with the skills they need, such as *flexibility*, *adaptiveness*, *self-reliance* in being able to deal with an agile, uncertain company environment - arguing that uncertainty, change and flexibility are going to be key qualities sought by employers in the future world of work. Within this broader rationale, however, it is important to note that traditional career paths are still relevant and may still be the dominant pathway for many people, but in the modern workplace, a wider range of career paths are increasingly relevant, and even desired by employers as suggested by Chambel and others. Careers is a fluid experience and may take many forms, including unpaid work and non-work. Indeed, Wolfe and Kolb (1984) suggest careers last a lifetime and should be viewed in the longer term. Arnold et al. (2005) advised that there should be no distinction between work and non-work, taking a more 'holistic' view of work to include unpaid experiences such as family caregiving.

The Transformed Deal

Baruch & Rosenstein offer a contemporary perspective on career development that is more dynamic in nature. Indeed Baruch (2004), states in previous times workers followed more traditional career paths because of the more hierarchical structures within companies. This encouraged and supported a linear career route for most workers. Baruch (2004) suggests that workers in modern-day society are now subject to a variety of influences from a VUCA work environment. Careers are now nonlinear and more 'multi-directional' - what Baruch describes as *transformational*. The 'Transformed Deal' as described by Baruch in Table 2.1 suggests that careers are more *dynamic* and less stable, and as such career development lies with the individual worker and not the employer. An important aspect of Baruch's work here also suggests that the process of making career decisions will be repeated in a person's working life. This is a very different approach to earlier theorists (e.g., Developmentalists and

the Type and Factor), where decisions are made early, often to match an assessed skill-set, and is somewhat at odds with some current career practice in education and HR practice in recruitment and selection. The 'Transformed Deal', like Chaos Theory of Careers from Bright and Pryor (2013), suggests that not only the work will be subject to unpredicted changes, and therefore people need to adapt career plans to adapt, but that people will also change, thus organisations will need to adapt to them. Therefore, the literature suggests a more dynamic approach to career management should be considered in career practice, where dynamism refers to the behaviours and attributes associated with career mobility (Feldman and Ng, 2007). It is these constructs that give rise to the justification of studying concepts on career uncertainty.

Table 2.1 The Transformed Deal

Aspect	Traditional deal	Transformed deal
Environment characteristic	Stability	Dynamism
Career choice being made	Ones, at an early career age	Repeated, sometimes cyclical, at different age stages
Main career responsibility lies with	Organization	Individual
Career horizon (workplace)	One organization	Several organizations
Career horizon (time)	Long	Short
Scope of change	Incremental	Transformational
Employer expect/employee give	Loyalty and commitment	Long time working hours
Employer give/employee expect	Job security	Investment in employability
Progress criteria	Advance according to tenure	Advances according to results and knowledge
Success means	Winning the tournament i.e. progress on the hierarchy ladder	Inner feeling of achievement
Training	Formal programmes, generalist	On-the-job, company specific
Essence of career direction	Linear	Multidirectional

Source: Adapted from Baruch (2004) list row added

2.3 The Evolution of Career Theory

To give context to modern careers and work, it is important to consider how career research has evolved. Careers practitioners are taught career theory at the start of their training. In learning career theory, careers practitioners essentially learn how to facilitate the guidance of work behaviour through career development, and as such develop a process of problem-

solving through the application of theory to practice (Heppner, Reeder and Larsen, 1983). It is a fundamental underpinning for careers practitioners and enables them to offer deeper levels of empirical and evidential based careers guidance, rather than only observational opinion-based views. Understanding career theory also enables careers practitioners to account for intrinsic and extrinsic factors that affect career behaviours in students and clients, which helps careers practitioners predict career behaviour in practice (Krumboltz, 1994). Osipow and Fitzgerald (1996) suggested that career theories can be subdivided into different sections that address key elements in career development and practice and the key theories are listed and then discussed below;

Trait and Factor Theory

Traits and Factors (Parsons, 1909), RAISEC (Holland, 1997)

Developmental, Learning, and Transition Theories,

Life Cycle Career Theory (Super, 1953)

Postmodern and Contemporary Theories of Career Development

Social Cognitive Career Theory (Hackett and Betz, 1981; Lent, Brown, and Hackett, 1994)

Career Construction Theory (Savickas, 2005)

Protean Career Theory (Hall, 1996)

Chaos Career Theory (Pryor and Bright, 2011)

Biological and Ecology: Career Ecosystems Theory (Baruch and Altman 2016) and Systems Theory Framework (STF) (McMahon and Patton, 1995; Patton and McMahon, 2006)

Trait and Type Theories

Early theorists such as Parsons (1909) proposed a Trait and Factor Theory, which encouraged practitioners to understand the traits and skills of an individual that could be then matched to factors or qualities needed in a job. Parsons is often considered the founding father of career development and suggested that the Trait and Factor theory proposes a logical-based process in its three-step procedure of; *knowing* your own characteristics and traits, *knowing* the job market, and *matching* yourself against the job market. This offers a clear and 'common-sense' approach which appeals to many. This theory is still used today in many career services, using Trait and Factor models developed for example by Holland, (1977) who developed his model based on his Vocational Choice Theory, where he proposed that a person's traits, in particular, their personality, was the essential basis of career choice. Holland's influential inventory is used across the globe where people are divided through a measurement tool into six different personality types: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional (RIASEC). However, critics of this theory suggest that it is overtly linear and therefore too simplistic as it does not take into

account wider aspects of a career, such as societal restrictions to job entry such class, race, and gender which might hold people back either because of self-perceptions, or because of discrimination despite having 'match-able' attributes (Freeman, 1979). In addition, the logical linear approach that Trait and Factor offers is not something many people adopt in the reality of life given the complexity of human lives and choice (Rogers, 1965). As Bimrose and Barnes (2006) point out, most people do not often take a rational or strategic approach to their career development, rendering a Trait and Factor approach not particularly useful for uncertain career paths.

Developmental, Learning, and Transition Theories

Developmentalists suggested that career occurs through life-events and life cycles. The main proponent of this was Super (1953) who suggested that people undergo career development in stages according to his Life Cycle Career Theory. Super introduced constructs of 'self' and 'identity' into career development and proposed a model of 'self-concept'. He suggested that people form career ideas based on how they see themselves, how others see them and their place in how they see the world around them. Super posited that people's career choices and decisions are also based on which stage they are in life, as well as their age. These all set out within his Five-Stage Life Span Model. (Super, 1953) which takes a person through childhood to retirement from work. This theory has had a great influence on Careers and HR Practitioners as often they enter into this career as a way of enabling people to achieve their goals, dreams, and ambitions. As Developmentalist theorists ascertain that a person has agency over career choice, it offers a more hopeful and empowering message of career development. An important counter proponent to Developmentalists was Roberts (1968, 1977, and 1997) who in his Structural Career Theory argued that career choice is controlled by society and social variables, which are not influenced by individuals. Roberts conversely suggests that individuals have little agency and are entering careers according to pre-existing social structures and were closely associated with social class. Roberts argued people from lower socio-economic groups are unable to enter jobs outside what their families and society expects (such as high professional posts such as doctor, judge, banker) as Roberts contends they will not only develop early belief systems of what is the 'right' career path for them, but they will also face restrictions from others who traditionally enter that career path. In the UK, recent data shows that children from poorer socio-economic groups still do not enter similar occupations than others from higher socio-economic groups and where 39% of elite professions were privately educated, more than five times as many as the population at large, while a quarter (24%) had graduated from Oxbridge (Sutton Group, Elitist Britain Report, 2019). Roberts identified three key structural obstacles to career access to opportunities that he suggests create a prolonged transition into careers: 1) Jobs deficit,

which is likely to remain a general feature of economies at any stage. 2) Pressure on low-income families, with young people being financially dependent on their parents for longer periods owing to delayed entry into paid employment. 3) Dead ends, whereby low achievers find it difficult to get anything that offers a real future because of low skills ability in higher-level jobs (Roberts, 1997). Structuralism suggests that careers practitioners can do little to change career outcomes:

... for most people occupational choice is structured by factors outside the individual, including social class, educational opportunities and the current state of the labour market, depending on economic trends in supply and demand.

(Ali and Graham, 2007, 40)

Brown (1990) also criticised the developmental life-stages theory as it does not acknowledge the challenges faced by people from lower socio-economic groupings. Furthermore, this approach to career is not only linear in terms of chronology, but it is also very linear in terms of a person's life, considering only paid work. It also does not consider non-work and how that might also influence work. As Beigi et al (2018) demonstrate there is a great deal of non-work that individuals do. As such, it is highly feasible that non-work will interface with work, and invariably create influence and impact on career development.

2.4 Postmodern and Contemporary Career Theories - a new approach to Career Uncertainty

The literature broadly uses Postmodern and Contemporary careers interchangeably, as this thesis will also do. It is argued that theories, that consider careers from the latter part of the 20th century and this century under the postmodern and contemporary umbrella, are in fact the same and follow on from traditional careers. Baruch (2006, 137) argues that:

Contemporary careers are quite different from traditional careers, but not all have changed. The patterns have developed, from stable and linear career systems into transitional and dynamic systems.

Postmodern and Contemporary careers concepts proposed by more recent career theorists are further reflective of current workplaces and are therefore more facilitative for new workers who will experience greater career uncertainty. Redmond, a careers author and the Director of Student Experience and Enhancement at the University of Liverpool, describes a 'new world of work as 'AD' (AD defined as After the Downturn), which he pinpoints to the start of the recent recession and specifically the demise of Lehman Brothers in 2008. Redmond posits that in order to successfully navigate the new world of work, people need to take charge of their own career even more strongly, and suggests the previous perception of an

employer driving an individual's career is no longer acceptable and people need to be drivers of their own career. Redmond argues the vital importance of graduates having higher levels of career self-management is critically important to employability (Redmond, 2010).

Inkson et al. (2007) argue that a 'career' has distinct characteristics and that careers develop and evolve in a long-term path. The concept of a job-for-life is less relevant in the modern economy and subsequently - given the reduction in the offer of life-long jobs - individuals will therefore need to manage their own careers, rather than expect careers managed for them.

Research suggests that the demise of the job for life is not necessarily seen as having a negative impact on an individual's career. Callanan and Greenhaus (1999) suggest that whilst the psychological working contract has been broken due to downsizing and restructuring, there is now the opportunity for people to be more flexible in work patterns and indeed reconsider the type of work they seek; such as being self-employed, or remote workers. These changes since the 1990s have meant career patterns have changed (Arthur and Rousseau, 1996; Callanan and Greenhaus, 1999; Hall, 1996). A feature of modern careers is the shift of responsibility and leadership in a career delivery scenario from the professional careers practitioner, to the client. According to Brott (2001), the Trait and Factor approach, and to some extent, the Developmental and Structural approaches described in the previous sections, are both still 'linear' in approach and therefore do not address the skills needed in developing 'adaptive' career management within a changing world. In addition, Brott also suggests that in employing Trait and Factor and Developmentalists approaches, the careers practitioner will control the process and therefore 'own' all the information. This means they offer less ownership and therefore agency to the student and/or client. Brott also suggests that the modern careers world is not as linear as it was in the time of Parsons and Super - the traditional approach of matching workers to jobs by using rational decision-making strategies is no longer as relevant, given both the changing world of work but, importantly, also to the complexity internal psyche of individuals, thus, ownership of information becomes irrelevant. Brott suggests that the 21st century has given rise to post-modern career theory development, where careers take place in an 'information age' and thus the career practitioners must decrease the nature of 'expert' in possession of all the facts and data. Instead, a practitioner should act more like an enabler in career decisions, working in collaboration with clients to enable career choices, by developing their key traits to enable managing uncertainty, such as being able to be resilient against change and being adaptable to meet change positively. Indeed, *Career-Adaptability* suggests Bimrose et al. (2011, ii) is based on "the capability of an individual to make a series of successful transitions where the labour market, an organisation of work and underlying occupational and organisational knowledge bases may be subject to considerable change".

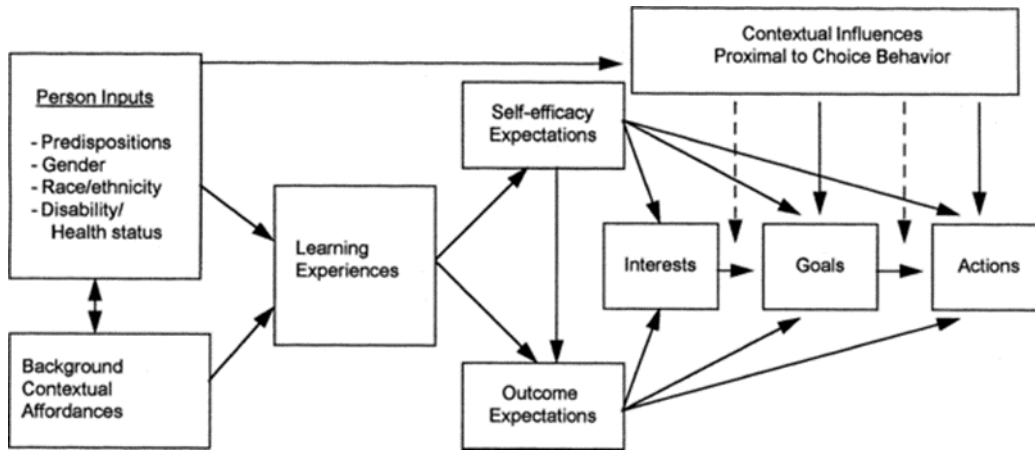
The modern careers theorists' premise is that the individual has the expertise and they are the agents of change of their career. Indeed, individuals are sometimes now referred to as having portfolio careers where we have witnessed a change from a lifelong career in one company, to one that is now changing jobs with several organisations. These changes have meant that people need to consider how they adjust and change their career in order to adapt to the changing job market (Hall, 1996; Eby et al, 2003). These changes have given rise to a Protean Career approach, which according to Hall "is a process which the person, not the organisation, is managing a career plan where a person's own personal career choices and search for self-fulfilment are the unifying or integrative elements in his or her life. The criterion of success is internal (psychological success), not external." (Hall, 1976. 1996). Factors described by Hall, suggest that those individuals who have a protean career approach are more important in maintaining employability and Hall describes these as being qualities that are *change-orientated and open to experience*. The unstable labour market has influenced people away from needing to manage their own career towards wanting to manage it (Arthur and Rousseau, 1996). As such, the concept of *career self-management* is more important in postmodernist career theory, which places a higher emphasis on the individual as an agent of change. According to Callanan and Greenhaus (1999), this approach to career management means that the individual worker takes on greater responsibility for their career, therefore the employer takes on less, and as such, the worker needs to consequently focus on maintaining effective career management strategies in order to achieve career goals. Hall and Mirvis (1996) suggest that this sense of ownership of career gives greater individual agency, and thus improves self-efficacy and career motivation which then can enable the individual to go on to obtain further career success. A key aspect of this study is to examine such factors that enable career management within career uncertainty. The following theorists show the nature of 'careers in a modern world and the relationship to career uncertainty in more detail.

Social Cognitive Career Theory (SSCT)

The Social Cognitive Career Theory focuses on the importance of self and self-belief that are needed in order to drive careers, and so provides a behavioural underpinning to career management and emphasis on the role of 'self-belief' as a construct of career progression. Social Cognitive Career Theory (SCCT) is born out of Bandura's work on self-efficacy as prescribed by Bandura (1986). Bandura proposed three variables as influential to success: (1) self-efficacy, (2) outcome expectations, and (3) personal goals. Lent et al., (1994) argue that factors that create internal constructs on an individual are the key drivers for career goals. SCCT theory suggests that individuals with high self-efficacy will set higher expectations of themselves and have higher career goals, and people with low self-efficacy

beliefs or expectations, may set low goals and motivating themselves towards reaching these goals may prove challenging (Gysbers et al., 2009).

Figure 2.1 Flow chart of the social cognitive career theory (SCCT).



Source: Lent et al Adapted from "Toward a unifying social cognitive theory of career and academic interest, choice, and performance" (1994, 93).

The premise of the model in Figure 2.1 suggests that higher levels of self-efficacy create circumstances for an individual to set higher goals for themselves if they have had learning experiences that allowed them to believe that they are able to achieve more (Lent et al. 1994). SCCT suggests that *Personal factors* have a strong influence on goals and can be themselves influenced by learning experiences (Lent et al., 1994).

The Career Construction Theory

Careers Construction Theory, developed by Savickas (2005), on careers services in recent years has been highly influential as this theory also emphasises the 'personal factors' that influence career management. Specifically, the Savickas model expands the importance of the individual as key agents in their career, as careers delivery is geared toward the student developing an understanding of their career choices by telling their 'life-story' in a narrative (often this theory is also called the Narrative Careers Theory). As Savickas (2013, 150) suggests, the narrative is "a story that individuals tell about their working life." It is argued that a process of storytelling facilitates a greater understanding of self and the influences on self, and as such, an individual can construct more informed career plans. Indeed, Beigi (2014) argues that telling stories can enable people to engage and facilitate better engagement in a training and development environment. As a practitioner she found in delivering training through the use of stories resulted in a positive result and enabled training participants to understand and relate to the complex challenges the organisation faced.

Thus, the methodology of narrative storytelling can enable an individual to gain personal insight that they can apply to career planning in both group and individual settings. The narrative self-construction careers process enables an individual to understand their career constructs that have all developed from childhood. By the practitioner encouraging the student/client 'telling their life story' it enables the client to see themselves as authors of their careers to build self-efficacy. Career-Adaptability is a key part of Career Construction Theory building self-efficacy, control and flexibility to manage uncertain career paths.

Career Theory and the importance of self-reliance in uncertainty

Briscoe and Hall describe modern career concepts essentially as one where an individual drives their career and is more "self-directed and has values-driven career orientations" which are more suited to change and uncertainty (Briscoe and Hall, 2006, 8). The literature on career-self management offers considerable support for the influence of career self-reliance and conscientiousness behaviours in managing uncertainty. Proponents of self-reliance as a factor in career self-management describe it as the *adaptable and self-resourceful attitude* that workers take when managing their own career and not expecting the employer to manage it for them. Kossek et al. (1998, 936) define career self-management:

"As the degree to which one regularly gathers information and plans for career problem solving and decision making, includes two main behaviours: developmental feedback-seeking and job mobility preparedness".

This concept of career suggests that work has changed to be less stable and workers have all needed to learn to adapt to stay successful in an increasingly changing world and that people need to develop personal factors (such as revising their skill-set) regularly to stay economically relevant (Hall, 1976; 2002).

Chaos Theory of Careers

Accepting that uncertainty is an inevitable, inescapable and ubiquitous part of life leads to new approaches to career development

(Bright, 2016, 9).

As discussed, the world of work is subject to change and uncertainty. A major contribution to the postmodernist and contemporary career theory specifically focussed on change and uncertainty was developed by Bright and Pryor (2003) in developing the Chaos Theory of Careers (CTC) who suggest that careers are to subject to random and haphazard events, and as such as are inherently unpredictable and unstable. CTC conceptually is aligned to the mathematical research of Lorenz, where it was observed that small changes in processes could influence greater results - the phenomenon of the Butterfly Effect is used as a Chaos

Theory application (Lorenz, 1963). Lorenz surmised that systems were very difficult to predict, leading him to coin the term Chaos Theory.

Pryor and Bright also suggest that careers are non-linear and unpredictable and are subject to continual change, and that chance events can have an unpredicted impact on a career, sometimes small, sometimes large (Pryor and Bright, 2011). The Chaos Theory of Careers states that people are 'complex dynamical open systems' (similarly observed by Lorenz) and as a result, they are subject to the processes of; Complexity; Change and Chance (Pryor and Bright, 2003, 2007, 2010; Bright and Pryor, 2005, 2007). Thus, CTC in its application suggests that uncertainty is the norm for career development, and unlike the proponents such as the Developmentalists, Trait and Factorists and Structuralists who suggest careers are linear and stable, the CTC suggests that career paths will not be linear, stable, or predictable.

In order to enable students to adopt the applied thinking from CTC, Bright and Pryor (2007) suggest career practitioners should not implement their 'usual habits' of asking students to undertake detailed inventories and analysis of their skills, abilities, and abilities as these are irrelevant to a changing and chaos orientated careers world. They suggest that students should instead be offered guidance on how to be comfortable in the knowledge that their career future is uncertain, and that their careers are subject to many external factors. Thus, for them to manage a career, they will instead need skills on how to be positive with uncertainty, as well as learn how to maximise random events and chances when they arise. Furthermore, CTC is in opposition to the traditionalist approaches operating in most career services, specifically in assumptions that there is not an ideal career fit for a person, or that people can be matched to specific jobs. CTC also opposes the current positive thinking trend that an individual must find their 'passion', as a passion implies a single cause and outcome (Bright, 2016). Indeed, if a 'vocational passion' did not have any economic reward, it might, of course, mean the career path being pursued is unrealistic from an earning potential. This contradicts many practices, and especially to those primarily adopting Trait and Factor and Developmentalist career approaches. A CTC approach to career development comes from people applying elements of trial and error and understanding that career learning will come from experimentation and failure, which is embraced in CTC as it offers experiential learning (Bright and Pryor, 2011).

The key to success in CTC suggests Bright, is that individuals will need to learn how to take benefit of leveraging complex influences and maximise chance events to propel us forward in the face of uncertainty (Bright and Pryor, 2009). Chaos Theory suggests that whilst the past is important, especially to understand the skills gained from prior experience, it is more important to stay future-focused. For example, Pryor and Bright (2011) offer a critique of the

Career Construction Theory through its narrative approach, saying that it may reinforce, or exaggerate behaviours that are not required for future career development, and previous experiences may even redirect and or restrict career growth. Within a CTC approach, the emphasis is placed on individuals knowing that life will change, and therefore being encouraged to be more open to new opportunities and experiences (and thus maximise on chance events when they arise). Bright and Pryor suggests that in this way individuals can look upon their career in a more flexible and resilient way - by adopting this approach they will create better career development opportunities.

The importance of chance and change has greater focus as a construct within CTC, most likely as a reflection of how work and employment are now under even more change and unpredictability in this current age. However, there is early support for CTC in the Developmentalists era from Herring et al. (1951) who in developing their life-span model, also stated that many occupational choices are made “accidentally”. More recently, an empirical research study of 600 students by Bright et al. (2005) showed that nearly 70% of them report that chance events affected their career decision making. Hirschi - in a longitudinal study on students - found that there was a significant influence of chance events on career development variables of planning and decidedness (Hirschi, 2010). CTC, whilst suggesting career outcomes are very much influenced by chance, individuals can still harness skills and career management techniques to ensure their approach to uncertainty is positive, and they can, therefore, prepare for uncertainty in order to maximise career opportunity. The methodology applied to employ a CTC approach in career guidance suggested by Bright and Pryor (2007) would be to adopt:

Open-mindedness and curiosity for new opportunities: suggest that a rigid career approach will limit career opportunities as chance events mean that they might not happen. Instead it is important that individuals take an approach that enables them to stay open-minded, explorative and curious to opportunities and adopt a proactive attitude.

Risk orientation: CTC approach suggests that by adopting an approach that encourages chance events, it is important to develop a positive attitude to change, such as taking risks to try new opportunities, rather than staying with existing career ideas

Understand the importance of self-reliance: as career opportunities will arise at unexpected times an individual has to be driven and motivated to keep going in difficulties, as well as be able to respond to a new opportunity when it does arrive.

Create supportive relationships: essential to adopting a CTC approach is ensuring that individuals can reflect on career opportunities as they arise and build effective networks in order to develop feedback opportunities.

Bright and Pryor (2011) suggest that CTC can be empowering for people as they can be more of an agent in shaping their own career outcomes. A lack of control over external events allows people to think more proactively about themselves and what they can achieve. They also suggest that by increased networking, individuals will increase their openness to opportunities, as well as develop skills in communicating ideas/skills/abilities to others, plus suggesting that networking is a way of taking control of the unpredictability of the world and making gains from that. It reflects similarity to the underpinning of postmodernist career theorists such as the Protean Career theory, which also suggests that careers are now very changeable.

An important feature of CTC is that it acknowledges the non-permanent and nonlinear nature of work and careers. With the speed of technology, reshaping of organisational structures and increased nature of contractual and contingent work as seen from the 1990s (Hall and Mirvis, 1996), we see growth in new ways of working, such as gig economies and occupations being less separate job functions known as 'occupational hybridization'.

Hybridization is often connected to structural changes on labour market and economy. Occupations absorb new areas of tasks and duties, and often the new hybrid occupations are in-between two or more business fields. Absorbing refers to objects of work, tasks, patterns and methods, knowledge and environment.

(Haapakorpi, 2014, 1)

The modern theorists all refer to the changing work world, and highlight career behaviours, attitudes and orientation that will enable individuals to manage their careers within changing and unpredictable career paths. They suggest that how people adjust their career in order to adapt to the changing job market is increasingly important.

Career Ecosystems Theory and Systems Theory Framework (STF)

Systems theories are often associated with structures in organic and living phenomena and indeed the two discussed here are *ecological* (Career Ecosystems Theory) and *biological* (Career Systems Theory Framework) structures. The rise of comparison to living phenomena is growing also in practitioner literature, for example, McKinsey & Company (2017) in outlining the benefits of a more dynamic organisation by adopting the use of Agile Project management, suggest that an Agile organisation is more of a living organism that enables faster changes. By adopting 'living' metaphors, proponents suggest models that show a more symbiotic relationship with their environment and internal systems that work in congruence with all internally connected parts. A central aspect of these methodologies in a career context also suggests that the processes are 'life-long' - similar to living organisms. Accordingly, in a career context, this suggests that the of making career decisions will be

repeated throughout working life, as living in a VUCA environment will mean career change is always inevitable - even if a person stays within an organisation - as all organisations now are subject to change and transformation. The 'Transformed Deal', similar to CTC from Bright and Pryor (2013), suggests that the world will inevitably evolve and change and therefore people will certainly need to adapt. Important to note however, that people will also change plans, and organisations will need to adapt to them. This contemporary approach, as discussed, is very different to that of Developmentalists and the Trait and Factor career proponents from last century, where they argued for decisions to be made early in a lifetime. Decisions made were also to remain steady enough to last a life-time and were often to match an assessed skill-set for a specific work environment.

Ecosystem theory proposed by Baruch et al (Baruch and Rousseau, 2018; Baruch et al., 2016) suggests that careers are subject to the 'evolutionary' aspects of business, and therefore subject to flow, connections and influences of external forces. Ecosystems theory posits that an individual worker is part of a more dynamic structure. Ecosystems Careers Theory places importance on the external environment as a shaper of career pathways. The suggestion is that, like an organic ecosystem, workers will be subjected to external change and circumstances; anything from organisational cultures to global political shifts. Baruch and Altman (2016, p16) suggest that there are three parts to the ecosystem:

Interconnectedness, Interactions and Interdependencies, where:

- Interconnectedness is the key characteristic of an ecosystem, manifested by interactions and enacted through interdependencies.
- Interactions take place, some more and some less significant than others, starting from the basic transactional exchange of labour for wages, and at the firm level, expressed as the meeting of policies (local, national, transnational) with organizational strategies.
- Interdependencies are of course inbuilt into organizations ever since the Industrial Revolution, but in the post-modern environment characterized as VUCA (Volatility, Uncertainty, Complexity, Ambiguity), these interdependencies have reached a high state of entanglement.

Similar to early Structuralism Career Theories (Roberts, 1968), this theory highlights that Career Ecosystems theory shows more interrelated career pathways for a worker, shaped by a range of external environmental influencers. Career Ecosystems Theory, suggest Baruch and Altman (2016), operates on a market system and thus is subject to supply and demand forces. Structuralism Career theories suggest that a more market-led labour market can ignore those that are not considered as 'marketable'. Structuralism suggested that because of the power of external influences, there will be more restriction on career mobility for those

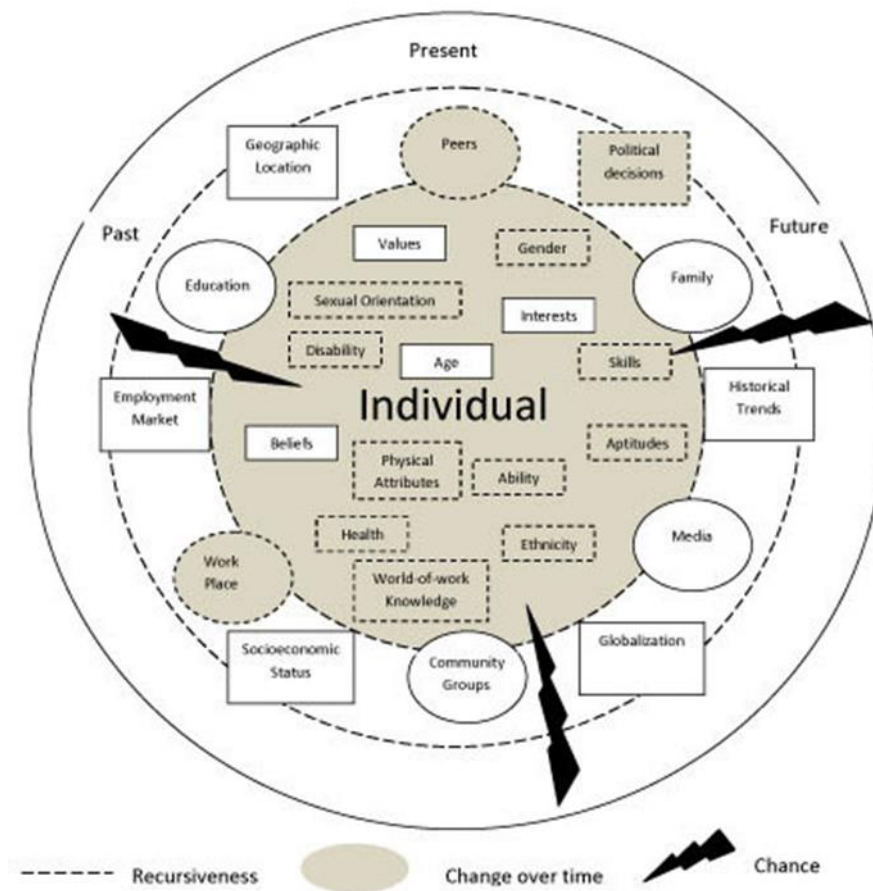
from minority groups or socially and psychologically disadvantaged backgrounds. Thus, it would be prudent on career practitioners to not only enable graduates to understand the more dynamic interrelated *Ecosystemised* world of work but to recognise how they might build their human capital to enter and gain success. Often this will be through networks, skills and experience, as well as the development of self-efficacy as described in the SCCT model.

Systems Theory Framework originated from von Bertalanffy (1940) who initially developed an approach to systems theory based on his work as a biologist, to demonstrate that living organisms are 'holistic' in life-form - similar to Career Ecosystems Theory- as all parts within contribute to the other. Recently, to unify and explain the interdisciplinary and interdependent nature of careers theory and practice, a version of this system was adapted to the careers theory world. Systems Framework Theory proposed by Patton and McMahon (2006, 236) set out their rationale for convergence in career theory saying that:

"Systems Theory Framework accommodates integration of (career) theory from other fields such as economics, education and sociology. The STF is complex and dynamic, attesting to its relevance in a similarly complex and dynamic society"

Patton and McMahon argue STF offers a universal system can show the interfaces between existing theories and provide greater context to practitioners. Figure 2.2 overleaf shows how an individual in making career choices is indeed subject to a range of influences, where STF has three layers or systems; the first is *intrinsic* and is the 'individual system' with trait factors such as personality. The second system is *extrinsic* and is the 'social system', such as parents and peers. The third system is the 'environmental-societal system' such as the economy, political changes, and technology.

Figure 2.2 The Systems Theory Framework of Career Development



Source: Patton and McMahon, (2014, 243)

STF, it is proposed by McMahon et al (2010), offers career practitioners a way of bringing a range of models and tools into play. As layers within STF are permeable, interrelated and changing, and it systemic and accommodative of nonlinear, non-traditional career paths (Patton and McMahon, 1999). Patton and McMahon (2007, 9) suggest that;

“Time is represented in the STF as a circular depiction that emphasises the nonlinear nature of an individual’s career development and the integral role of past, present and future influences.”

2.5 Employability for uncertainty and the future of work

In order to understand the application of career theory and career development, it is essential to understand how people manage their ‘marketability’ to the labour market through their employability – especially in career uncertainty. Employability is increasingly seen as a dynamic concept, in that considers both the economic and employer needs as well as an individual’s skills (McQuaid and Lindsay 2005). Andrews and Higson (2010) argues that

there needed to be greater focus on key employability traits to meet the needs of employers in the UK, Europe and indeed globally. Cumming (2013, 3) strongly advocates that there needs to be more debate on improving employability skills:

‘A dominant theme emerging ... is that many graduates lack appropriate skills, attitudes and dispositions, which in turn prevents them from participating effectively in the workplace’

The McQuaid and Lindsay attributes on employability details are listed in Appendix B show, for example, that the ability to network well to access career resources are essential, and reflective individuals will face a more fluid, changeable career path. For example, according to the Office of National Statistics (ONS), workers are changing jobs more often and full-time workers are fewer, and thus the labour market experiences more mobility as shown in Figure 2.3, where the number of full-time employees is falling within the workforce. In examining the ONS data, it showed that in 1996, 21% of employees were looking to change jobs in the next year, and in 2013 this rose to 37% (ONS and CIPD, Report on Megatrends Shaping Future of Work 2012, 2013).

Figure 2.3 Full-time employees as a share of the workforce 1997-2013

Figure 12: Full-time permanent employees as a share of the workforce, 1997–2013



Source: Office for National Statistics

Source: Office of National Statistics, UK Employment Data, 2014

According to one European Union employability publication, the labour market will function more efficiently when the workforce's work motivation and mobility increase, the overall time in job search decreases, and the matching between people and working environments improves (Cedefop, 2005). It is crucial that careers practitioners are mindful of changes in the working world to stay employable over a lifetime (Hall; 1976, 2002), especially so with the prediction that greater change is to impact world economies with the rise of the Fourth

Industrial Revolution. Companies are increasingly considering the impact of artificial intelligence (AI), robotics and machine learning into the world of work. The World Economic Forum (WEF) (WEF, Future of Work, 2017, 2018) in several published research papers highlights skills needed for the future of work. These skills also map to factors identified in this study, and most markedly, in the ability to manage change in an uncertain world. New employability skills are identified as the WEF data states that future jobs across all industries are expected to require of more *cognitive abilities*, such as creativity, logical reasoning and complex problem-solving being one of their core skills. There will also be an increasing demand for social skills such as persuasion, emotional intelligence and teaching others (WEF, Future of Work, 2015, 2016).

As the CTC and Protean Careers theory propose, it is essential to career practice to consider how managing change is manifested and which skills and behaviours are needed to establish careers in a new world of work. The UK Commission for Employment and Skill report on future of work predicted trends for 2030 (UKCES: UK Commission for Employment and Skills, 2014). The government-commissioned report findings is aligned to research by other bodies, such as the World Economic Forum (2017). The conclusions strongly suggest that there are considerable disruptive forces on world economies that will affect employment and therefore approaches to employability and career management. UKCES identified ten disruptors for the UK as shown in Table 2.2.

Table 2.2 Ten employment disruptors for the UK

- | |
|--|
| <ul style="list-style-type: none"> ○ Reverse migration ○ Changing values of employees', where workers select employers on the basis of alignment with their own values ○ Zero-hour contracts, and similar flexible arrangements become the norm ○ Anytime, anywhere skills delivery, enabled by virtual and peer-to-peer learning ○ Artificial intelligence (AI) and robots, penetration of AI and automation into highly skilled occupations ○ De-globalisation ○ Geographically alternative centres of excellence, the UK's leading position in key economic sectors is lost to high growth economies ○ Disrupted Internet developments due to cybercrime ○ Resource conflicts or climate disasters threaten supply ○ Partial fragmentation of the EU. |
|--|

Source: UKCES Report on employment factors for the UK (UKCES, 2014)

UKCES research suggests that in the 'future of work' (i.e. over the next ten years), these are the key components in employability and career management that an individual must demonstrate:

- Change mindset regarding the nature of work, as it becomes less location-specific, more network-oriented, project-based and increasingly technology-intensive.
- Take greater personal responsibility for acquiring and continuously updating skills for progression and success in the face of limited investment from employers and government and increasing division between low and high-skill jobs. Keep in touch with relevant labour market developments and include skills and training opportunities as part of contract negotiations with employers.
- Be open to and take advantage of new and different approaches to learning, for instance self-directed, bite-sized learning, peer-to-peer learning and technology-enabled training opportunities.
- Be willing to jump across specialist knowledge boundaries as technologies and disciplines converge, developing a blend of technical training and 'softer,' collaborative skills.
- Focus on development of key skills and attributes that will be at a premium in future, including resilience, adaptability, resourcefulness, enterprise, cognitive skills (such as problem-solving), and the core business skills for project-based {contingent and hybridized} employment.

A report conducted by The University of Phoenix Research Institute (2011) showed six disruptors: Extreme Longevity, Rise of Smart Machines, New Computational World, Social Media Ecology, Supersized Structured Organisations and Globally Connected World. The impact and influence of these disruptors will lead to the need for ten key skills and competencies as shown in Table 2.3 and these are highly related to competencies and qualities related to this study.

Table 2.3 Skills identified for the new working: Future Work Skills, 2020

○ Sensemaking: ability to determine the deeper meaning or significance of what is being expressed It would appear that these
○ Social intelligence: ability to connect to others in a deep and direct way, to sense and stimulate reactions and desired interactions
○ Novel and adaptive thinking: Proficiency at thinking and coming up with solutions and responses beyond that which is rote or rule-based
○ Cross-cultural competency: ability to operate in different cultural settings
○ Computational thinking: ability to translate vast amounts of data into abstract
○ New-media literacy: ability to critically assess and develop content that uses new media forms, and to leverage these media for persuasive communication concepts and to understand data-based reasoning
○ Transdisciplinary: literacy in and ability to understand concepts across multiple disciplines

○ Design mindset: ability to represent and develop tasks and work processes for desired outcomes
○ Cognitive load management: the ability to discriminate and filter information for importance, and to understand how to maximize cognitive functioning using a variety of tools and techniques
○ Virtual collaboration: the ability to work productively, drive engagement, and demonstrate presence as a member of a virtual team.

Source: Institute for the Future, Future Skills (University of Phoenix Research Institute, 2011)

Future of work skills literature competencies are not hugely dissimilar to current employer competencies, but there is greater emphasis to have greater *resiliency, relationships, communication, and change management readiness*, as shown in Table 2.4. This supports the factors in the CTC and Protean Career Theory and the importance of self-efficacy in career development as described in SCCT and Career Construct Theory.

Table 2.4 Key Future of Work Attributes

Abilities	Basic Skills	Cross-functional Skills	
Cognitive Abilities <ul style="list-style-type: none"> » Cognitive Flexibility » Creativity » Logical Reasoning » Problem Sensitivity » Mathematical Reasoning » Visualization 	Content Skills <ul style="list-style-type: none"> » Active Learning » Oral Expression » Reading Comprehension » Written Expression » ICT Literacy 	Social Skills <ul style="list-style-type: none"> » Coordinating with Others » Emotional Intelligence » Negotiation » Persuasion » Service Orientation » Training and Teaching Others 	Resource Management Skills <ul style="list-style-type: none"> » Management of Financial Resources » Management of Material Resources » People Management » Time Management
Physical Abilities <ul style="list-style-type: none"> » Physical Strength » Manual Dexterity and Precision 	Process Skills <ul style="list-style-type: none"> » Active Listening » Critical Thinking » Monitoring Self and Others 	Systems Skills <ul style="list-style-type: none"> » Judgement and Decision-making » Systems Analysis 	Technical Skills <ul style="list-style-type: none"> » Equipment Maintenance and Repair » Equipment Operation and Control » Programming » Quality Control » Technology and User Experience Design » Troubleshooting
		Complex Problem Solving Skills <ul style="list-style-type: none"> » Complex Problem Solving 	

Source: World Economic Forum, Future of Work Report, 2015

2.6 Dynamic Capabilities - a method of managing uncertainty in corporate environments

In addition to career and employability literature in career uncertainty, it is important to review an employer perspective from corporate strategy literature and specifically literature on dynamic capabilities. This is a useful body of literature to refer to, as examining the strategy of firms gives an indication of the impact on future employability needs. As shown in Table 2.2, there are predicted to be ten employment disruptors for the UK that show that there is greater unpredictability anticipated in the workplace which could potentially mean more unstable types of work - even within corporations. As Chambel notes, many firms are now adopting a model of employment of non-permanent workers as one method of being more responsive and agile, and therefore, it is possible that a more dynamic corporate strategy will influence recruitment and development.

The concept of dynamic capability as outlined by major proponents of the field such as Teece et al. (1997, 509) suggest it is “the firm’s ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments”. Dynamic capability essentially relates to a firm’s ability to adapt, evolve and remain competitively advantaged in the unpredictable and unstable VUCA world that most companies now operate. Therefore, dynamic capabilities are different to a firm’s operational capability, which relates to the day-to-day running of a firm (such as administrative, legal and operational duties), whereas dynamic capabilities relate to the directional planning of a firm. Teece et al. (1997), argue that by effectively applying a dynamic capabilities framework, a firm will be able to create a short-term benefit - by which the continued application will build a longer-term competitive lead and thus be able to meet the challenges of a highly changeable working world. Whilst the original framework was developed in 1997, Teece and Pisano have both since written substantially on this area and subsequently started a significant research body examining the impact of dynamic capabilities on successful outcomes. Their more recent studies highlight research on companies such as Apple, Google, and IBM as examples of firms who have adopted this the dynamic framework model for growth and success. Teece states that for a firm to create and maintain a competitive lead in uncertain times, above all, they need to be evolving in nature. He describes three constructs that constitute the dynamic capabilities:

Sensing: this is an ability for a firm to develop insights into the world around them by understanding trends and behaviours

Seizing: this is an ability for a firm to take risks where possible and seize opportunities for growth and development

Transforming: this is an ability for a firm to enable change processes within an organisation to occur by transforming an organisation (both tangible; products and processes and intangible assets; skills and outlook) and to reconfiguring strategy and structure.

(Teece et al, 1997)

Whilst it could be argued that by adopting continuous change processes is too costly for firms, commentators such as D'Aveni et al. (2010) suggest by not doing so could lead to an organisation failing, as the need to embrace uncertainty and transformation is necessary in order to survive. Indeed, Veliyath and D'Aveni (1996) argues that in an environment of 'hypercompetition' with many firms competing in a crowded marketplace, the key to survival is organisational agility and creating collaborations with other firms. Furthermore, Amit and Schoemaker (1993) argue that the benefits of adopting a dynamic capability model will far outweigh the financial costs of adoption. They suggest that to allow such change to be more readily adopted, a firm must first be willing to be more change orientated, then create an organisational culture that is less hierarchical, This offers greater localised autonomy to workers, and should build effective strategic alliances with stakeholders. One case study cited in this field of research to demonstrate the success of a dynamic capability model is that of Samsung:

By the end of 2010, Samsung was selling as many smartphones as Apple. And by 2013, it had become the leading smartphone manufacturer in the world, with a 32% global market share. How did Samsung rebound so quickly? The key was dynamic capabilities. While existing research has emphasized cooperation among organizational units in developing new products and technologies, the example of Samsung demonstrates that competition among business units can also enhance a firm's dynamic capabilities

(Song, Kyungmook Lee, and Khanna, 2016, 118)

As such, the move toward this type of firm structure is growing, thus career advisers and HR people development and delivery must consider the implications. Indeed, as Inkson and King (2011) note, organisations cannot normally predict with accuracy the jobs that are needed ahead, because the world changes rapidly, and what is needed is a focus on *capability for adaptability* for both a worker and corporation. As Inkson and King state:

Individuals look at their careers through the lens of personal advantage, and consider how their careers may provide opportunities to optimize earnings, status, personal development and family life, both immediately and in the long term. Organizations consider those careers through the lens of organizational advantage, and note that the careers of their staff may give them a means of maintaining or enhancing expertise, corporate culture and institutional memory as sources of long-term competitive advantage.

(Inkson and King, 2011, 64)

Accordingly, the anticipated impact of Future of Work and new technologies will create a changeable structure of workplaces and labour markets leading to greater work uncertainty. Consequently, for a firm to operate its dynamic capabilities, the key people-skills it will need is the ability to continually build new in order to adapt to changes, and thus a firm will develop an operational uncertainty approach which is more agile and effective (Wall et al., 2002). It is thus clear that to adopt the approach of a dynamic capability, a firm would need workers within it with the capability of working in change and instability, and to enable this process effectively. Teece suggests that 'Microfoundations' are needed for the application of a dynamic capability for a firm which includes worker capabilities and skills (Teece, 2000, 2007). Teece outlines critical Microfoundations skills as:

- to be able to scan and analyse market changes and make interpretive choices based on the data;
- adopting creative and innovative thinking to enable new products and services to meet changing customer needs, and;
- developing strong relationships and social contacts to enable a better understanding of a market

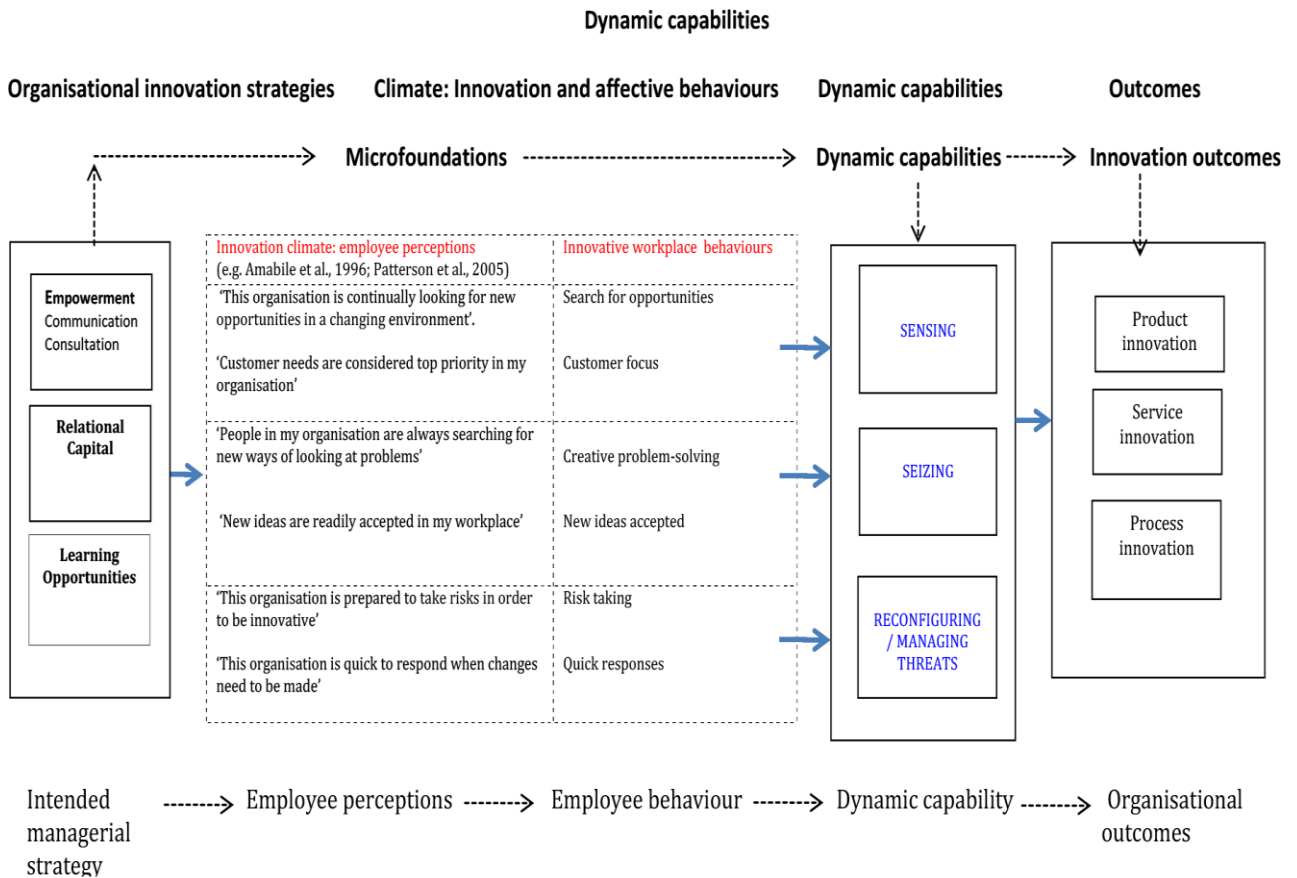
These steps thus develop a deeper understanding of how to learn to position new technologies, services or processes. Indeed Teece (2007) argues that the whole of the organisation must gear its workforce to adopt creative and innovative thinking and the enable this to happen through effective organisational design, saying:

While certain individuals in the enterprise may have the necessary cognitive and creative skills, the more desirable approach is to embed scanning, interpretative, and creative processes inside the enterprise itself. The enterprise will be vulnerable if the sensing, creative, and learning functions are left to the cognitive traits of a few individuals

(Teece, 2007, 1323)

Fallon-Byrne and Harney (2017) - in Figure 2.4 overleaf - outline a framework required to adopt the dynamic capability approach, with the inclusion of what is required from workers within the firm:

Figure 2.4 Dynamic capabilities and microfoundations in an organisation



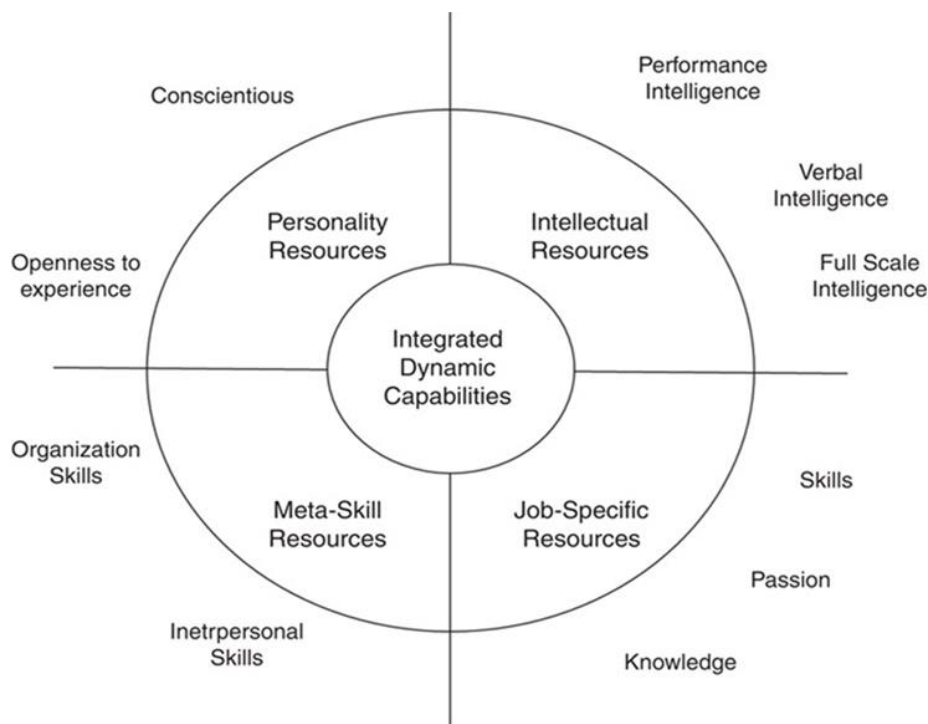
Source: Fallon-Byrne and Harney, Dynamic Microfoundations, (2017)

Here Fallon-Byrne and Harney argue that for firms who adopt the dynamic capability process there has to be a culture of empowerment, relationships, and learning at the beginning of the process. They further argue that to develop an innovative, autonomous and relationship-based environment, there has to be the development of an aligned people strategy. Indeed, they contend that employees are at the centre of a dynamic capability process. This would imply that key sets of competencies and skills are needed to drive a Dynamic Capability strategy and that people should either have these skills or develop this skill within the 'Learning Opportunities' section set up within the organisation. Further to this study, a 23-component Dynamic Capability competency framework was developed for firms in their human resources planning by Nogalski et al. (2017) which highlights key skills, such as the ability to work in a changing environment, and be innovative and responsive to new data inputs (details in Appendix A). It can also be noted that these dynamic capability competencies are aligned to those outlined in the future of work competencies as described as being essential for working in a VUCA world. In examining these competencies there is

clear overlap with the Dulewicz Competencies Scale (Dulewicz, 1989). The Nogalski framework was developed after the data gathering in this study so could not be used.

The link between dynamic capability and employability is not an area that has had extensive academic study. However, a study of the relationship of dynamic capabilities and graduate employability by Finch et al (2016) was undertaken in order to understand how graduates are able to move into a changing and uncertain workplace. They state graduates are currently ill-equipped to deal with such a turbulent graduate job-market given all the changes and uncertainty in careers, as universities are still working within a career delivery model that is outdated and dealing with a static labour market. As such, Finch argues, by considering a dynamic capabilities model, graduates are further enabled to develop a competitive career advantage, as shown in Figure 2.5 below:

Figure 2.5 A dynamic capabilities view of employability



Source, Finch et al, Employability and Dynamic Careers, 2016

Finch further suggests five main areas of graduate employability are key to future career success; intelligence, personality, meta-skill, job-specific, and integrated dynamic capabilities, details as follows:

Intelligence: This relates to cognitive skills and specifically includes; judgment, analysis, and synthesis, critical thinking, decision making, problem-solving, and reasoning

Personality: This relates to resources relates to those included in Big Five Personality tool and specifically Field identified two personality traits they state are related to

employability; *Conscientiousness* includes dimensions such as dependability, organization, goal-driven and being highly organized. *Openness to experience* includes dimensions such as intellectual curiosity, imagination, creativity, and independence.

Meta-skills: This relates to personal work-related skills that are not gained specifically from the knowledge aspect of a course at university, and include; listening, communication, teamwork, adaptability, social sensitivity, managing relationships, time management, goal-orientation, and task completion.

Job-specific: These relate to the key skills needed to do a job such as specific technical or knowledge skills.

Integrated dynamic capabilities: These relate to skills that a graduate would demonstrate being able to reconfigure and integrate resources to enable a competitive advantage.

Finch et al. (2016, 618) suggest that dynamic employability capabilities include;

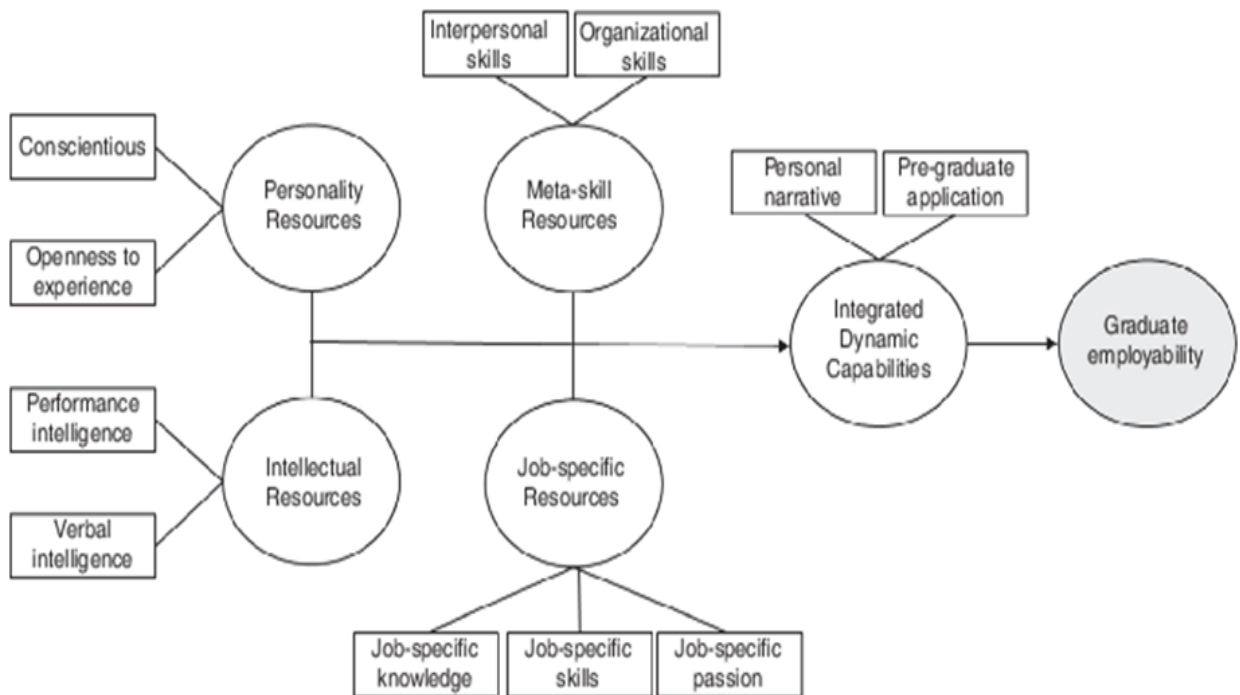
“acquisition of evidence that they are able to use their specific resources in real-world situations [as well] develop employer-oriented personal narrative involves the transformation of a student’s individual-level resources into a focused, evidence-based story framed by an employer’s perception of value”.

The results of their study showed that employability was linked to all five components, but that the first four; intellectual, personality, meta-skill, and job-specific have a direct relationship with employability but dynamic capabilities are enhancers of employability. Figure 2.6 shows the relationships between these five areas and graduate employability that is proposed to be undertaken sometime in the future, but nevertheless, it shows a useful model for the integration of concepts.

Teece et al. (1997, 516) suggest further consolidation of dynamic capabilities and employability by considering the skills needed to develop a dynamic capability, for example in “the firm’s ability to integrate, build, and reconfigure internal and external *competences* to address rapidly changing environments”. Teece (1997, 2011) suggested that one attribute of a company makes them thrive in a challenging, changing world, including being networked and the ability to evolve well. Indeed, according to Finch et al. (2016), there is also a relationship with successful employability when viewed with a dynamic capability lens. The type of behaviour that would enhance employability includes being able to transform knowledge and learning into more effective career self-management by adopting behaviours that mean being able to connect and communicate with people, not only to develop career links but to tell an effective career story, and so to convince and persuade others of their capabilities. This would include, for example, being able to network effectively with others,

where networking offers a way of connecting through the actions of “interconnected and cooperating individuals” (Luthans, 1998, 120).

Figure 2.6 Future research: a dynamic capabilities view of graduate employability



Source: Dynamic Employability, Finch et al (2016)

Finch et al. (2016) argue that graduates would be able to improve their employability by networking and applying key competencies that allow an individual to communicate well and build effective relationships. By practicing effective networking, graduates will be able to build knowledge of relevant career-related resources, which will also facilitate them in understanding a disruptive labour market and assess what the key aspects regarding the market, on an ongoing basis. Therefore, effective networking and communication behaviour may enable them to better prepare and ‘sell’ their story, and so it is closely aligned to the needs of the employer (Finch et al., 2016). Indeed, the work of Batistic and Tymin (2017) shows networking behaviours are predicted to increase the perceived employability of undergraduate students by enabling them to better access information and resources. Another study by Barrales-Molina et al. (2015) looking at dynamic capabilities in staff found that those that showed high levels of commitment (a construct of Big Five Conscientiousness) displayed that they were more able to contribute to aspects of corporate dynamic capabilities associated with change and innovation, such as new product development. Furthermore, the study by Zheng et al. (2011) showed that the dynamic capabilities of a firm had a strong positive relationship to the networking arrangements that workers had. This human aspect of dynamic abilities is related to the ability to communicate

well, particularly orally, as well as make connections that work, by employing skills such as persuasion. Lee et al. (2011) showed that in a study of SME businesses, those that created a learning environment where learning and development were embedded into a worker's life, amplified company dynamic capabilities. Key qualities that are required by workers suggest that being able to adapt and therefore openness to change is critical (Thomas and Powell, 2016). These qualities are also supported by Fallon-Byrne and Harney (2016) who specifically say should include being open to new ideas and open to risk – which are traits of Openness to Experience. Other qualities include being able to develop a plan and have the ability to continue on that despite difficulties – which are traits of *Conscientiousness* and Career Resilience trait of *Self-Reliance*. Other qualities require people-skills to network and create opportunities – which relate to traits of *Extraversion* and competencies of *Oral Communication* and *Persuasion*.

The findings of Fallon-Byrne and Harney (2016) show that to better manage change and career uncertainty there are key intrinsic qualities that enable a more adaptive approach – such as the ability to be resilient. Therefore, it is essential to consider these intrinsic aspects of managing careers in uncertainty, and thus consider the personality and competencies, including career resilience qualities.

2.7 Characteristics of managing career uncertainty: career resilience, personality and competencies

The literature on career theory and employability has contributed to the research field on career behaviours into the field of career management and development. These theorists, as especially highlighted in Chaos Theory of Careers and Career Ecosystems Theory, suggest certain attitudes and behaviours that would enable individuals to better manage their career and withstand the pressures they face in career uncertainty. In examining the careers literature, it was clear there was a commonality in the types of behaviours suggested, which included such behaviours that are describable as 'resilient', and as discussed, relate to the importance of self-managing a career in uncertain times (Maston, 2001). Bimrose et al. (2008) state that as career development is no longer linear and given the changes in the workplace and the social and economic pressures on organisations, career coaches will now need to ensure they develop skills of *adaptability* in their students and clients as a key part of career development practice. In being adaptive, the literature discussed earlier showed that there are certain types of personality and competencies that an individual could utilise in order to maximise their ability for adaptable career management. These included; *open-mindedness, ability to network and communicate, being self-reliant and having high self-efficacy* to enable higher motivation to career outcomes (Lent, 2013). Empirical studies in this

field suggest that people with specific personality traits and skills can achieve better career progress in graduate positions, and such traits and skills include having *flexibility* at work and possessing a *positive mindset* and to *communicate* well (Akrivos et al., 2007). Possessing an *open-mindedness to change* and new opportunities (Stone and Ineson 1997). As well as being able to adapt well to *changing work* environments (Anafarta and Cizel 2003) plus *managing change* well and with a sense of calmness (Harkison et al. 2011). Litvinova (2013) suggests that the features of new careers (such as protean, happenstance and chaos) that traditional competencies and skills such as being hard-working, diligent and dutiful to an employer, now give way to newer 'meta-competencies' which include career *adaptivity, openness, flexibility, communication and networking ability*.

2.7.1 Career resilience

The literature on the field of career resilience is limited but it is growing, possibly as a response to research interest in the impact of the pace of change in the workplace and how people will be able to withstand changes they will experience. The literature commonly has self-efficacy as a subset of resilience. Career resilience is perhaps generally thought of as how an individual manages and has developed coping mechanisms to deal with the challenges of having a career. Collard et al. (1996, 33) suggested career resilience was "the ability to adapt to changing circumstances, even when the circumstances are discouraging or disruptive". According to London (1983) who conducted research into career resilience, there are three main subgroups within it, which are self-efficacy, risk-taking, and dependency. He also suggested the following subsets in relation to career resilience:

Subset of self-efficacy has psychological constructs of self-esteem, internal locus of control, initiation and creativity.

Subset of risk-taking has psychological constructs of need for security, tolerance of uncertainty and ambiguity.

Subset of dependency has psychological constructs of the need for peer and societal approval and self-management of failure.

London's work showed that for an individual to show high career resilience they do not need to score high in all elements outlined in his tool, but that *self-confidence, risk-taking, and independent action* (i.e., *self-reliance*) are the most significant components of career resilience. London and Noe (1997) claimed that the dimensions of career motivation have strong links to existing career theories. Indeed, according to London and Noe, people who score higher in Career Resilience will be able to manage their career paths better. They suggest that people who have higher levels of career resilience feel more control over their

career and are willing to take risks even when the outcome is uncertain. It is suggested in the literature that people who measure high in career resilience are able to take pleasure in success in achievement, and this approach relates to characteristics proposed by Lyubomirsky et al. (2005) describing someone who can lead a happier life. Thus, if careers guidance professionals can help clients to better understand their level of career resilience, they can better understand how best to manage their career. Furthermore, this ability to be career resilient could be viewed as a positive skill that once understood, people can carry throughout their careers. This idea is supported by the work of Waterman et al (1994) who suggested that through the development of a resilient employee base where employees take control of their own career management and enhance their employability skills - is a positive outcome for an organisation's success and career uncertainty. Certain professional groups have looked for self-efficacy attainment for their members and in particular, to offer advice on how to withstand economic and labour market changes and understand the inherent challenges a career can bring. The British Medical Association (2012) offer advice to doctors in maintaining resilience in pressured medical environments. They suggest that working as a clinician requires not only self-efficacy but further self-reliance to develop what they term as 'career resilience'. They describe Career Resilience as similar to the physical properties of resilient materials that undergo pressure, such as being stretched or moulded showing their physical pliancy and elasticity. Grote et al (2012) suggest in humans, the analogy shows that these qualities demonstrate that resilient people also can return to their original state after being 'stretched and moulded' with little negative impact

Research by Davda (2011) suggests that resilience is a valuable trait in an individual as they are able to tolerate the trials of (working) life better. He identifies specific aspects of resilient behaviour which he defines as resilient attitudes and outlines the behaviours which can be associated with each of them:

Purpose – The extent to which an individual has structure and meaning present in their life.

Challenge – The way in which individual perceives situations solves problems and manages change.

Emotional control – The way in which an individual control emotions and attribute this control.

Balance – How an individual chooses to view the world and the distribution of care and attention were given to aspects in their life.

Determination – An individual's ability to remain motivated and carry on after difficulty or adversity.

Self-awareness – An individual's belief in themselves and their capabilities, as well as the accuracy of these self-estimations.

According to Koonce (1995), individuals must now be able to take charge of their careers and ensure they are skills-ready to ensure they are employable. This approach, argues

Koonce, requires career resilience and he suggests that career *resilient* people are more able to contribute to organisational growth and productivity by paying attention to their own career, and thus giving a better performance. Further literature in career resilience underlines the importance of *Self-Reliance* as a key construct in career resilience. Self-Reliance - whilst shown in the postmodern careers literature as very significant to careers - has its early roots in essayists such as Ralph Waldo Emerson who wrote on the importance of Self-Reliance in his 'First Series Essays' in 1841. Emerson calls upon people to adopt a self-reliant attitude to enable more independent thought and take on more individualism, personal responsibility, and nonconformity as well as build on personal qualities, saying;

Be yourself; no base imitator of another, but your best self. There is something which you can do better than another. Listen to the inward voice and bravely obey that. Do the things at which you are great, not what you were never made for doing.

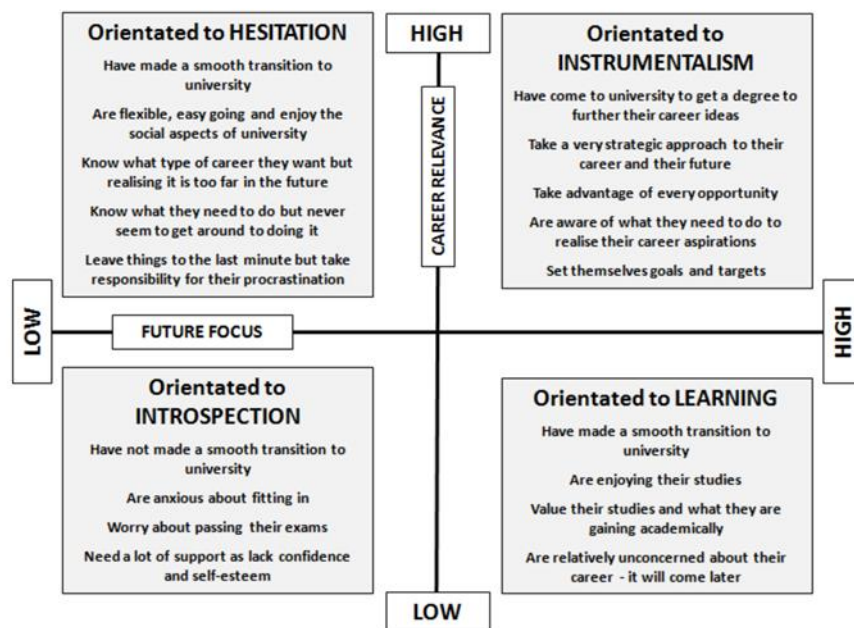
(Emerson, 1841)

Career self-resilience has also been described as having a very self-governing approach to the extent that the individual demonstrates an attitude of self-employment (Collard et al., 1996). Career self-resilience places emphasis on individual and their ability to self-manage so they have agency over their career (Waterman et al., 1994). Indeed, similar to the CTC theory, Collard et al. (1996) suggest this approach to work creates a more personal responsibility to career, and thus enables individuals to create career paths, rather than react to what is given to them or what is immediately going on around them. Therefore, it can be argued that 'Career Self-Reliance' is an essential quality in career management as it requires individuals to remain open to opportunities, and display flexibility in the management of their careers. A crucial part of career self-reliance is that individuals can maintain learning opportunities and create and maintain networks. If an individual is 'career self-reliant' they will ensure that they maintain their career skill-set against what the employment market expects, both for future jobs and current employment. This means developing new skills as appropriate and thus, continuously to be assessing new learning opportunities (Collard et al., 1996). Individuals with higher career self-reliance will have a more planful, rather than reactive career approach and will plan for future of work scenarios (Waterman et al 1994).

Career development as discussed earlier in this literature review is shown to be related to key behaviours and personal factors needed in an emergent world of work, which is increasingly influenced by Protean and Chaos. These theories suggest that because of changes in work and organisational culture, individuals are now not bound by one job or one career but instead are able to align to different jobs and firms with ease (Arthur and Rousseau, 1996). '*Career self-reliance*' can be seen as a core career skill, as work is more changeable and uncertain, people who will thrive will be able to utilise related skills and

career self-manage. Thus, the capacity of self-reliance an individual needs to navigate predicted career change will consequently require higher levels of career resilience. For example, the revised SCCT theory in 2013 highlighted more the influence of personal behaviours influences in career success, rather than an emphasis on the external ‘content’ aspect of career development in the SCCT model. Lent and Brown (2013) defined these as ‘process’ aspects of career development in the revised model, and they described these as ‘adaptive career behaviours.’ According to Brown and Lent (2015), these behaviours reflect that an individual has personal agency and thus needs to be *self-reliant* and *resilient*, and regard themselves as agents of change. This approach of greater self-reliance will enable people to be more pro-active in the design and managing their career. Additional research on career behaviours looks at career orientation. In her research examining undergraduate student orientation to careers, O’ Regan (2010) outlined findings based on a narrative based and longitudinal study of students in their final year of studies and the subsequent follow-up. From her results, (O’ Regan) developed a typology that encapsulated four different career orientations; learning, introspection, hesitation, and instrumentalism. These orientations are outlined in Figure 2.7.

Figure 2.7 Undergraduates’ orientation towards their future and their prospective career



Source: Career Orientation of Students (O’Regan, 2010).

O’ Regan in her follow-up study 12 months after graduation found that those students who were Instrumentalists were the most successful in their career. The attributes of these students in this group align to the findings in this study of those graduates demonstrating pro-active career self-management skills, and therefore more career-resilient behaviours such as

being goal-focused, open to new opportunities, planful and aspirational. O'Regan observed that the least successful were the Introspectionists, as none of these were in graduate-level employment in the follow-up study. This group showed lower risk-taking and lower self-efficacy, which have both been described in the literature as essential for pro-active career self-management and career resilience (London, 1983).

2.7.2 Influence of Personality

While Bright and Pryor (2011) suggest that 'labelling' people into a personality type will inhibit career choices, it is clear from the literature that certain behaviours are more suited to *enhancing* careers opportunities. These behaviours may be interrelated to personality and to career resilience. Furthermore, there is some relevance to practice as within job hunting, a person's personality is viewed and perhaps judged within selection settings – recruitment practices being one example of this. Tools such as 16PF and the Myers Briggs Type Inventory (MBTI) are in common use in careers services. McRae and Costa (1997) developed a five-factor model measurement scale to examine personality and covers the constructs Openness to Experience, Conscientiousness, Extraversion, Agreeableness and Neuroticism. It has become one of the most widely cited personality models, and researchers have found it a useful instrument in considering work and career through the lens of personality. Indeed, one recent piece of research using Big Five in career development was within the career adaptive arena of job-hunting (Lent and Brown, 2013). A useful table of Big Five Traits and Sub Traits by John and Srivastava (1999) can be seen in Table 2.5 overleaf as it gives further details on the traits that underlie the Big Five Personality tool.

Table 2.5 Sub traits of Big Five Personality (John and Srivastava, 1999)

Big Five Dimensions	Facet (and correlated trait adjective)
Extraversion vs. introversion	Gregariousness (sociable) Assertiveness (forceful) Activity (energetic) Excitement-seeking (adventurous) Positive emotions (enthusiastic) Warmth (outgoing)
Agreeableness vs. antagonism	Trust (forgiving) Straightforwardness (not demanding) Altruism (warm) Compliance (not stubborn) Modesty (not show-off) Tender-mindedness (sympathetic)
Conscientiousness vs. lack of direction	Competence (efficient) Order (organized) Dutifulness (not careless) Achievement striving (thorough) Self-discipline (not lazy) Deliberation (not impulsive)
Neuroticism vs. emotional stability	Anxiety (tense) Angry hostility (irritable) Depression (not contented) Self-consciousness (shy) Impulsiveness (moody) Vulnerability (not self-confident)
Openness vs. closedness to experience	Ideas (curious) Fantasy (imaginative) Aesthetics (artistic) Actions (wide interests) Feelings (excitable) Values (unconventional)

According to research from Boudreau et al., (1999) it was found that more extraverted individuals appear to be predisposed to search more, but also tend to experience more positive work outcomes. The research also suggests people who score lower on emotional stability (called neuroticism in this older version of the Big Five scale) may not undertake greater job search activities as they may feel this would put themselves in situations of anxiety, failure, and disappointment. The literature on personality and careers suggest that extraverts tend to search for social relationships, and it can be summarised that this can facilitate career outcomes because networks will start to be formed (Busato et al., 2000). This type of 'outgoing behaviour' shows that those individuals showing Extravert behaviour can assimilate with more ease in differing groups (work and study groups) and build support systems for people than their introvert colleagues (Lim and Ployhart, 2004). It may also be that by building relationships, people are more likely to create networks that 'hold them to account' as well as be supportive and motivational. According to Costa and McCrae (1992), Extraverts are predisposed to experiencing positive emotions. Judge et al. (1999) also suggest that Extraversion would be positively related to career behaviours as this type of trait

will be more outgoing and thus be able to more easily build relationships and networks. Judge et al., in citing Watson and Clark (1997), say that as extraverts are more open to connect and communicate, they make career relationships with more ease than their more introspective introvert co-workers. Indeed, Extraversion, according to Forret and Dougherty, (2004), enables more networking behaviours that are crucial to career self-management.

Costa and McCrae (1997) also suggest that Conscientious people are more achievement-orientated. In addition, dependability was found to be an important subset of conscientiousness (Hogan and Ones, 1997). Recent studies have shown that Conscientious people are more successful in job hunting. McAbee et al (2014) found in a study of postgraduate students who were job hunting that both Extraversion and proactive personality (Conscientiousness) positively predicted a variety of pro-active job search behaviours. Indeed, Conscientiousness individuals, according to the literature, tend to have a greater work-focus, which can lead to a greater likelihood of achieving satisfying results at work. Judge (2002) in a study, suggested that conscientiousness was the most significant (positive) predictor of job satisfaction amongst corporate employees. Barrick and Mounts (1991) conducted a meta-analysis found that conscientiousness showed significant results with job performance across many different occupational groups. Conscientiousness in the literature is shown to have a strong relationship with employment outcomes. Indeed, career self-management requires a commitment and consistency in application to keep going (King, 2001). Thus resiliency and goal-focused, and the personality traits of Conscientiousness, can be seen as a useful trait to stay on track to achieve career goals. Indeed, this career attitude is further supported by recent research on networking behaviours of university students through the work of Ohme and Zacher (2015) looking at the relationships between career adaptability and conscientiousness on job outcome. They showed that Conscientiousness was highly significant and a predictor of job performance as it supports goal-focused behaviours. Proactive career development requires a person to be committed to applying career-adaptive behaviours and as such, the sub-traits described in the literature on Conscientiousness relates to qualities needed. Judge uses the description of the Conscientiousness trait developed by Costa and McCrae (1991) as “manifested in three related aspects—achievement orientation (hardworking and persistent), dependability (responsible and careful), and orderliness (planful and organised). Thus, conscientiousness is related to an individual's degree of self-control, as well as the need for achievement, order, and persistence”. Judge et al. also suggest that given the very proactive and achievement orientation of this trait, there is considerable evidence that individuals with this trait show higher levels of career success throughout their career. Openness to Experience was shown in a study by Wolff and Kim (2012) to be positively related to pro-active career behaviours,

which is supported by a study looking at factors that are needed in successful career transitions in relation to the Protean and Chaos Career Theory. Openness to Experience is described by Chandrasekar and Chidambaram (2014) in their study on job satisfaction and personality as being more creative, innovative, flexible, and open to change. A study by Butts and Lockwood (2003) found that the personality characteristic of openness to experience was significantly related to perceived career success, and they argued that it is essential to career development as it enables individuals to develop an approach to career development that is positive and open-minded. Such individuals seek new experiences and take risks in order to try out novel things (Costa and McCrae, 1992), they also are more flexible than fixed in career goals and thus, can avail themselves of career opportunities that arise (Barrick and Mount, 1991).

2.7.3 Influence of Competencies

In addition to the qualities and behaviours described earlier, it is also important to note that in relation to careers, employers still recruit for key competencies that workers need to demonstrate. McClelland (1965; 1975; 1985) produced an early foundation for the study of competency in management sciences. His work on leadership competencies within his Thematic Apperception Test (TAT) enabled a process of assessing an individual's needs that are affiliated with effective leadership competencies. The work of Boyatzis takes competency analysis further. In asking the question of 'what is a competence?' Boyatzis (2008, 6) says "a competency is defined as a capability or ability. It is a set of related but different sets of behaviour organized around an underlying construct, which we call the "intent"". Indeed, Boyatzis further argues that the "development of competencies needed to be effective managers and leaders". In his seminal book, *The Complete Manager - A Model for Effective Performance*, Boyatzis defines a job competency as "an underlying characteristic of a person in that it may be a motive, trait, aspect of one's self-image or social role, or a body of knowledge which he or she uses" (Boyatzis, 1982). In his work, he used the behavioural event interview technique to identify competencies possessed by effective and/or higher job performers. He focussed on the top third of job performers and compared them to the bottom third of job performers (Dulewicz, 2010). Guided by this work, Dulewicz produced his personal competency framework covering 45 individual competencies (Dulewicz, 2010). In a major follow-up study of 100 General Managers, Dulewicz and Herbert (1999) used this competency framework to predict their advancement over a seven-year period, using job level, revenue, remuneration, number of staff reports, as indicators of the level to produce a composite measure based on factor analysis. They also split the sample into the top 33% (high scorers) and bottom 33% (low scorers). The results showed significant differences

between these two groups. Research on these competencies showed that they factored into 12 groups to be named Supra-Competencies, shown in Table 2.6, which independent higher-order factors were accounting for 72% of the total variance. The competencies of risk-taking, planning and organising, and managing others showed higher scores in the high performance (top) group. Also differentiating the two groups were Supra-competencies of Planning and Organisation, Managing Staff, Assertiveness, Decision Making, and Ambition and Motivation (Dulewicz and Herbert, 1999).

Table 2.6 Dulewicz’s Supra-Competencies

Competency Cluster	Competency
Intellectual	1. Strategic Perspective 2. Analysis and Judgment 3. Planning and Organizing
Interpersonal	4. Managing Staff 5. Persuasiveness 6. Assertiveness 7. Interpersonal Sensitivity 8. Oral Communication
Adaptability	9. Adaptability and Resilience
Results-Oriented	10. Energy and Initiative 11. Achievement Motivation 12. Business Sense

Source: **Dulewicz (1999)**

Research from the Association of Graduate Recruiters (AGR) suggests that graduate recruiters (both SMEs and large blue-chip employers) look for a similar range of personal competencies, in addition to specific technical or subject knowledge (Global Graduates into Global Leaders, CIHE and AGR, 2010). The research concluded that certain global competencies are required by many employers looking to recruit skilled graduates in the current marketplace. These are listed in Table 2.7. and are based on scores from one to ten an employer gave, which are then aggregated into mean scores.

Table 2.7 Mean Ranking of Global Competencies

An ability to work collaboratively with teams of people from a range of backgrounds and countries	8.2
Excellent communication skills: both speaking and listening	7.5
A high degree of drive and resilience	5.6
An ability to embrace multiple perspectives and challenge thinking	5.4
A capacity to develop new skills and behaviours according to role requirements	4.6
A high degree of self-awareness	4.4

An ability to negotiate and influence clients across the globe from different cultures	4.0
An ability to form professional, global networks	3.9
An openness to and respect for a range of perspectives from around the world	3.6
Multi-cultural learning agility (e.g. able to learn in any culture or environment)	2.4
Multi-lingualism	1.7
Knowledge of foreign economies and own industry area overseas	1.7
An understanding of one's position and role within a global context or economy	1.6
A willingness to play an active role in society at a local, national and international level	0.5

Source: Global Graduates into Global Leaders Report, CIHE and AGR, 2010

The report suggests that many employers look for these global competencies as well as more generic competencies, depending on the nature of their business and organisational structure. The extent to which employers incorporate a global dimension in their competency frameworks depends on their organisational context and culture. Employers operating region-centrally tend to recruit graduates on a single country basis, seeking individuals with a good understanding of their local or national market. By contrast, those operating globally are more likely to expect their graduates to become global leaders and may seek more globally oriented competencies. The recruitment procedures of many major graduate employers have become more focused on motivation, values, organisational fit and competency. It is now common to have a personality profile or aptitude test as a part of the application process and it is likely candidates will be asked to provide detailed examples of competencies such as 'teamwork' or 'problem-solving' on an application form or during an interview. These desired competencies expected by employers are conveyed to students in recruitment advertising and brand marketing in order to attract the ideal candidates. Archer and Davison (2008) found that regardless of the size of the company, 'soft skills' (e.g. communication skills and team-working) were perceived to have more weight than technical or 'hard skills' (e.g. a good degree qualification, IT skills). They say that employers increasingly expect graduates to leave university with applicable and work-ready skills. Rothwell and Arnold (2007) suggested that developing employability within universities should be based on interrelated components which include wider contextual factors that consist of competencies employers look for. In examining the data on employer needs, there appears to be a considerable agreement on the most important skills required. The Dulewicz Competency Scale produces Supra-Competencies in line with many generic employment qualities. These competencies are similar to those in the AGR Skills Survey 2017 and the Australian Graduate Skills Survey 2014 sought by graduate recruiters and are listed as:

- Intellectual: Strategic Perspective, Analysis and Judgment, Planning and Organizing
- Interpersonal: Managing Staff, Persuasiveness, Assertiveness, Sensitivity, Oral Communication
- Adaptability: Adaptability and Resilience
- Results-Orientation: Energy and Initiative, Achievement Motivation, Business Sense

(Adapted from Dulewicz, 1989)

As shown thus far in this chapter, the development of careers theory over the last century has shown that early career path industry development was by nature, traditional, predictable and linear, which was reflected in Trait and Factor theorists. There has now been a clear shift to non-traditional, unpredictable and nonlinear career paths in the 21st century, reflected by postmodern career theory such as Chaos Theory of Careers. It is also clear from the literature that for an individual to withstand these changes and nonlinear career paths, they will need to show career resilience. The literature also suggests that personality can play a part both in career resilience and career management. In addition, the literature shows the requirement of personality and competency to be considered in both career development and employment, given their effect on both. Often it is believed that academic success will influence career and employability outcomes, even possibly more than personal qualities. Therefore, it is essential to consider graduate career success and the relationship with recent academic results.

2.8 Expectations of Academic Success

The literature on predictors of academic success shows overwhelming support that past academic results predict future results. A study by Kaighobadi and Allen (2008, 429) on university business school students that showed that “student performance is significantly related to some basic demographic variables, but the strongest predictors of overall academic success are the grades the students receive in core knowledge courses that are typically taken in the earlier semesters of business student”. There is also some evidence that academic results are also a result of self-belief. Indeed, in a study on academic attainment, there was a strong relationship between a student’s self-belief, linked to their self-efficacy and their academic results (Mattern et al, 2010). Thus, whilst this study will focus predominately on career outcomes, it is important to also consider academic outcomes. Big Five personality and resiliency traits are often considered in the literature to predict academic (and indeed career outcomes).

Conscientiousness as discussed earlier, related how individuals that are focussed on goals and have an achievement orientation (Costa and McCrae, 1992). As might be expected, this specific personality trait in academic results literature is associated with predicting academic

outcomes. The trait is also associated with resilience, in that the 'keep on going' approach to achieve goals allows individuals to develop resilience and persistence (Duckworth et al., 2007). Conscientiousness individuals also display other resilient behaviours and are able to be more self-reliant by being adopting a self-regulated learning practice (Zimmerman, 1986). Key sub-traits in conscientiousness of goal focus and perseverance have emerged as key academic performance indicators. The work of O'Connor and Paunonen's (2007) meta-analysis of university academic success suggested that conscientiousness is key to academic success. An additional sub-trait within conscientiousness related to academic success is 'focus', and as such, the literature suggests that the focus element of the conscientiousness personality trait enables students to not be distracted, and stay on task, thereby achieve academic success. A study by Geramian et al (2012) of postgraduate international students who were working towards their master's degree showed that Conscientiousness and also Openness to experience were highly significant to exam outcomes. Indeed, the Conscientiousness trait was found to be highly significant in the literature. For example, a study by Wolfe and Johnson (1995) examined the SAT scores of undergraduate students in which they undertook a regression analysis on exam result and Big Five personality. The findings showed 9% of the variance was explained by the trait of Conscientiousness. An analysis of over 285 students looking at relationships between personality traits and students' academic achievement was conducted by Hakimi et al. (2011) who used a regression analysis to find that Conscientiousness was highly relevant to academic outcomes, as 39% of the variance in academic achievement as explained by this trait in their study.

It might be considered that some degree of 'exam nerves' and academic worries are needed in order to enable students to take steps to work toward academic success. The literature suggests that high neurotic scores will impede this. McCrae and Costa, 1986 propose that individuals displaying high neuroticism are not as able to cope with the stresses of exams and study. Chamorro-Premuzic (2008) showed in his study that the Neuroticism Big Five Personality trait was negatively associated with successful academic outcomes on a large study of university students. He suggests that individuals who find situations difficult to manage to have a low ability to demonstrate certain resiliency qualities, such as self-management and self-efficacy. Such individuals will see events such as exams as threatening or negative (Larsen and Ketelaar, 1991) and therefore are less able to find self-reliant methods to manage (Moyle, 1995).

Openness to Experience according to McCrae (1987) relates to the capacity of an individual to demonstrate some level of cognitive thinking such as; problem-solving, creative, fluid and flexible thinking. In the academic context, this would suggest that courses such as MSc and

MBA students will require this type of trait, especially as such individuals are characteristically inquisitive and willing to consider new ideas (Ostendorf and Angleitner, 1994). In their studies on academic outcomes, Chamorro-Premuzic and Furnham (2008) found that Openness to Experience was a positive predictor of academic success.

Agreeableness as a trait was not found in the literature to have much effect on influence. Costa and McCrae (1992) described people with this trait as being high in cooperation, trust, modesty, and tender-mindedness. The literature does not offer support on the relationship between agreeableness and academic success (Nofhle and Robins, 2007; O'Connor and Paunonen, 2007). However, Wilks (2008) suggested that there are some correlations between this trait and academic success, as such individuals are more inclined to look for people to help them in their studies and mitigate against study nerves.

The literature on the relationship between academic success and extraversion is limited but does suggest that where there are elements of group activity and academic results, then there is some degree of support. For example, on a study of Extraversion and final-year medical school grades, there was a positive relationship which was attributed to the external and practical work, as well as group actively involved in this type of academic work (Lievens et al., 2002).

With regard to career success, employability and exam success, the literature suggests that employers expect that candidates who have achieved qualifications that indicate sufficient cognitive abilities - such as having an undergraduate or postgraduate degree - that they therefore have the cognitive ability 'to do the job', and as such look more for personal factors such as likeability and motivations at selection. Therefore, grades from a degree become less important, indeed as Hogan et al (2013, 5) state:

Once you are "smart enough"—in terms of your academic qualifications—other factors are more important in determining your success levels.

2.9 Summary of literature

The figure 2.8 overleaf from Dey and Cruzvergara (2014) summarises the development of careers delivery over the last hundred years in universities. It shows that it follows the development of career theories to move from Trait and Factor to postmodernist theories that account more for more rapid changing career paths, requiring a different approach to career planning, such relationship building through networking needed in modern careers.

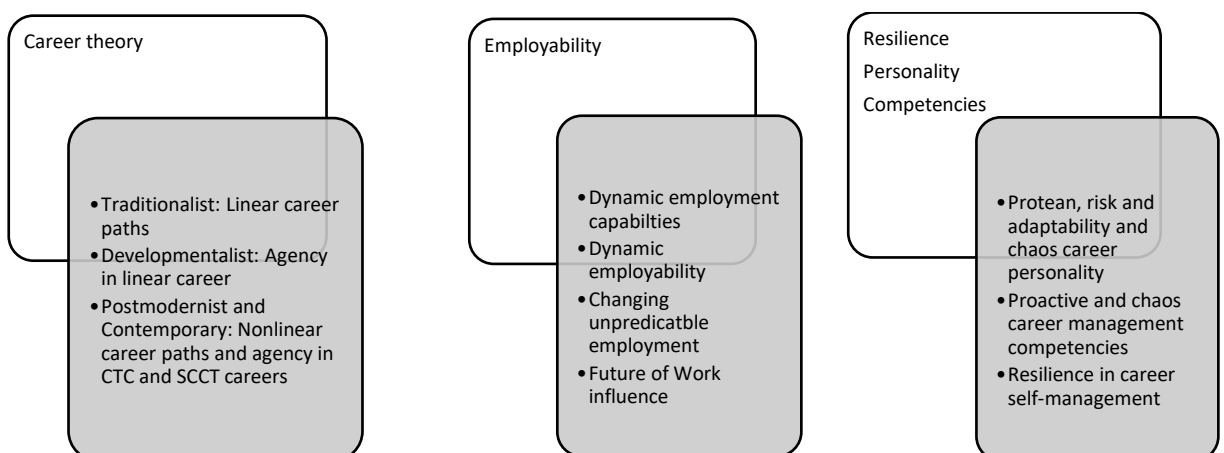
Figure 2.8 Evolution of Careers Services in Higher Education



Source: Evolution of Careers Services, Dey & Cruzvergara, (2014)

Underlying the career decisions that individuals make to facilitate their career growth, the literature suggests that in order to develop a positive and productive careers approach, developing career resilience was an important quality and correlated to career goal attainment. In addition, the literature review also considered how an organisation develops successful behaviours through its strategy and organisational design. The literature showed that a Dynamic Capability approach was highly correlated to an organisation achieving and maintaining a competitive growth advantage. The sub-qualities (or microfoundations) within its organisational design were shown to be similar to career adaptive qualities and correlated to dynamic employability qualities. A summary of key factors within the careers and employment literature and how they link are shown in figure 2.9. The academic literature is not shown as the literature does not link academic outcomes to either career or employability.

Figure 2.9 Summary of main constructs in the literature



2.10 Conclusion to chapter

In summary, the literature provides considerable evidence and support that careers services will need to consider how they offer and facilitate career management in a changing VUCA world. It would seem from the literature, the traditional approach of careers predisposed towards the giving information, and advice on jobs and job hunting is less relevant for the new world economy - especially in the light of the Future of Work skills predictions. Rather, there needs to be a shift toward enabling students to develop, adapt, re-adapt and enhance their skills and abilities to manage themselves and their career in a changing, uncertain world of work. The literature suggests that there are key aspects of being able to manage careers and career change which include career resilience involving a proactive and self-determined career approach (Brown 1999). Certainly, the degree of self-reliance an individual holds as part of their career planning was an important aspect described by the modern theorists (Waters et al., 2014).

The literature advises that the role of the practitioner - in addition to traditional career coaching and careers education methods - may need to consider how they can enable students to become more open to career change and determine what skills are needed to effectively manage career uncertainty and unpredictability. It is clear from the existing body of research on future of work that there are significant changes in both current employability and predicted aspects of employability, and that constructs contained in the Careers Ecosystem, CTC and Protean Careers Theory are reinforced by wider literature. Change is expected as part of an individual's career path, and that employment styles will change and become more flexible. In order to develop their careers in this environment, individuals will need to manage change and unpredictability and look to contemplate having more of a nonlinear career path. However, as shown in the literature, there must be a consideration that self-efficacy and self-concept - as outlined in SCCT in Fig 2.1- will play a part in developing a person's career resilience and harnessing the key traits needed to withstand a nonlinear career path. The literature posits that there are key qualities and abilities needed to manage careers in a changing working world, including certain behaviours and competencies. The CTC for example, according to Pryor and Bright (2011) enables individuals to harness the forces and nature of change in a pro-active career approach and self-reliant way. This also is aligned to strategy research on Dynamic Capabilities, as this approach is common in many companies looking to survive a VUCA world (Teece, 1997). Accordingly, it is important for careers and HR practitioners to also consider what employability will look like in the future, and in doing so, understand specifically what human factors are important to consider in career management on change and unpredictability.

Thus, the purpose of this study is to examine career outcomes of management postgraduates in the context of career theorists, in particular, the Chaos Theory Career and Social Cognitive Career Theory in the model shown in Fig 2.8. Therefore, it will examine the nature of students choosing to take on uncertainty and change in selecting jobs that are nonlinear, against those that select traditional jobs and consider alignment to Dynamic Capabilities. Nonlinear jobs include roles with less than a year's contract, self-employment, and voluntary work. Traditional jobs will be those jobs that have a contract that is permanent and at least a year long. The study will research the qualities that individuals possess which are aligned to career uncertainty and change, and consider the role of career resilience in careers, as well as the relationships with personality and competence. In addition, as these students were on programmes that allowed access to their exam results, under the agreement of the University's ethics authorisations, the study will also examine the influence of these constructs on exam outcomes.

The research question is

What is the relationship between career resilience, personality and competencies in the context of career uncertainty and future of work?

Therefore, in relation to the literature on careers theory and career change orientation and readiness, it is proposed that the research considers 'Careers Resilience' as an outcome, therefore the first research question will be framed as;

Research Question One: What is the relationship between Career Resilience and Competencies and Personality?

The research question arising from the literature on academic outcomes will be framed as:

Research Question Two: What is the relationship between academic outcomes, and personality, career resilience and competencies?

Therefore, if new graduates are to enter careers that are more uncertain or they later choose to develop career choices that are non-traditional and subject to change and impermanent, it is important that careers practitioners are able to understand the careers qualities and behaviours of nonlinear workers. As such, the research question of employability outcomes in relation to nonlinear (i.e., more dynamic) and traditional jobs will be framed as:

Research question three: What is the relationship between career resilience, personality and competencies on employment in the context of the future of work and career uncertainty?

The following chapter will outline the methodology used in the study where 22 hypotheses are presented to answer these questions. In addition, three models are presented to explain these relationships and to illustrate the relationships between constructs and variables.

3 Methodology

Self-belief does not necessarily ensure success, but self-disbelief assuredly spawns failure.

(Bandura, 1997, 77)

3.1 Introduction

Preceding chapters provide the rationale for this research, including a review of the relevant bodies of literature. This chapter outlines the research design, the research models and hypotheses to be tested in the study, and the test methods used. It begins with an overview of the context for the research methodology and a justification of the dimensions and design of the study. It discusses how the data was gathered and evaluated and provides details of the design of the research study - indicating key links to the theory, including the procedures used and the populations and sampling. The research used specific instruments, and the development of instruments used are discussed. Finally, the processes employed in data collection are described to give a full overview of the data gathering, instrument development, and testing processes.

3.2 Research philosophy and methodological approach

The research philosophy used in this study is *Positivist* as it relies on 'scientific' reasoning as it relies on having a theoretical focus for the research from the outset and provides comparable data for hypotheses testing. Krauss suggests, "according to the positivist epistemology, science is seen as the way to get at the truth, to understand the world well enough so that it might be predicted and controlled" (Kraus, 2005, 760). The methodological approach for this study is designed to be both rigorous and relevant to the field of Careers. As such, rigour in this context refers to the attention to detail of the research in question as with conforming to the guidelines with generally accepted rules of research within the academic community (Remenyi et al., 1998). Study relevance refers to the ability to provide new ideas that are "of interest, significance and value" to a given target audience (Darke, 1998, 280). In this instance, the target audience includes both careers/HR practitioners and career/HR researchers. To ensure academic thoroughness, the research is built on existing theory using tested instruments and research models, to the extent that they are available, current and meaningful in the context of this study (Hair, 2014). The study utilises a Quantitative Multivariate Data Analysis methodology.

The overall research question asks:

What is the relationship between career resilience, personality and competencies in the context of career uncertainty and future of work?

Thus, the main purpose of this study is to examine career uncertainty by examining the attributes, academic results and career pathways. The study, therefore, draws on theory from postmodern and contemporary careers and corporate strategy, specifically on career self-management, change, dynamism and chaos. It also draws on psychological work theories specifically personality and competencies, especially in relation to managing uncertainty. It also draws on research on personal factors that influence academic success, specifically personality and competencies – as well as literature on the relationship between academic success and employment outcomes.

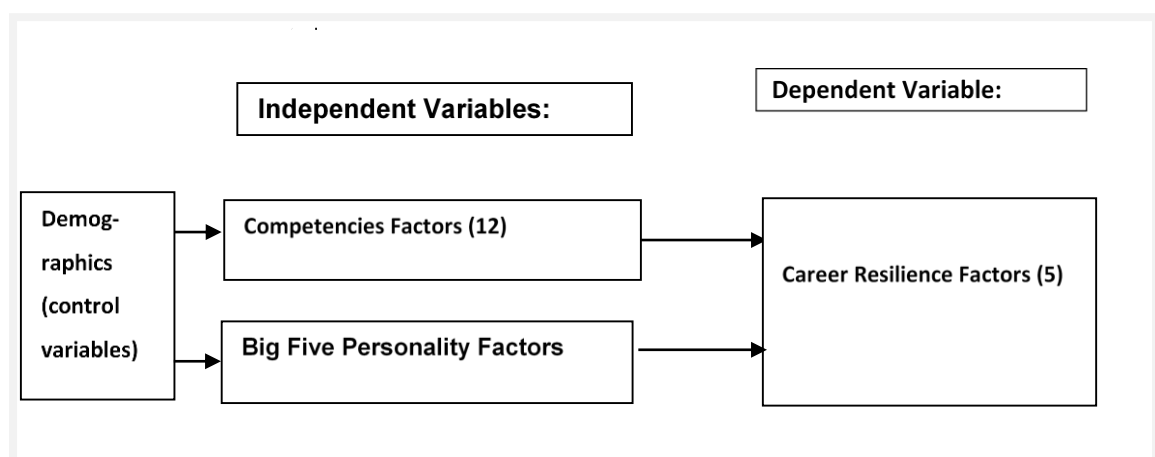
Career resilience hypotheses and model

Research Question 1 asks:

What is the relationship between Career Resilience and Competencies and Personality?

In answering this question, a total of three main hypotheses and three sub-hypotheses was developed from the literature on attributes related to managing career change (personality, competencies and resilience) looking at the relationship between personality and competencies with career resilience, The hypotheses that were developed and based on the substantial literature in this area, and focussed on significant facets. For example, the relationship between Extraversion (a Big Five Personality trait) and Career Resilience formed a hypothesis given the extensive body of literature in this field. The model (Fig 3.1) used to examine this hypothesis is shown below to offer further clarity:

Figure 3.1 The Career Resilience Model



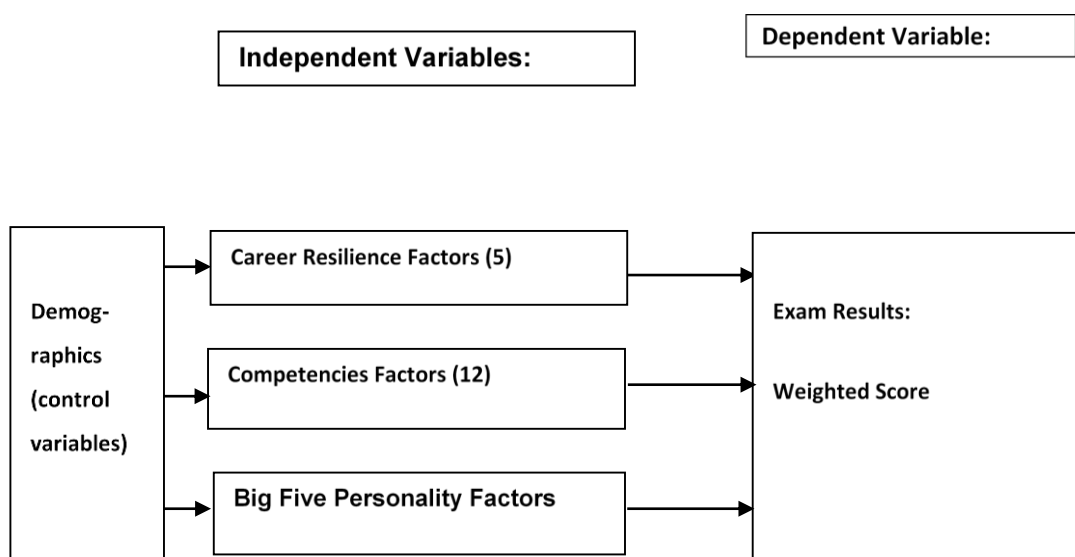
Exam/academic hypotheses and model

Research Question 2 asks:

What is the relationship between academic outcomes and personality, career resilience and competencies?

In answering this question, a total of three main hypotheses and three sub-hypotheses were developed from the literature on attributes related to Exam success. Here the literature drawn is from personality, competencies and resilience in relation to exam/academic success, specifically focussed on where the literature offers substantial support. For example, Conscientiousness (a Big Five trait) and relationship with Academic Success was shown in the literature to offer substantial support for this hypothesis to be tested. The model used tested this relationship looks at *personality, competencies and career resilience* with Academic outcomes. The model (Fig 3.2) shows the relationships tested in more clarity.

Figure 3.2 Academic Success Model



Employment hypotheses and model

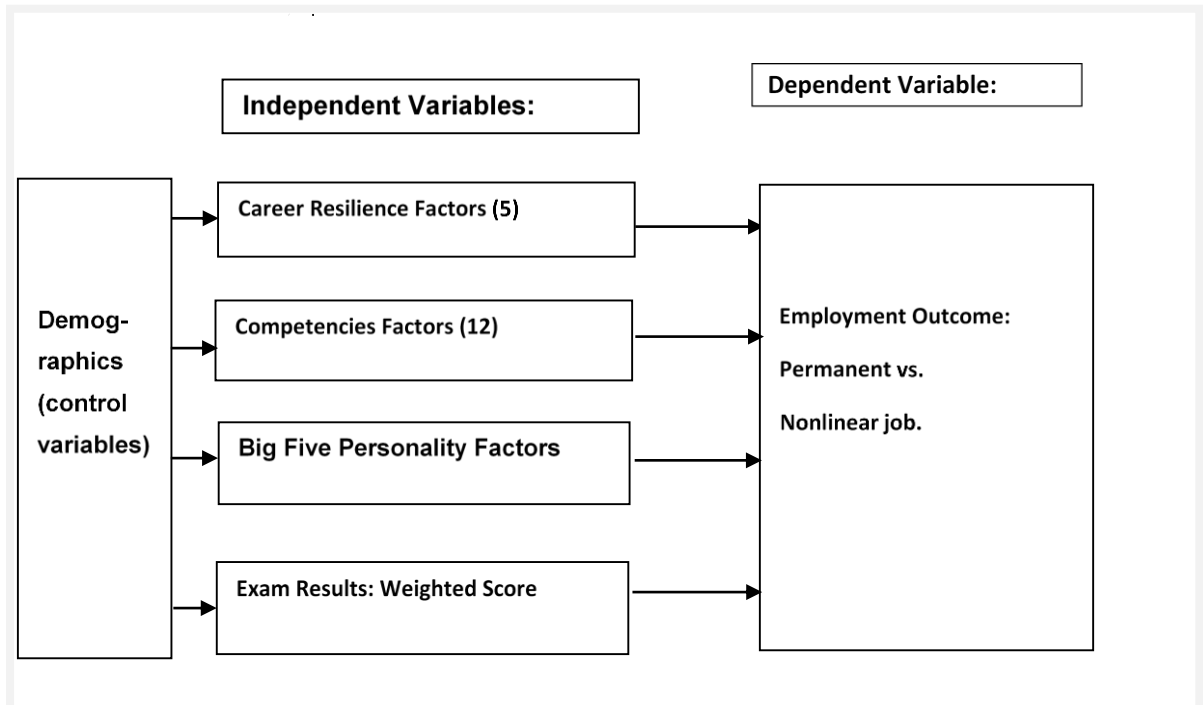
Research question 3 asks:

What is the relationship between career resilience, personality and competencies on employment in the context of the future of work and career uncertainty?

In answering the research question, a total of four main hypotheses and three sub-hypotheses were developed from the literature, especially focussed on research on key attributes related to employment outcomes. Here, the literature drawn is from research on permanent/traditional careers, versus nonlinear careers, more specifically on attributes relates to career uncertainty. It tests for personality, competencies and resilience traits, specifically where the literature offers support, for example Career Resilience (and explicitly the trait of Self-Reliance), with linear/nonlinear career outcomes tested as this trait has

substantial literature on it to support the hypothesis. The model (Fig 3.3) shows the relationships that were tested.

Figure 3.3 Employment model



Demographic variables

Additional hypotheses tested demographics (age and gender) and the impact of academic outcomes on employment outcomes.

3.2.1 Study Design and Context

The research is set within a higher education context and follows a cohort of Masters Students at Henley Business School, looking at both job/career outcomes as well as academic attainment. The development of MBA and MSc Management courses in Henley Business School requires students to not only develop academic skills on courses such as strategy, HR, finance and international business, they also must develop personal and management-based skills. These are gained through the delivery methods on the course through group projects, presentations and extra-curricular activities that all Henley pre-experience postgraduates are expected to gain. The reason for gaining these are linked to the career aspirations of most students, who are predominantly undertaking the course to improve career prospects (Access MBA Survey, 2015). The context for the larger DBA study arose from the findings from the pilot study, which utilised a qualitative methodology using Case Study Analysis and Discourse Analysis. Thus, the focus of the main study would

investigate the nature of a person's ability to manage their career and how they deal with challenges and change. The ability to deal with change and challenge links strongly to the field of resilience.

As discussed in the literature review there is a substantial body of work in personality and job, and some within the field of career management. The scales used often in research is the Big Five Personality Scale and therefore they will be used in this study. Competencies are measured by many graduate employers and the main competencies selected were described in the literature review using the AGR data. It was, therefore, important to select a competency scale that covered these key competencies. As such, the Dulewicz Competencies Scale was used as analysis showed it was sufficiently relevant and comprehensive.

3.2.2 DBA Survey Questionnaire

A total of ten students were asked to pilot the quantitative research by completing the draft questionnaire. Participants were recruited from students who had asked for a careers interview and so were selected at random. Those interested were asked to contact the researcher to arrange a convenient meeting time and location. Questionnaires were then analysed in order to identify; intelligibility, face validity, language and bias issues.

Bowling (2005) states that complicated questions where the respondent is overly burdened means that the data may not be accurate – as they may not understand the questions. In the initial pilot with a similar type of student, these issues were addressed, not only for looking for overly complex questions but also, language ability. The findings from this initial quantitative pilot analysis considered if student interpretations of the questions were correct and if the English language would be an issue - given the nature of the student body (i.e. many non-native English speakers). The results showed that language was not a barrier as most students used Google Translate to identify any words not understood. All students reported that the translation tool was useful and provided a good translation of words when needed. The questions were deemed as clear and understandable. However, the pilot did highlight that one change may be needed in that some students had no management practitioner competency, therefore the competencies referring to 'Managing' were removed.

The survey instrument's scales had been selected for their validity based on the literature review. The pilot study was conducted to ascertain whether they had content (or face) validity – i.e. the extent to which the questions were relevant and intelligible to respondents. The trial results suggested that the large majority did have face validity with respondents and were measuring what was relevant and intelligible to them.

3.2.3 Study: Questionnaire and Scales

Questionnaire Development and Selection of Scales

Analysing the career development of students undertaking Masters Courses at Henley would provide a relatively homogenous sample and data collection was anticipated to be easier. According to Churchill and Iacobucci (2002) and DeVellis (1991), developing common themes is essential to designing a questionnaire and that it is essential that it relates to the research questions. In identifying the research objectives, a review of the literature was used to ensure the questionnaire measured the most pertinent areas needed to answer the hypotheses. Employability success was attributed to management and leadership competencies and the Dulewicz Competencies were used. It is recognised that people's personality will play a part in career success and so a Big Five Personality test was also used, specifically The University of Berkley Big Five Personality Test (John, Donahue and Kentle, 1991). Churchill and Iacobucci (2002) and DeVellis (1991) state that research design will affect data gathering, and as such the design developed for this study aimed to maximise the number of participants whilst ensuring a higher number of homogenous units in the sample population.

Questionnaire Selection

Questionnaires or social surveys are a method used to collect standardised data from large numbers of people i.e. the same information is collected in the same way and are used to collect data in a statistical form. Ackroyd and Hughes (1981) identify three types of survey, one of which is the Explanatory Survey which goes beyond the collection of data and aims to test theories and hypotheses and/or to produce a new theory. The study is attempting to explain phenomena, and then models investigating the relationship between career resilience, personality, competencies and academic success, and employment. Therefore, the questionnaire design was based on the Explanatory Survey style. The advantages of using this type of questionnaire according to Ackroyd (1981) is that it offers researchers the opportunity to gather large amounts of information to be collected from a large number of people in a short period of time and in a relatively cost-effective way. It can also be carried out by the researcher or by any number of people with limited effect to its validity and reliability. When data has been quantified, it can be used to compare and contrast other research and may be used to measure change.

Final Selection of Three Questionnaires

Career Resilience: Fourie and Van Vuuren (1998) tested the Career Resilience Questionnaire (CRQ) based on the work by London (1993) to test the construct of resilience

in the field of career management. The construct validity of the Career Resilience Questionnaire was then investigated by De Bruin and Lew (2002) by factor analysis. Their conclusions were that this questionnaire, whilst having usefulness in the application, found some doubts on the independence of some of the constructs. Thus, the tool proposed to use is the 28 item Career Resilience Questionnaire, first developed by a longer Michigan's Career Resilience Scale (See Appendix A for the full scale). This was then further developed by Morgan Lyons for Operation ABLE of Michigan. Cronbach's reliability coefficient α equalled .88 on 719 participants in a research study by Liu (2003) with the 20-item scale. The item-total correlations showed that this scale is unidimensional (Operation ABLE of Michigan, 2001, March).

Personality: To test the influence of personality in the model it is necessary to undertake a personality analysis of students. Many tests exist but are available only to psychologists. The test chosen was the BFI (Big Five Instrument) from the University of California, Berkeley, Institute of Personality and Social Research (Appendix A). This 48-item tool is available online and has a paper version. Information on item-factor links and negatively scored items is provided for researchers. The BFI tool is in wide commercial and educational use with high reliability and validity in pilot research studies (John, Donahue and Kentle, 1991)

Competencies: A number of competencies frameworks were considered including Boyatzis' (1982) original work on management competencies and that of Linley and Joseph (2004) work identifying and using strengths, i.e. personal traits rather than key trades or skills; but Dulewicz's (1989) Supra-competency framework was finally chosen as it is the most parsimonious and is supported by relevant research. Dulewicz and Herbert (1999) conducted a Factor Analysis of their primary competencies and produced 12 independent, higher-order factors, accounting for 72% of the total variance. Measures of their reliability based on Cronbach's alpha are also presented, together with short definitions. Their study tracked the career progress of General Managers over a seven-year period where they found overall Advancement was predicted by Supra-Competency ratings of Planning and Organising and Assertiveness and Decisiveness which was also significantly correlated with Seniority, as was Energy and Initiative. Therefore, these four Supra-Competencies are also relevant to this study. The main aim of Dulewicz's scale was to identify those competencies (skills, abilities, values) and personality characteristics assessed seven years before associated with current success and rate of advancement.

Secondary data source: Employment figures will be taken from the DLHE (Destinations of Leavers of Higher Education) survey. This is a large national survey Henley Business School, along with the rest of the University of Reading must take part in. It is managed by an external government agency; HESA (Higher Education Statistics Agency) which has

clearly defined a method for data collection. The survey categorises the 'destination' that graduates go into after leaving university (including all postgraduate courses). More detailed information on the three scales is now presented in the next three sections.

Career Resilience Scale

As noted above in 3.5.1, the tool used is adapted scale from the 28 item Career Resilience Questionnaire derived from Michigan's Career Resilience Scale (See Appendix A, section B, for the full scale). This was further developed from Michigan's Career Resilience (CR) Scale used by Bice (1999, p.24-30). Likert-type response scales, often used in psychological and social science research, were adopted in this research study. Instructions were: "Please rate the degree to which each statement applies to you by placing an "X" in only ONE box, using the following response format: 1 = Very Low; 2 = Low; 3 = Medium; 4 = High; 5 = Very High".

Examples of two items appear below:

- * I am willing to take risks (actions with an uncertain outcome).
- * I can handle any work problem that comes my way.

3.3 Factor Analysis of Career Resilience scale

It is important to discuss the development of an amended Careers Resilience scale in this chapter, as developing it forms a key part of this study. Thus, in order to examine the scale structure, the study used *Factor Analysis* on the Career Resilience Scale, to identify clusters or groups of related items - called factors on a test. According to Hair et al. (2006), Factor analysis is a technique that is used to reduce a large number of variables into fewer numbers of factors. This technique, Principal Component Analysis (PCA), extracts maximum common variance from all variables and puts them into a common score. As the pilot study (3.4.4. above) only had 10 respondents, data from the main study (see 3.8 and 3.9. below) were used for this analysis. An initial Factor Analysis revealed that 7 items in the Michigan CR scale (numbers 4, 8, 10, 11, 13, 18, 26) did not load onto any factors at the requisite level – loading of above .45. The remaining 21 items were re-analysed and 5 independent factors emerged. Two items loaded onto 2 factors and the higher loading was taken to assign the item to a factor. Thus, item 6 loads higher on Factor 3, item 14 onto F4 and 20 onto F3. Factor loadings of above .45 are shown in Appendix D, along with the full results of the Factor Analysis. Table 3.1 overleaf shows the item-groupings for the 5 sub-scales that were formed, based on SPSS Standardised Factor Scores.

Table 3.1 Items making up the 5 Career Resilience Factor scales

Factor 1: Positive Self Concept Alpha =.812	
3.	I can handle any work problem that comes my way.
7.	I make and maintain friendships with people from different areas.
17.	My skills have been upgraded to keep pace with the current technique.
19.	I explore trends in my field/industry and have identified various changes that are occurring
21.	I have sought opportunities to work with others or to contribute to work teams
22.	The skills and abilities that I need to be employable are clear to me.
Factor 2: Adaptability and Risk Alpha = .751;	
1.	I welcome job and organizational changes.
2.	I am willing to take risks (actions with an uncertain outcome).
5.	I am able to adapt to changing circumstances.
Factor 3: Self Reliance Alpha = .733	
6.	I have made suggestions to others even though they may disagree.
9.	I have outlined ways of accomplishing jobs without waiting for my boss.
12.	I will evaluate my job performance against personal standards rather than comparing it with what others do.
16.	I can identify three important accomplishments from my current/last job.
20.	I have sought opportunities to take on new responsibilities in my work.
24.	I have actively sought better assignments in my current or past jobs.
Factor 4: Ambition and Networking Alpha = .650	
14.	I look for opportunities to interact with influential people.
15.	My career goals are clear and I have a good idea of where I'm heading.
23.	I have a network of people in and outside my field that can help my career.
25.	Regularly, I try to identify the future direction of my field by making personal contacts, reading or attending professional meetings.
Factor 5: Motivation to Learn Alpha = .607	
27.	If I identify what I need to learn, I will actively seek the learning opportunity.
28.	I like to read or attend conferences and workshops to learn new knowledge or skills.

Cronbach's Alpha Reliability of the scales

Construct reliability is traditionally evaluated using the Cronbach's alpha coefficient, which provides a measure of internal consistency, that is how closely related a set of items are as a group (Cronbach, 1951). Table 3.2 presents the Cronbach Alphas which appear alongside factor titles. The table shows that the five Career Resilience Sub-scales each have good reliability. The Sub-scales all have alphas above .6, which is the threshold for acceptable reliability, according to Hair (2014) and thus can be deemed to be reliable.

Definitions of the five Career Resilience Factors

Factor 1 Positive Self Concept: Maintaining friendships with people from different contexts. Handling any work problem encountered. Upgrading skills to keep pace with current techniques. Exploring trends in own field or industry and identifying any changes occurring. Seeking opportunities to work with others or to contribute to work teams. Employment skills and abilities needed are clear.

Factor 2 Adaptability and Risk: Embracing job and organizational change. Willing to take risks. Able to adapt to changing circumstances.

Factor 3 Self Reliance: Making suggestions to others, even when they disagree. Outlining ways of accomplishing jobs without waiting for instructions. Evaluating own job performance against personal standards rather than comparing it to others. Able to identify three important accomplishments from own current or last job. Actively seeking opportunities to take on new work responsibilities and better work assignments.

Factor 4 Ambition and Networking: Seeking opportunities to engage with influential people. Setting clear and ambitious career goals. Having a wide network of people who can advance own career. Identifying the future direction of own field of work by making personal contacts, reading and attending professional meetings.

Factor 5 Motivation to Learn: By identifying what needs to be learned, actively seeks learning and development opportunities. Choosing to read and attend conferences and workshops to learn new knowledge and skills.

Competency Scale

Dulewicz's (1989) Supra-competency framework was chosen as it is the most parsimonious and is supported by relevant research, as noted in 3.5.2. The study included 38 Personal Competencies from the Dulewicz framework (see Appendix A, section D, for the full scale). Rating instructions were as follows:

"Please rate yourself on each competency statement by placing an "X" in only ONE box. Compare yourself to your peer group at your previous university, using the following response format:

- 1 = My performance on this competency fails to meet acceptable standards of my peer group.
- 2 = My performance is not quite up to acceptable standards of my peer group.
- 3 = Acceptable performance compared to my peer group.
- 4 = Good performance, better than acceptable standards of my peer group.
- 5 = Outstanding performance, far exceeds acceptable standards of my peer group."

Examples of two items appear below:

* Information Collection

Seeks all possible relevant information for the task systematically. Elicits relevant information from others.

* Achievement-Orientation

Sets stretching goals and expects high standards of performance and quality from self and others. Continuously endeavours to improve standards and will not accept poor performance.

Dulewicz and Herbert (1999) conducted a Factor Analysis of their primary competencies and produced 12 independent, higher-order factors, showing acceptable reliability based on Cronbach's alpha. Their summary of the 12 Supra-Competencies is as follows:

1. Strategic: Rises above the detail to see the broader issues and implications; takes account of wide-ranging influences and situations both inside and outside the organisation before planning or acting.
2. Analysis: Seeks all relevant information; identifies problems, relates relevant data and identifies causes; assimilates numerical data accurately and makes sensible interpretations; work is precise and methodical, and relevant detail is not overlooked. Makes decisions based on logical assumptions that reflect factual information.
3. Planning: Plans priorities, assignments and the allocation of resources; organises resources efficiently and effectively, delegating work to the appropriate staff.
4. Leadership: Fosters cooperation and effective teamwork by adopting the appropriate leadership style and methods to achieve team goals
5. Persuasiveness: Influences and persuades others to give their agreement and commitment; in face of conflict, uses personal influence to communicate proposals, to reach bases for compromise and to reach an agreement.
6. Assertiveness: Ascendant, forceful dealing with others; can take charge; is willing to take risks; is decisive, ready to make decisions even on limited information.
7. Sensitivity: Shows consideration for the needs and feelings of others; listens dispassionately, is not selective, recalls key points and takes account of them; is flexible when dealing with others, will change own position when others proposals warrant it.

8. Oral communication: Fluent, speaks clearly and audibly, with good diction; in formal presentations, is enthusiastic and lively, tailors content to the audience's level of understanding.
9. Resilience and Adaptability: Resilient, maintain effectiveness in the face of adversity or unfairness. Performance remains stable when under pressure or opposition; does not become irritable and anxious, retains composure. Adapts behaviour to new situations.
10. Energy and Initiative: Makes a strong, positive impression, has authority and credibility; is a self-starter and originator, actively influences events to achieve goals; has energy and vitality, maintains a high level of activity and produces a high level of output.
11. Achievement: Sets demanding goals for self and for others and is dissatisfied with average performance; makes full use of own time and resources; sees a task through to completion, irrespective of obstacles and setbacks.
12. Business sense: Identifies opportunities which will increase sales or profits; selects and exploits those activities which will result in the largest returns.

Scores for the aggregate of the items loading onto each factor from Dulewicz and Herbert (1999) were computed for use in this study.

It is important to note that the Career Resilience scales measure different factors than the Resilience and Adaptability Competence, where the latter has a focus on emotional control and adaptability, and the former has a focus on the five factors described which are related specifically to career resilience.

Big Five Personality Scale

As noted in 3.5.3., the test used was the BFI (Big Five Instrument) from the University of California, Berkeley, Institute of Personality and Social Research. The Items covering an individual's personality characteristics (see Appendix A, section C, for the full scale). The scale developed by John, Naumann, and Soto (2008) at Berkeley was used as their measures of the Big Five have shown considerable reliability and interrater agreement, and can be used to predict a variety of important social, occupational, psychological, and health outcomes, their scales are shown to have a reliability and convergent validity of .83 (John, Donahue and Kentle, 1991).

"Please rate yourself on each statement by placing an "X" in only ONE box to indicate the extent to which you agree or disagree with that statement, using the following response

format: 1 = Strongly Disagree; 2 = Disagree; 3 = Neither Agree nor Disagree; 4 = Strongly Agree; 5 = Strongly Agree.” Answer according to ‘How I am in general’.

Examples of 2 items are:

I am someone who...

- Is talkative
- Tends to find fault with others

DeYoung and Gray (2009) provide summary definitions of the Big 5 Personality Factors:

1. Conscientiousness, which covers the sub-trait of industriousness - which is linked to achievement-orientation, self-discipline, and purposefulness; and orderliness—as characterized by deliberation, tidiness, and cautiousness.
2. Agreeableness, which covers the sub-trait of compassion, which is linked to empathy, sympathy, and warmth; and politeness—corresponding to pleasantness, cooperation, and straightforwardness.
3. Neuroticism, which covers the sub-trait of volatility which is linked to low tranquillity, high impulsivity, and high hostility; and withdrawal—corresponding to anxiety, depressive outlook, and self-consciousness.
4. Openness to Experience, which covers the sub-trait of intellect which is linked to quickness, creativity, and ingenuity; and aesthetic openness—corresponding to artistic values, and imagination
5. Extraversion, which covers the sub-trait of enthusiasm, which is linked to gregariousness, positive emotionality, and sociability; and assertiveness—corresponding to activity level, social dominance, and leadership-striving.

Scores for the aggregate of the items loading onto each factor were computed for use in this study.

3.4 Research Hypotheses

This section presents the hypotheses derived from the literature based on the research questions, which are in summary:

Overall: What is the relationship between career resilience, personality and competencies in the context of career uncertainty and future of work?

Research Question One: What is the relationship between Career Resilience and Competencies and Personality?

Research Question Two: What is the relationship between academic outcomes, and personality, career resilience and competencies?

Research Question Three: What is the relationship between career resilience, personality and competencies on employment in the context of the future of work and career uncertainty?

The hypotheses relate to the three Dependent Variables; Career Resilience, Academic Success and Employment Outcomes. To summarise the Independent Variables, the Career Resilience Factors are CR1 Positive Self-concept, CR2 Adaptability and Risk, CR3 Self Reliance, CR4 Ambition and Networking and CR5 Motivation to Learn.

The 12 Supra-Competencies are: Strategic, Analysis, Planning, Leadership, Persuasive, Assertive, Sensitivity, Oral Communication, Resilience and Adaptability, Energy and Initiative, Achieving, and Business Sense; and the Big 5 Personality Factors are: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism.

3.4.1 Career Resilience Hypotheses

The literature on Career Resilience suggests that it is forged by an individuals' experiences (SCCT), and their ability to manage uncertainty (CTC) as well as their own innate abilities needed to do a job (competencies) and their personality (Big Five), specifically Extraversion and Conscientiousness.

H1 There is a relationship between Competencies and Career Resilience Factors

Career Resilience literature suggests that there are key factors in maintaining and developing a career, which in the adaptation and 'bouncebackability' to difficulties require the applications of competencies in order to maintain career growth and career success.

According to the literature on career success, it can be defined as the real or perceived achievements individuals have accumulated as a result of their work experiences (Judge, et al 1995). Gattiker and Larwood (1988) suggest there are two parts to career success namely

extrinsic (external observable factors of pay, job title, promotions) and intrinsic factors (the internal factor of job satisfaction). However, according to career success research, it was found that job satisfaction is the most significant aspect of career success (Judge and Bretz, 1994). It is with this in mind that this study into career resilience considers career success as intrinsic and related to job satisfaction.

H1.1 There is a relationship between Supra-Competency of Resilience and Adaptability and the Career Resilience Factor of Adaptability and Risk

Supra-competencies: It is hypothesised that there will be a strong relationship between the Competency Resilience and Adaptability and Career Resilience Factor 2 of Adaptability and Risk. This is reinforced by the literature on by London (1993), who suggests that career resilience involves demonstrating initiative, structuring work problems, and attempting to maintain performance levels when confronted with situational constraints such as time pressures, lack of resources, or poor directions from peers and subordinates.”

London also suggests that the understanding of personal qualities in a career is also key. London (1993, 55) says that

“Career resilience corresponds to concepts of perseverance (e.g. the length of time an individual will remain in a situation in which rewards do not match needs), flexibility (tolerance for ‘discrepancy’ before doing something about it) and reactivity (to act on the environment to overcome a barrier).”

Therefore, underlying the hypothesis is the suggestion that personal factors will have a strong relationship with each other. For example, to demonstrate the ability of resilience in adaptability to career, it is more likely to mean understanding risk in changing circumstances.

H1.2 There is a relationship between Supra-Competency of Achieving and Career Resilience Factor of Self Reliance

The Achieving Supra-Competency is hypothesised as having a positive relationship to Career Resilience Factor 3, Self-Reliance. The literature on self-reliance with career success shows this factor as crucial in an individuals’ resilience, and their ability to deal with the ‘ups and downs’ of life and to achieve career success. Individuals, according to Crites (1978), who make career decisions in a way that ‘demonstrates involvement, decisiveness, independence, task orientation and willingness to compromise between needs and reality’, will have a higher level of career resilience. Thus, this underpins the hypotheses as it is suggested that a core part of maintaining independence and task-orientation shows also the ability to take ownership of behaviour as well as action to achieve results. This, therefore,

demonstrates the importance of self-reliance on career resilient behaviour, and thus it is expected that this relationship will be positive.

H1.3 There is a relationship between Supra-Competency of Energy and Initiative and Career Resilience Factor of Self Reliance

The Supra-Competency of Energy and Initiative's relationship with the Career Resilience Factor 3, Self-Reliance, is hypothesised as being positive. This hypothesis is strengthened by the careers literature, as according to Noe and Bachhuber (1990) who suggest career resilience gives the ability to persevere in career development. Some of the theories within career resilience can be explained in relation to the trait-factor career theories discussed in the literature review, above. Holland, in developing his RAISEC model, discussed how career decisions are influenced by the ability to face barriers and the need for information which will take motivation and initiative to attain (Holland, 1985; Holland et al., 1980). Thus, it is suggested, that in order to maintain persistence and continually gather career information, an individual must demonstrate levels of *Energy* and *Initiative*. Furthermore, the individual must also maintain these in times of adversity in order to achieve career success. Also, research from Davda (2011) suggests that resilience has seven identifiable specific traits which he defines as resilient attitudes, and which outline key behaviours which can be associated with career resilience, providing further support for the hypothesis. For example, Davda suggests that *determination* is a key resilience trait (defined by Davda as an individual's ability to remain motivated and carry on after difficulty or adversity). Davda also suggests that *challenge* is a key resilience trait – defined as the way in which an individual perceives situations, solves problems and manages change. These are both specifically related to the career resilience factor of self-reliance, as using initiative and driving that through requires a person to take on challenge and energy to pursue career success and is thus hypothesised as having a positive relationship.

Big Five Personality: As suggested by London and Noe (1997), career resilience has a high focus on career outcomes and is displayed by people with traits that could be described as 'outcome orientated'. It is therefore hypothesised that Big Five factors will be highly related to career resilience. Specifically, that there is a relationship between two key Big Five Personality Factors, Extraversion and Conscientiousness, and Career Resilience.

H2 There is a relationship between Extraversion and Career Resilience Factors

Extraversion has been shown to have a relationship with behaviours that are 'pro-social' (Lyubomirsky et al. 2005), where it is suggested that if an individual creates more supportive networks for themselves, they are more likely to have higher levels of resilience. Big Five

lower-order trait of Extraversion measures show that this trait of 'network creation and network sustaining' is associated with sociability. Furthermore, the trait of sociability is often associated with a person who is extraverted (or at least able to demonstrate extravert-trait behaviour). According to Charuvastra and Cloitre (2008), 'the relationship between resilience and personality need(s) to incorporate the social context and is highlighted by the observation that resilience rests fundamentally on relationships, both the perceived and actually received amount and quality of social supports. Charuvastra and Cloitre also suggest that extraversion reflects a positive emotional style, high levels of social interaction and activity, and the capacity for interpersonal closeness. This is a key part of career resilient behaviour and so offers further substance for this hypothesis.

H3 There is a relationship between Conscientiousness and Career Resilience Factors

Conscientiousness is an important factor in resilience, according to research studies on mental health by Campbell-Sills et al. (2005) who found that resilience was positively related to conscientiousness as well as extraversion. Campbell-Sills et al. (2006) suggested that coping styles predicted variance in resilience and found the task-oriented coping was positively related to resilience and mediated the relationship between conscientiousness and resilience, where individuals used active problem-solving in order to find a way through a situation demonstrated higher resilience. Furthermore, the underpinning of this hypothesis is found from the lower order factors for Big Five, where it can be seen that conscientiousness has lower-order traits of achievement orientation and purposefulness – which again supports this hypothesis, as Conscientiousness behaviours appear to be essential in resilience.

3.4.2 Academic Success Model Hypotheses

H4: There is a relationship between Career Resilience Total and Academic Success

Career Resilience and the relationship with academic outcomes is hypothesised as being positive. For this study, academic success is defined by a large literature body as passing an examination and achieving desired grades according to Finn and Rock (1997). Research in this area suggests that students who have higher resilience are more able to manage setbacks and achieve academic success. For example, a large study to identify factors that contribute to the resilience and academic achievement among Mexican American high school students in the USA found that resilient students reported receiving mostly A-grades in high school, whereas non-resilient students reported mostly grades of D or below (Martin and Marsh, 2008).

H5.1: There is a relationship between the Supra-Competency of Planning (as measured by Supra Competencies) and Academic Success

H5.2 There is a relationship between the Supra-Competency of Achieving (as measured by Supra Competencies) and Academic Success

H5.3 There is a relationship between the Supra-Competency of Analysis (as measured by Supra Competencies) and Academic Success

Supra-Competencies of Planning, Achieving and Analysis are hypothesised to have a strong relationship to academic outcomes. This is evidenced in the literature on academic outcomes which showed that a construct called 'Work Drive' was found to be significantly positively related to both course grade and Grade Point Average (GPA), according to Rigdell and Lounsbury (2004). They described Work Drive as having "an enduring motivation to expend time and effort to finish study projects, meet assignment deadlines, be productive, and achieve success". The lower-order traits within Work Drive are strongly linked to the supra-competencies of Planning and Achieving. With regard to the supra-competency of Analysis, it is suggested in the literature (Schmeck, 1999; Zhang, 2003) that students differ in their preferred styles of thinking, processing information, and acquiring knowledge and a reflective style such as synthesis-analysis are conducive to greater understanding and knowledge (Schmeck et al., 1977).

H6: There is a relationship between Conscientiousness (as measured by Big Five) and Academic Success

Lower traits within Conscientiousness demonstrate an individual's need for achievement as a motivation to achieve high levels of performance, which it is suggested will be validated by this hypothesis. According to research by Chamorro-Premuzic and Furnham (2002), personality may offer predictions of academic success and failure in university. They suggest that conscientiousness is significantly correlated with examination grades and was found to account for around 15% of the variance in a study of undergraduate psychology students on the study. They noted that lower-traits, notably dutifulness and achievement striving, self-discipline, activity achievement and striving positively and academic achievement were found to play an important part in the research findings. Similarly, McIlroy and Bunting (2002) found that conscientiousness was significantly positively related to academic performance. More recent research by Komarraju et al. found the Big Five together explained 14% of the variance in GPA of undergraduate students and, of the Big Five traits, conscientiousness was highly positively related (Komarraju et al., 2011).

3.4.3 Employment Model Hypotheses

H7: There is a relationship between Career Resilience and Employment Outcomes of traditional and nonlinear employment

H7.1: There is a relationship between Career Resilience CR3 Factor of Self Reliance and Employment

Career Resilience and Employment Outcomes, specifically nonlinear vs traditional jobs, is hypothesised to have a positive relationship: As discussed in the literature, *Careers* in the world we live in is not static, and we all need to evolve and the world of work evolves. Indeed, Arthur (1989) defined a career as “an evolving sequence of person’s work experience over time” and so recognised that career has the fluidity to it, and so people who can manage, anticipate and make changes may be more likely to achieve career success. The literature shows that for an individual to more likely achieve their career outcomes, they have higher self-efficacy and career resilience (Bandura, 1997). As discussed in the early literature review, an individuals’ career was in the past seen as the responsibility of the employer – in particular in the early part of the 20th century. Then responsibility moved to sit with the individual (Collard et al. 1996) and is an intrinsic part of the Chaos Theory of Careers (CTC). An important feature of CTC (Bright and Pryor, 2008, 2011) is that it acknowledges the non-permanent, nonlinear nature of work and careers. Furthermore, managing non-permanence is increasingly important as to how people adjust their career in order to adapt to the changing job market as part of a Protean Career Theory approach (Hall and Mirvis, 1996). Indeed, in a recent study on the employability skills of employer expectations of postgraduate management students, identified ten core skills areas that would account for career success, namely: communication skills, decision-making skills, independent working skills, information retrieval skills, leadership skills, numerical skills, personal learning and development skills, problem-solving skills, strategic skills and team working skills (Maxwell, 2007). Thus, in gathering this knowledge, it is suggested that these are also qualities within career resilience and are also very highly related to Career Factor 3 Self-Reliance – as this clearly demonstrates that the individual is taking greater ownership of their career path. Thus, the hypothesis of the relationship between nonlinear to employment outcomes is positive.

H8. There is a relationship between Supra-Competencies and Employment Outcomes (Traditional vs Nonlinear)

H8.1; There is a relationship between Supra-Competency Achieving and Employment

H8.2; There is a relationship between Supra-Competency Resilience and Employment

H8.3; There is a relationship between Supra-Competency Oral Communication Competence and Employment

Supra-Competencies: Achieving, Resilience, and Oral Communication are also related to employability traits as discussed in the literature review. Studies by Maxwell et al (2007) on

students identified the key skills expected by employers, which include communication skills (oral), and an ability to work under pressure (resilience) and team-working skills (Maxwell et al, 2007). All these skills listed by Maxwell demonstrate the importance of an individual demonstrating an active pursuit of career goals (achieving) – in particular traits such as assuming responsibilities, ability to pursue and achieve goals and so a strong relationship with Supra-Competencies of Achieving and would also require Energy and Initiative to keep pursuing these goals despite various obstacles.

H9: There is a relationship between Openness and Employment

Research on employment and personality that suggest that certain Big Five personality traits are highly related. Openness to Experience as described by (McCrae and John, 1992) is related to how a person experiences life, experientially, and they posit that because individuals who are higher in this trait will look for greater experiential career paths that may be an expression of their curiosity, adventurousness, broad interests, and progressive (vs. conventional) values. As such, people with such traits will be more open to new experiences, willing to take more career risks and may express greater tolerance for change. For example, recent studies on the Big Five personality trait of Openness to Experience was influential on positive and successful career outcomes, which also show that this personality trait positively impacts on upward job changes and promotions. A gender-based Big Five psychology study suggested that as the trait was linked to newness and creativity, that women who are high on Openness to Experience trait, find the start-up phase of a career or business might be most appealing and perhaps be less engaged as the job and/or company settled (George et al. 2011).

H10; There is a relationship between Conscientiousness and Employment

Big Five; Openness and Conscientiousness: The literature suggested that these two factors are of significance in looking at career changers. As this study is looking at differences between people who took career changes after their MBA or MSc in Management, the focus of the literature was on factors that influenced career changers. Recent research from Georgellis and Sankae (2016) who used longitudinal data from the British Household Panel Survey to investigate the propensity of people to change career (into management roles – similar to what most MBAs and MSc student aspirations), shows that Extraversion, Openness, and Conscientiousness are 'positively associated with the propensity of individuals to become managers'. Hunthausen et al (2003) research, using a major U.S. based airline to study the effects of Big Five in staff and career, found significant correlations between job performance and Conscientiousness, Extraversion, and Openness to Experience. A longitudinal study on career-changing by Judge et al. (1999), who looked at

career success which included career changers that followed participants from early childhood to retirement (data obtained from the Intergenerational Studies research), found that Conscientiousness positively predicted career success.

3.4.4 Demographic Variables Hypotheses

H11: There will be no relationship between Gender and Employment

H12: There will be no relationship between Age and Employment

H13: There will be no relationship between Academic Success and Employment

Age and Gender are areas for the disparity in the job market, especially highlighted in recent Gender Pay Gap studies. However, the literature shows that where male and female graduate the same course at the same time, there is little difference in pay at the start. For example, a 2010 study by Bertrand, Goldin, and Katzat, showed newly graduates MBAs showed no difference in pay, and the gender pay differences were shown to be apparent several years later. Furthermore, research suggests that personal factors are highly important are individuals' ability to forge their own such as having career resilience, which too has been found not to be gender influenced. A study on resilience on Chinese university students by Zhang (2011) indicated that personality traits statistically predicted resilience outcomes and not age and gender.

With regard to the relationship between academic performance and employability, a commonly held view is that those people with higher exam results will achieve greater career success (McArdle, Waters, Briscoe, & Hall, 2007). However, from the perspective of experienced career and HR practitioners, many say that this is not necessarily the case. Many graduate recruiters place higher importance on personal factors such as skills, strengths, personality and competencies, so much so, that many have taken to removing entry grades (EY, 2015). This has meant even less focus on exam grades by employers in their recruitment practices. In addition, nonlinear career paths are less controlled by expectations on exam grades. Indeed, in relation to the future of work, many employers have rigorous recruitment programmes in place to ensure wider social mobility and diversity. Indeed, this perspective is supported by the evidence given in the literature, which shows that exam results show either no effect or very moderate effect on career success. Furthermore, it is argued where there are moderate effects, these could be influenced by other factors (Hogan, Chamorro-Premuzic, and Kaiser, 2013). A study by Pfeffer and Fong (2002) found that MBA degrees and GPAs were not related to extrinsic career success in terms of posts and salary. In fact, Pfeffer and Fong found the reputation of the business school was related to a salary increase for MBAs and not exam results. A study by Ng, Eby,

Sorensen, and Feldman (2005) found educational achievement correlated only modestly but positively with subsequent financial success ($r = .21$).

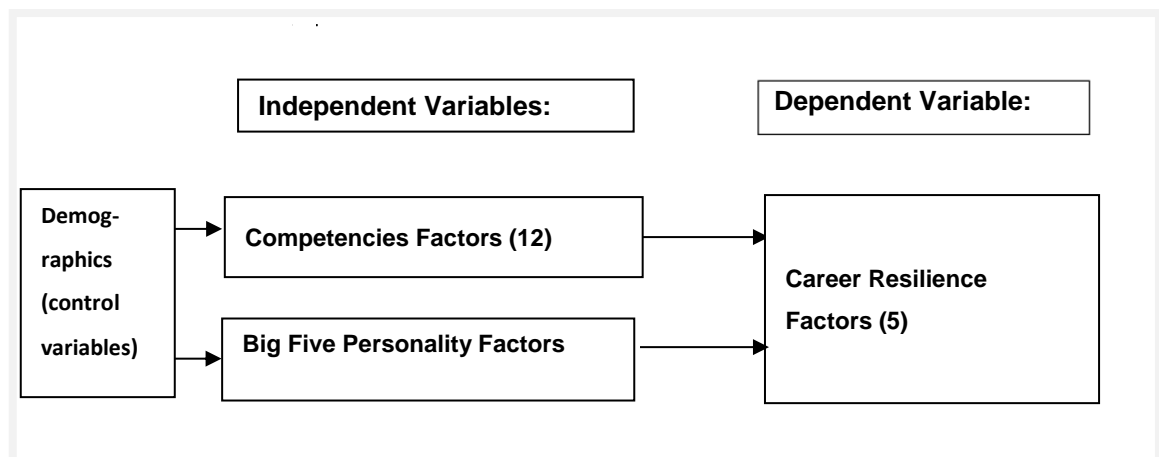
As this study considers newly graduates students from similar postgraduate management courses, and with little age difference, it is predicted that both Age and Gender will not influence employment outcomes. It is also predicted that exam results will not influence employment outcomes.

3.5 Research Models

3.5.1 Career Resilience Model

Career Resilience is a key aspect of this study as it is suggested by the literature review to be a key construct in career outcomes. Therefore, as one of the three personal attributes, it merits a model of its own to increase understanding to what extent Supra-Competencies and Personality influence Career Resilience. The model is presented in Figure 3.1, in which Career Resilience is the Dependent Variable, Supra-Competencies and Personality are the Independent Variables and Demographic data on Age and Gender are Control Variables, whose effects can be partialled out in the analysis.

Figure 3.1. The Career Resilience Model

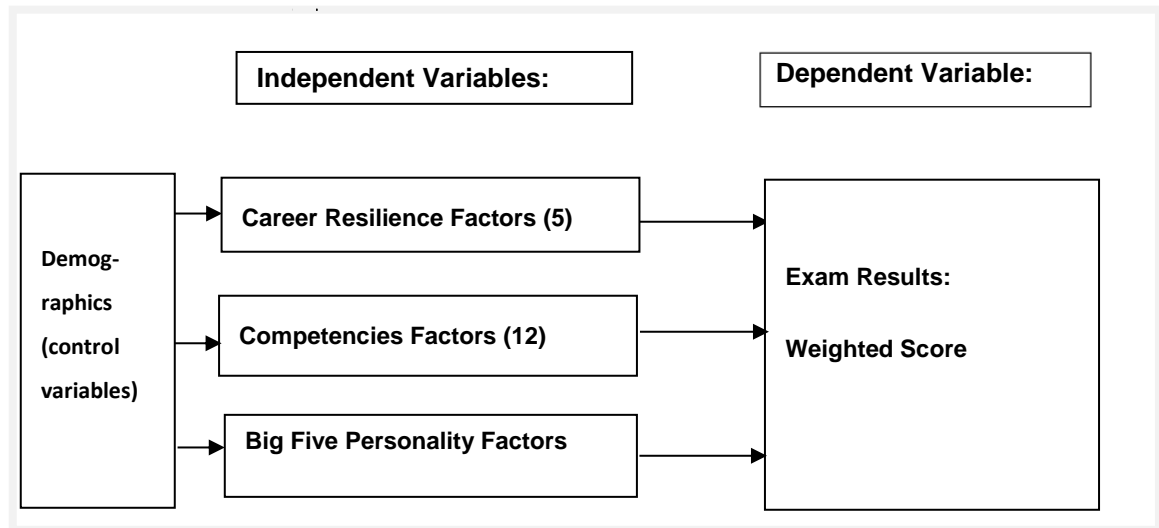


3.5.2 Academic Success Model

Research Question 2 asks what personal factors influence academic success. To increase understanding of what extent Career Resilience, Supra-Competencies and Personality influence Academic Success, a model was designed and is presented in Figure 3.2. Academic Success as measured via exam results (including assignments and group work) is the Dependent Variable, Career Resilience, Supra-Competencies and Personality are the

Independent Variables and Demographic data on Age and Gender are Control Variables, whose effects can be partialled out in the analysis.

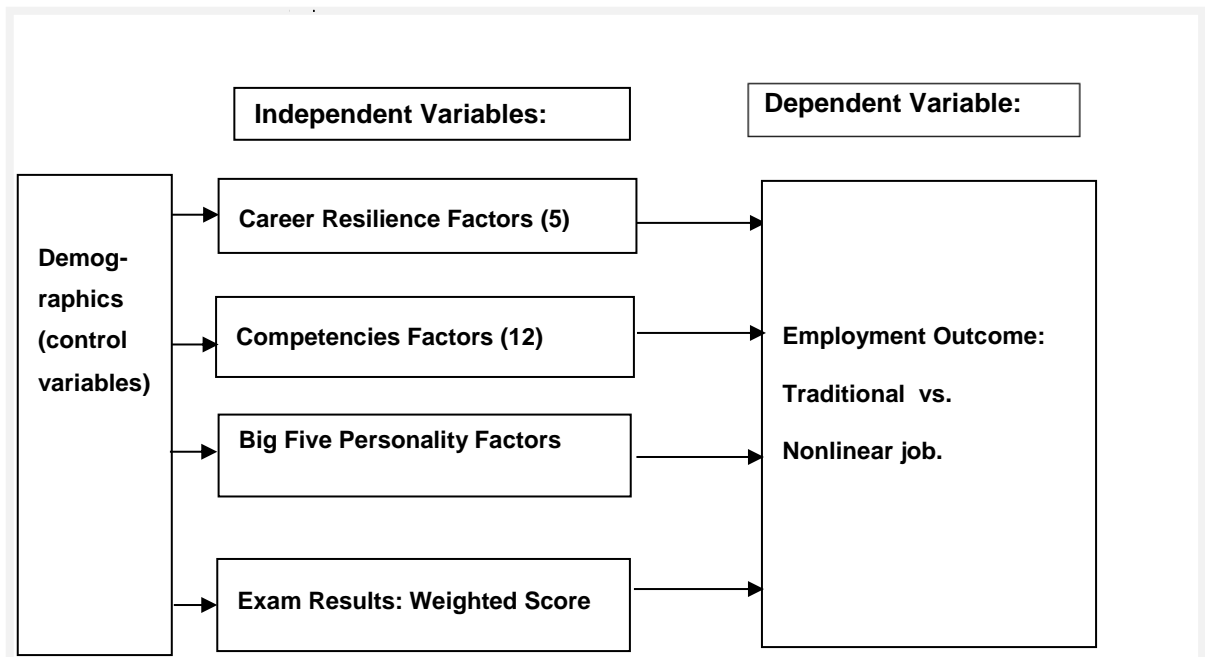
Figure 3.2 Academic Success Model



3.5.3 Employment Model

Research Question 3 asks 'Which personal attributes influence employment outcome'? A model was designed to increase our understanding of the extent to which Career Resilience, Supra-Competencies and Personality influence Employment Outcomes, specifically whether respondents accepted traditional or nonlinear jobs on graduation. It is presented in Figure 3.3. Employment Outcome is the Dependent Variable, Career Resilience, Supra-Competencies and Personality are the Independent Variables and Demographic data on Age and Gender are Control Variables that are taken account of in the analysis.

Figure 3.3 Employment model



3.6 Sample

Research Population and Sample

When designing a sampling plan, Hair (2014) identifies five important considerations, which include defining the target population, choosing the sampling frame, selecting the sampling method, determining the desired sample size and finally, implementing the sampling plan.

First, it is important to clearly define the population of interest from which a sample is drawn. A population is defined as the entire universe of individuals or objects under study, as determined by the research objectives (Burns and Bush, 2002). The population of interest in this study is Masters and MBA students in Henley Business School. A sampling frame is determined by the nature of and access to the population, while the choice of sampling method should strive to ensure the sample is representative of the population from which it has been drawn. To this end, a sample would ideally be drawn using a random probability technique, in which all members of the population have a known and equal chance of being selected (Burns and Bush, 2008). According to Remenyi (1998), an appropriate sample size should reflect the requirements of the research design and analysis procedures. Given the requirements of the quantitative tools proposed, the objective was to reach a sample size of between 100 and 200 for the population of interest, to meet the 5-times the number of variables targets suggested by Hair (2014).

The purpose of applied doctoral research is to ‘take back’ ideas and knowledge gained from the research to inform practice. In this case, the study is aimed at career and HR practitioners. The purpose of this study is to be able to provide generalised outcomes to this specific (theoretical) population group. The listing of the accessible population from which the sample was drawn from was sampling frame of all students in Henley Business School. The sample itself was postgraduate students studying one-year Masters Management and MBA courses at the School. The group that completed this study were a subsample of those who attended the compulsory careers workshops.

Demographic Data

An analysis of the demographics of the sample in Table 5.3 shows a diverse range of respondents based on their gender, age, and previous work history. As discussed previously, a total of 160 questionnaires were distributed, and 153 participants completed and returned them. The response rate was 95%. The ages in this sample grouped from 21 to 40, but the population showed a relatively small distribution, with a mean of 24.96 and SD of 3.8. The gender ratio was not equal, with fewer Males (N=67) than Females (N=85). Nearly all participants had a first degree, with the majority (69.3%) having a Business Management Studies degree. Regarding experience prior to their course in Henley: 55.6% had had no work experience and 44% had had a full-time job; 57.5% had undertaken some form professional-level internship within a company. This meant the sample had mainly students who had not had an extensive work history, as perhaps expected due to their age.

Table 3.2 Demographic Data of Sample

Age and Job Experience					
	N	Min	Max	Mean	Std. Dev
Age	153	21	40	25.0	3.8
Job Experience (months)	67	3	360	48.6	69.2

Gender		
	Frequency.	Percent
Female	85	55.6
Male	67	43.8
Total	153	100

1st Degree Subject

	Frequency	Percent
Missing	4	2.6
Arts	15	9.8
Business/Management Studies	106	69.3
Engineering	6	3.9
Other area	5	3.3
Science	5	3.3
Social Sciences	8	5.2
Technical	4	2.6
Total	153	100

Type of Work

	Frequency	Percent
None	89	58.2
Administration	9	5.9
Management	27	17.6
Other area	23	15.0
Technical	5	3.3
Total	153	100

Prior Internship

	Frequency	Percent
No	65	42.5
Yes	88	57.5
Total	153	100

Prior Full-Time Job

	Frequency	Percent
No	85	55.6
Yes	68	44.4
Total	153	100

3.7 Data for the study

Countering Social Bias

As discussed earlier, according to Bowling (2005) social bias may occur in completing questionnaires. In order to mitigate against this, respondents were given the questionnaire as part of a large lecture and so were not individually monitored. The room had separate seating for students and thus would be hard to see what other students were writing. It was noted that the questionnaires were completed in total silence – not asked for but showed that students were not discussing answers. In addition, all students were offered complete anonymity on self-administered questionnaires which may have reduced social pressure and thus may likewise reduce social desirability bias. In this study, the ethical and contact details were given separately and academic and employment was data gathered used student ID number in order not to mitigate against social bias.

Survey Data Collection

The survey data was collected over a single week as part of a core Masters career workshop. Bowling (2005) argues that small return rates will skew results and offer poorer data quality for analysis. Therefore, the sample was selected in order to give a maximum number of returns and thus a Masters class attending their first careers workshop was designated. To ensure a comfortable environment in which respondents could complete the questionnaire and without distraction and mitigate against interview and social bias (Bowling 2005), they were given the questionnaire at the start of the workshop with a short explanation as to why the study was being carried out. They had not at this stage received any career support from the Henley Careers team and this was the first contact for all of them with the career service. This was to ensure that fewer 'unconscious biases' would play a part.

Collection of Academic and Employment Data

Data gathered for exams were based on the Henley Business School student exam records and these were collected at after the end of their programme, from the University student exam records database.

Employment information was gathered initially using the formal university Destinations of Leavers of Higher Education (DLHE) survey form sent out six months after graduation. Since data from only 15 of the sample of 153 students were returned in this formal survey, further follow up was conducted by the researcher in May to July 2015, using email and Facebook (including overseas equivalents) contact addresses wherever available. In total, data on the Employment variable was obtained from 93 Students.

Data Preparation

The data entry process was completed with the assistance of another individual who used the scanning system at Henley to upload the data from the questionnaire. Variables requiring reverse-coding, such as on the Big Five Personality test were subsequently identified and adjusted accordingly. The data file was then checked for any obvious data entry errors, including out of range scores (for example, an entry of something other than a number between 1 and 5 for the Likert-scale question ranging from 1-5). Common errors included a double-strike entry, such as 11 or a miss-strike such as an 8). Such errors were then corrected by referring back to the original questionnaire and its corresponding response for that item. Next, the file was examined for potential cases of intentional respondent errors, such as the same score entered throughout the entire questionnaire (e.g. entering a 4 for all items). Data coding and entering into SPSS Statistics 20.0 was followed by a cleaning process and closer examination to ascertain the frequencies and distributions within the dataset. A search for Outliers was conducted and none were found.

3.8 Summary of chapter

The literature chapter on career development highlighted key areas for this study. The research is to focus on factors that influence career outcomes, especially in relation to uncertain career paths. This means measuring constructs that arose from the literature which were specifically personality traits, career resilience and competencies, as well as other data on age, ethnicity, and gender. In addition, a longer survey to consider the academic results, and an even longer survey to gather employment data. These were outlined in the three models as discussed earlier in the chapter under Figures 3.1, 3.2 and 3.3

This chapter has provided a description of the methodology employed for developing and testing the hypotheses and research models, according to the hypotheses and models presented in this chapter. The next two chapters (4 and 5) provide the reader with the information to understand the rationale for the quantitative analyses undertaken, as well as presenting the results found.

4 Results I: Hypotheses testing

What-you-should-be-when-you-grow-up need not and should not be planned in advance.

(Krumboltz, 2009, 135)

4.1 Introduction

The purpose of this study is to explore the relationship between career resilience, personality, competencies, academic success and employment outcomes. Accordingly, the results are divided into two chapters to clearly show the findings. The structure of the results chapters is organised how the study was conducted and so the first (Chapter 4) examines the hypotheses and the second (Chapter 5) examines the models. Both chapters present research findings and interpretation of data. The research question of career resilience and its relationship to personality, and competencies against dependant variable outcomes of academic and career outcomes were hypothesised, and these hypotheses tested using different statistical tools. Three models were tested individually. Contextualisation of the models is toward the end of Chapter 5, showing whether each model was supported. The reason for applying a separate modelling process it is, as stated, desirable that the results will readily contribute to career service practice and as such, if the models were separated, they could be tested individually in order to provide greater applicability to practice, but still offer a unique contribution to knowledge. The Employment Model, for example, shows the relationships between career resilience, competencies, and personality against the dependant variable of employment outcomes – a highly important outcome for career services as described in Chapter 1 and Chapter 2. This is especially so for findings related to nonlinear employment outcomes, as this is against the backdrop of a revised skills agenda by employers, governments, and students in the light of the 4th industrial revolution and predicted increased digitisation. Nonlinear types of jobs are demarcated in the literature as more prevalent in the ‘future of work’. Therefore, the use of Discriminant Analysis to test the specific model of employment outcomes allows the study to provide predictive group membership of the group of the qualities of those who are more likely to have nonlinear jobs. The results will give indications of attributes that are more likely be aligned to future of work employment skills as well as those outlined in the literature such as in Chaos Career Theory (Bright and Pryor, 2011).

Chapter 4, Results I, presents the descriptive statistics of the sample and the results of the analyses for each research question using correlation analysis and t-tests. The second, Results II Chapter, 5, summarises the results obtained for these three separate models, and uses, regression and discriminant multi-variate analysis to help understand the relationships

within the three different areas of research. Regression analyses were undertaken to examine the relationship between the two continuous dependent variables and a discriminant for the dichotomous Discriminant Variable (DV).

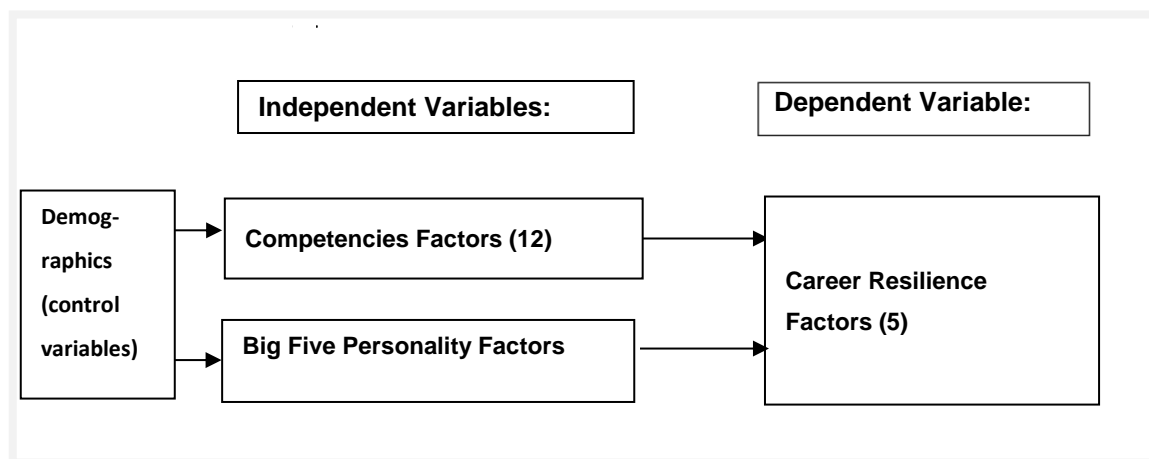
The data were analysed using SPSS version 20.0. Both descriptive and inferential statistics were used. The hypotheses were tested by Pearson's Correlation and t-tests. All hypotheses were tested at a significance level of 0.05 or better. Acceptance or rejection of the null hypothesis, when used, was based on the calculated test statistics and the value of the probability of significance (p-value). The null hypothesis was accepted if $p \geq 0.05$, and it was rejected if $p < 0.05$.

Terms used for dynamic careers include; *chaos, uncertain, nonlinear and non-permanent*

Correlation methods were used to consider the hypothesis in this study; they are first used to show the linear relationship between two continuous variables. The Pearson correlation coefficient was used in measuring the strength of this linear association between the variables in this analysis and is referred to as Pearson's *r*. Independent t-tests were also used (also called the two-sample t-test) to determine whether there was a statistically significant difference between the means in two unrelated groups within this study.

4.2 Career Resilience Model

Figure 4.1 The Career Resilience Model



A relationship between Competencies and Career Resilience Total was hypothesised, specifically:

H1.1 There is a relationship between Supra-Competency of Resilience and Adaptability and Career Resilience CR2 Factor of Adaptability and Risk

H1.2 There is a relationship between Supra-Competency of Achieving and Career Resilience CR3 Factor of Self Reliance

H1.3 There is a relationship between Supra-Competency of Energy and Initiative and Career Resilience CR3 Factor of Self Reliance

H2 There is a relationship between Extraversion and Career Resilience Total

H3 There is a relationship between Conscientiousness and Career Resilience Total

Achieving, Energy and Initiative are competencies linked to ambition and career growth, as identified by the literature (Chapter 3.6). The relationship between Career Resilience and Competencies were explored and presented in Table 4.1.

Hypothesis 1

Significant relationships were found between all competency scores and career resilience; Hypotheses; 1.1, 1.2 and 1.3: There are statistically significant strong correlations for Energy and Initiative, $r = .631$, and Achieving, $r = .606$ where both values show high significance with $p = .01$ where $n = 153$. The correlation results also show that Resilience and Adaptability has a moderately strong positive relationship with Career Resilience at $r = .537$, $p = .01$.

Hypothesis 1 is therefore supported by the findings in Table 4.1 and show that there are significant relationships between career resilience and the relevant competencies.

Table 4.1 Correlations between Career Resilience Total and Competencies

	CR Total
Strategic	.461**
Analysis	.578**
Planning	.364**
Leadership	.527**
Persuasive	.546**
Assertive	.535**
Sensitivity	.418**
Oral Communication	.401**
Resilience & Adapt	.537**
Energy & Initiative	.631**
Achieving	.606**
Business Sense	.359**

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

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

Big 5 Personality and Career Resilience

It was hypothesised that there is a significant relationship between the Big Five Personality and Career Resilience, specifically:

H2 There is a relationship between extraversion (as measured by Big Five) and Career Resilience

H3 There is a relationship between conscientiousness (as measured by Big Five) and Career Resilience

It can be seen from Table 4.2 that there are highly statistically significant correlations for the variables Extraversion, Conscientiousness, and Openness to Experience where $p=0.01$. Agreeableness is significant at the $p=0.05$ level and thus has a weaker relationship with Career Resilience.

Table 4.2 Correlations between Career Resilience Total and Big 5 Personality Factors

Extraversion	.555**
Agreeableness	.161*
Conscientiousness	.502**
Neuroticism	-.419**
Openness to experience	.553**

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

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

Extraversion is found to have a strong positive relationship with career resilience where $r=.555$ and also conscientiousness has a strong positive relationship where $r=.502$. It is interesting to note that the Big Five Personality Factor of Neuroticism is negatively correlated at a moderate to strong level with Career Resilience Factors ($r = -.419$), meaning the opposite pole Emotional Stability is positively related. Hypothesis 2 is supported because the findings show that there are significant relationships between career resilience and both Extraversion and Conscientiousness – although it is interesting to note that Openness to Experience also had a highly significant relationship with Career Resilience.

Big Five and Career Resilience - t-tests:

Independent-samples t-tests were conducted to test for differences between two groups – one with the 33% who had the highest total scores on Career Resilience and the 33% with the lowest scores. As discussed in Chapter 2, the rationale for a high vs low t-test is supported by the study by Boyatzis on his study of managerial competencies where he emphasises higher and lower ability in order to show expertise (Boyatzis, 2008). The results

shown in Table 4.3 comparing these High v Low scoring people on Career Resilience show there was a significant difference in all variables, except one – the Agreeableness factor.

Results of note were the significant differences between High and Low scorers on the Big Five Extraversion and Conscientious, where Extraversion results for CR were $t = -6.5$, $p = 0.001$, with Low CR Mean=3.1, SD=.4 whereas High CR was $M=3.6$, $SD=4.7$. The results for Conscientious also showed a significant difference between the groups with High Career Resilience and Low Career Resilience with $t = -6.4$, $p=.01$, where Low $M=3.4$, $SD=.52$ and High $MD=3.98$, $SD=.42$.

Other results also showed significance. Neuroticism can be observed with $t=-5.3$, $p=05$, and Openness to Experience $t = -6.0$, $p=001$.

In summary, there were significant differences between groups that had low CR scores compared to those that had high CR scores. These results suggest that Big Five does show significance in its relationship with Career Resilience, and in particular Extraversion and Conscientious, supporting hypothesizes H2 and H3.

Competency and High - Low CR Groups t-test

Results in Table 4.3 showed that there were significant differences between the two groups, where the High CR group scored higher on all competencies. In particular, the Energy and Initiative Competency showed the largest difference with High Career Resilience group having a higher mean score for this competency; Low ($M=3.1$, $SD= .42$), High ($M=3.9$, $SD =.55$), with $t = -7.826$, $p.001$.

In addition to Energy and Initiative showing a significant difference in career resilience as hypothesised in H1, the other two competencies in H1 were Achieving and Resilience. These two also showed a significant difference in group means, although not such high t-values: Achieving Low ($M=3.2$, $SD =.57$), High ($M=4.0$, $SD =.54$), with $t = -6.728$, $p.001$; Resilience Low ($M=3.2$, $SD=.43$) and High ($M=3.8$, $SD=.54$), with $t = -6.830$, $p.001$.

All competencies were significant. Two competencies of Persuasive and Leadership were hypothesised specifically for were based on predictions gained from the literature review in chapter two as core to this study. Findings show that those with low career resilience also had significantly lower results for these competencies; Persuasive; Low ($M=3.0$, $SD =3.1$), High ($M=3.8$, $SD =5.4$), with $t = -7.621$, $p.001$. Leadership; Low ($M=3.1$, $SD=5.8$) and High ($M=4.0$, $SD=.58$), with $t = -7.621$, $p.001$.

These findings support Hypothesis 1, as there are significant differences in means of the two groups on the three Competences, as hypothesised.

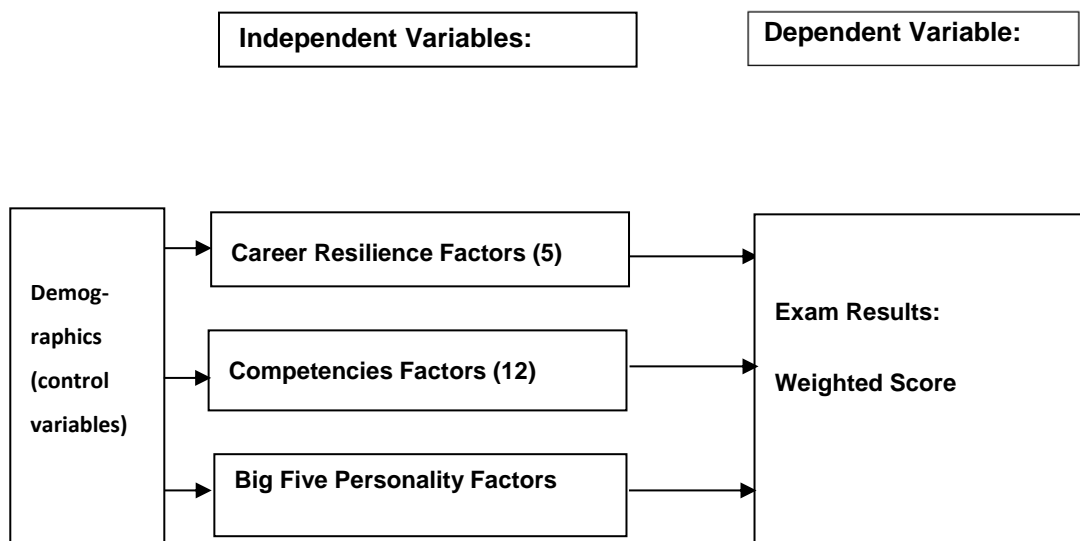
Table 4.3 Independent Samples t-test: Career Resilience Total (High 33% vs. Low 33%)

	CR Total Groups	Group Statistics			t-test for Equality of Means		
		N	Mean	Std. Dev	t	df	Sig.
Extraversion	Low	50	3.113	0.425	-6.516	100	0.000
	High	52	3.699	0.479			
Agreeableness	Low	50	3.718	0.364	-1.363	100	0.176
	High	52	3.833	0.479			
Conscientiousness	Low	50	3.384	0.521	-6.375	100	0.000
	High	52	3.982	0.423			
Neuroticism	Low	50	3.018	0.557	5.380	100	0.000
	High	52	2.418	0.567			
Openness to experience	Low	50	3.325	0.418	-6.001	100	0.000
	High	52	3.798	0.377			
Strategic	Low	50	2.900	0.763	-5.272	100	0.000
	High	52	3.738	0.838			
Analysis	Low	50	3.217	0.431	-6.754	100	0.000
	High	52	3.784	0.416			
Planning	Low	50	3.330	0.733	-3.991	100	0.000
	High	52	3.865	0.619			
Leadership	Low	50	3.170	0.586	-7.495	100	0.000
	High	52	4.039	0.584			
Persuasive	Low	50	3.070	0.525	-7.621	100	0.000
	High	52	3.875	0.541			
Assertive	Low	50	3.103	0.445	-5.437	100	0.000
	High	52	3.635	0.538			
Sensitivity	Low	50	3.573	0.543	-4.127	100	0.000
	High	52	4.039	0.593			
Oral Communication	Low	50	3.063	0.795	-4.107	100	0.000
	High	52	3.654	0.653			
Resilience & Adapt	Low	50	3.239	0.439	-6.830	100	0.000
	High	52	3.841	0.451			
Energy & Initiative	Low	50	3.173	0.427	-7.826	100	0.000
	High	52	3.946	0.558			
Achieving	Low	50	3.273	0.574	-6.728	100	0.000
	High	52	4.006	0.526			
Business Sense	Low	50	3.283	0.695	-4.008	100	0.000
	High	52	3.846	0.724			

4.3 Academic Success Hypotheses and Model

The second section of hypotheses explores the research question on the relationship with academic success, as measured by results from Masters programmes which all include individual coursework, group work, and exams. These results were collated, and a weighted result calculated by the university.

Figure 4.2 The Academic Success Model



The hypothesis tested for the academic model:

H4: There is a relationship between Career Resilience and Academic Success

H5: There is a relationship between Competencies (as measured by Supra Competencies) and Academic Success, specifically:

H5.1: There is a relationship between the Planning Competency (as measured by Supra Competencies) and Academic Success

H5.2: There is a relationship between the Oral Communications Competency (as measured by Supra Competencies) and Academic Success

H5.3: There is a relationship between the Analysis Competency (as measured by Supra Competencies) and Academic Success

H6: There is a relationship between Conscientiousness (as measured by Big Five) and Academic Success

Table 4.4 Correlations between Career Resilience Factors and Exam Weighted Total

	Exam Total
CR1 Positive self-concept	0.078
CR2 Adaptability & Risk	0.152
CR3 Self Reliance	0.057
CR4 Ambition & Networking	-0.117
CR5 Motivation to Learn	0.074

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

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

Table 4.5 Correlations between Exam Weighted Total and Competences

Strategic	0.018
Analysis	0.104
Planning	0.223**
Leadership	0.039
Persuasive	0.099
Assertive	0.028
Sensitivity	0.123
Oral Communication	0.181*
Resilience & Adapt	0.079
Energy & Initiative	0.095
Achieving	0.194*
Business Sense	0.139

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

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

Table 4.6 presents the correlations between Exam Weighted Total and the Big 5 Personality Factors. Conscientiousness is the only one of the five factors to be significantly correlated, highly at .01 level, with exam success.

Table 4.6 Correlations between Exam Weighted Total and Big 5 Personality Factors

Extraversion	0.021
Agreeableness	0.135
Conscientiousness	0.264**
Neuroticism	-0.114
Openness to experience	0.057

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

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

4.3.2 Independent Samples t-test

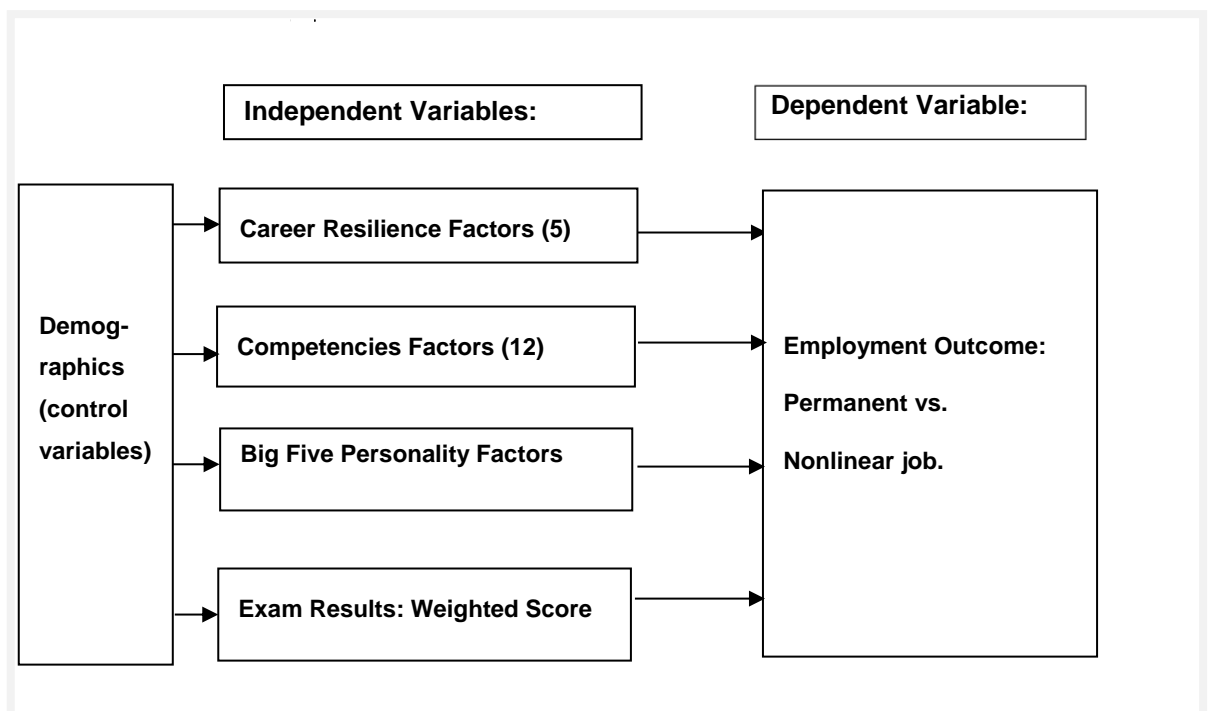
Comparing the two groups of High (Highest 33%) and Low (Lowest 30%) exam scorers for group means (see Table 4.7 overleaf) showed only two significant results, both at the $p < .05$ level; Conscientiousness, Low (M=3.5, SD=.482, High (M=3.86, SD=.411), $t(df=90) = 3.031$ and Oral Communication (Low M=3.271, SD=.664), High (M=3.602, SD=0.736, $t(90) = 0.736$. It should be noted that degree results at the end of MSc and MBA courses are calculated using both written Exam result and Group work results, which do, inter alia, require a high level of oral communications.

Table 4.7 Independent Samples t-test: Exam Total (High33% vs. Low30%) and Big 5 Personality Factors, Competencies, Career Resilience

	Groups	N	Mean	Std. Dev	t	df	Sig.
Extraversion	Low	43	3.411	0.493	0.308	90	0.759
	High	49	3.444	0.527			
Agreeableness	Low	43	3.763	0.380	1.364	90	0.176
	High	49	3.876	0.411			
Conscientiousness	Low	43	3.554	0.482	3.031	90	0.003
	High	49	3.866	0.503			
Neuroticism	Low	43	2.721	0.441	1.337	90	0.185
	High	49	2.564	0.651			
Openness to experience	Low	43	3.507	0.441	0.469	90	0.640
	High	49	3.551	0.456			
Strategic	Low	43	3.427	0.791	0.128	90	0.899
	High	49	3.449	0.868			
Analysis	Low	43	3.478	0.469	0.827	90	0.411
	High	49	3.560	0.481			
Planning	Low	43	3.579	0.642	1.323	90	0.189
	High	49	3.776	0.764			
Leadership	Low	43	3.688	0.636	0.161	90	0.872
	High	49	3.663	0.793			
Persuasive	Low	43	3.394	0.622	1.618	90	0.109
	High	49	3.612	0.664			
Assertive	Low	43	3.388	0.551	0.132	90	0.895
	High	49	3.372	0.538			
Sensitivity	Low	43	3.731	0.588	1.271	90	0.207
	High	49	3.884	0.567			
Oral Communication	Low	43	3.271	0.664	2.256	90	0.026
	High	49	3.602	0.736			
Resilience and Adapt	Low	43	3.610	0.489	0.334	90	0.739
	High	49	3.645	0.509			
Energy and Initiative	Low	43	3.587	0.581	-0.48	90	0.632
	High	49	3.646	0.599			
Achieving	Low	43	3.630	0.575	0.877	90	0.383
	High	49	3.735	0.573			
Business Sense	Low	43	3.478	0.698	-1.12	90	0.266
	High	49	3.667	0.891			
CR1 Positive self-concept	Low	43	0.044	0.953	0.916	90	0.362
	High	49	0.237	1.057			
CR2 Adaptability and Risk	Low	43	-0.127	0.922	1.623	90	0.108
	High	49	0.193	0.960			
CR3 Self Reliance	Low	43	0.001	0.919	0.899	90	0.371
	High	49	0.172	0.894			
CR4 Ambition and Networking	Low	43	0.137	1.073	1.476	90	0.143
	High	49	-0.186	1.025			
CR5 Motivation to Learn	Low	43	0.063	1.100	0.327	90	0.744
	High	49	0.133	0.965			

The results show no significant findings and suggest that academic outcomes are not influenced by most factors in this study. Indeed, as highlighted in the literature, an individual's previous academic ability is the best predictor of future success. There is some suggestion from these results that two variables are significant as Oral Communication and Conscientiousness are positively related to higher exam results. As discussed, the literature suggests that the Big Five Conscientiousness trait is a predictor of academic success. Oral Communication is a measure of academic success in this cohort given a large amount of group activity.

Figure 4.3 The Employment Model



The research question focusses on the influence personality, career resilience and competencies have on the employment outcomes of the sample population. The hypotheses formed from these questions are:

H7: There is a relationship between Career Resilience and type of Employment:

H7.1: There is a relationship between Career Resilience Factor 3 - Self Reliance and Employment

H8: There is a relationship between Competencies (as measured by Supra Competencies) and Employment, specifically:

H8.1; There is a relationship between the Achieving Competence and Employment

H8.2; There is a relationship between the Resilience Competence and Employment

H8.3; There is a relationship between the Energy and Initiative Competence and Employment

H9: There is a relationship between Openness to Experience (as measured by Big Five) and Employment

H10; There is a relationship between Conscientiousness (as measured by Big Five) and Employment

The literature showed that an individual more likely achieve their career outcomes will have higher self-efficacy and career resilience.

4.4 Employment Model – t-test

As discussed in the literature review, the traditional linear career pathway is diminishing as organisations and businesses adapt to the new world of work where increasingly careers are nonlinear and unpredictable (Hall and Mirvis, 2013). This part of the study examined the employment outcomes of this group of graduates. As such, the study examined key variables of personality and competencies against job outcome. Data gathered divided individuals into either graduates going into Traditional/Linear Jobs (jobs classified as those back in their previous organisations or in graduate programmes elsewhere or job contracts of longer than 12 months) or Nonlinear Jobs (jobs that were classified as short-term or business start-ups or further training or job contracts of less than 12 months). Independent t-tests were conducted to establish whether there were differences between these groups on the key variables of career resilience, personality, and competencies.

Table 4.8 presents the results of the t-tests conducted on this sample, which shows statistical significance differences between the groups. The nonlinear group (those graduates who were not in traditional jobs) reported higher scores on the following constructs: Conscientious (Sig = 0.04), Openness to experience (Sig = 0.04), Analysis (Sig = 0.01 and CR Factor 3 Self Reliance (Sig = 0.05). The significant differences between the groups suggest that those graduates who pursued jobs that were 'against the norm' and attempted to forge new career paths showed they had higher levels of Career Resilience, specifically CR3 Self-Reliance. In addition, competencies of Analysis are seen to be higher in this group, as well as Big5 Personality factors Conscientiousness and Openness to experience. These findings are also broadly supported by the findings in Model 3 reported in Chapter 5 later. Overall, H7, H8, and H9 were supported while H8.1, H8.2 and H8.3 were not.

Table 4.8 Independent Samples Test: Traditional vs Nonlinear Job and Big 5 Personality Factors, Competencies, Career Resilience

	Group Statistics				t-test for Equality of Means		
	Job:	N	Mean	Std. Dev.	t	df	Sig.
Extraversion	Nonlinear.	37	3.47	0.46	-0.28	90	0.78
	Traditional	55	3.50	0.56			
Agreeableness	Nonlinear.	37	3.72	0.47	1.37	90	0.17
	Traditional	55	3.85	0.45			
Conscientiousness	Nonlinear.	37	3.87	0.53	2.11	90	0.04
	Traditional	55	3.62	0.55			
Neuroticism	Nonlinear	37	2.66	0.63	0.09	90	0.93
	Traditional	55	2.67	0.59			
Openness to experience	Nonlinear	37	3.69	0.39	2.05	90	0.04
	Traditional	55	3.51	0.45			
Strategic	Nonlinear	37	3.55	0.96	1.28	90	0.20
	Traditional	55	3.32	0.79			
Analysis	Nonlinear	37	3.69	0.42	2.79	90	0.01
	Traditional	55	3.41	0.51			
Planning	Nonlinear	37	3.83	0.66	1.58	90	0.12
	Traditional	55	3.58	0.79			
Leadership	Nonlinear	37	3.60	0.90	0.02	90	0.98
	Traditional	55	3.60	0.61			
Persuasive	Nonlinear	37	3.58	0.70	0.69	90	0.49
	Traditional	55	3.48	0.65			
Assertive	Nonlinear	37	3.50	0.59	0.95	90	0.35
	Traditional	55	3.39	0.51			
Sensitivity	Nonlinear	37	3.89	0.51	1.16	90	0.25
	Traditional	55	3.74	0.64			
Oral Communication	Nonlinear	37	3.32	0.88	-0.87	90	0.39
	Traditional	55	3.46	0.67			
Resilience and Adaptability	Nonlinear	37	3.65	0.49	0.53	90	0.59
	Traditional	55	3.59	0.53			
Energy and Initiative	Nonlinear	37	3.68	0.53	0.8	90	0.42
	Traditional	55	3.58	0.66			
Achieving	Nonlinear	37	3.71	0.60	1.06	90	0.29
	Traditional	55	3.57	0.60			
Business Sense	Nonlinear	37	3.72	0.77	0.49	90	0.63
	Traditional	55	3.63	0.88			
CR1 Positive Self-concept	Nonlinear	37	0.11	0.91	-0.46	90	0.64
	Traditional	55	0.21	1.12			
CR2 Adaptability and Risk	Nonlinear	37	0.13	0.76	0.59	90	0.56
	Traditional	55	0.02	0.96			
CR3 Self Reliance	Nonlinear	37	0.36	1.00	1.9	90	0.05
	Traditional	55	-0.04	0.98			
CR4 Ambition and Networking	Nonlinear	37	-0.03	0.96	0.09	90	0.93
	Traditional	55	-0.05	1.14			
CR5 Motivation to Learn	Nonlinear	37	0.04	1.08	0.39	90	0.70
	Traditional	55	0.13	0.99			

4.5 Demographic Variables Hypotheses

H11: There will be no relationship between Gender and Employment

A Pearson Chi-Square was conducted on the Gender-Employment breakdown which appears in Table 4.9. The Chi value was .106, not significant at the .744 level, showing no relationship between Gender and Employment. The hypothesis was therefore supported.

Table 4.9 Gender-Employment Breakdown

Gender		Job:		
		Nonlinear	Perm.	Total
Male	Count	19	24	43
	Expected Count	18.2	24.8	43
	% within Gender	44.20%	55.80%	100.00%
	% within Trad Job	48.70%	45.30%	46.70%
	% of Total	20.70%	26.10%	46.70%
Female	Count	20	29	49
	Expected Count	20.8	28.2	49
	% within Gender	40.80%	59.20%	100.00%
	% within Trad Job	51.30%	54.70%	53.30%
	% of Total	21.70%	31.50%	53.30%
Total	Count	39	53	92
	Expected Count	39	53	92
	% within Gender	42.40%	57.60%	100.00%
	% within Trad Job	100.00%	100.00%	100.00%
	% of Total	42.40%	57.60%	100.00%

H12: There will be no relationship between Age and Employment

A point-biserial correlation was conducted between the age and employment variables, showing a coefficient of .042, not significant, at the .685 level of significance, i.e. no relationship. The hypothesis was therefore supported.

H13: There will be no relationship between Academic Success and Employment

Table 4.10. below shows that exam results do not show a significant difference between Employment groups and thus had little effect on job outcomes. The hypothesis was therefore supported.

Table 4.10 Independent Samples t-test: Traditional/Nonlinear and Exam Weighted Total

Grad Job:	Group Statistics			t-test for Equality of Means		
	N	Mean	Std. Dev	t	df	Sig.
Nonlinear	39	3.872	0.767	1.402	90	0.164
Traditional	53	3.642	0.787			

4.6 Summary Overview of Hypotheses Testing

A summary of whether each hypothesis is wholly, partially or not supported is presented in Table 4.11 below. It can be seen that a large majority (15) are wholly supported, two partially supported and four not supported. In the next chapter, the results for testing the three models are presented.

Table 4.11 Results of Hypothesis Testing

Hypotheses	Supported:	Wholly	Partially	Not
CAREER RESILIENCE MODEL				
H1 There is a relationship between Competencies and Career Resilience Total		X		
H1.1 There is a relationship between Supra-Competency Resilience and Adaptability and Career Resilience CR2 Adaptability and Risk		X		
H1.2 There is a relationship between Supra-Competency of Achieving and Career Resilience CR3 Self Reliance		X		
H1.3 There is a relationship between Supra-Competency of Energy and Initiative and Career Resilience CR3 Self Reliance		X		
H2 There is a relationship between Extraversion and Career Resilience Total		X		
H3 There is a relationship between Conscientiousness and Career Resilience Total		X		
EXAM MODEL				
H4: There is a relationship between Career Resilience Total and Exam Success				X
H5: There is a relationship between Supra-Competency and Academic Success				
H5.1: There is a relationship between the Supra-Competency Planning and Academic Success			X	
H5.2 There is a relationship between the Supra-Competency Oral Communication and Academic Success		X		
H5.3 There is a relationship between the Supra-Competency Analysis and Academic Success			X	
H6: There is a relationship between Conscientiousness (Big Five) and Academic Success		X		
EMPLOYMENT MODEL				
H7: There is a relationship between Career Resilience and Employment Outcomes		X		
H7.1: There is a relationship between Career Resilience CR3 Factor of Self Reliance and Employment		X		
H8; There is a relationship between Supra-Competencies and Employment				
H8.1; There is a relationship between Supra-Competency Achieving and Employment				X
H8.2; There is a relationship between Supra-Competency Resilience and Employment				X
H8.3; There is a relationship between Supra-Competency Energy and Initiative and Employment				X
H9: There is a relationship between Openness to Experience and Employment		X		
H10; There is a relationship between Conscientiousness and Employment		X		
DEMOGRAPHIC VARIABLES				
H11: There will be no relationship between Gender and Employment		X		
H12: There will be no relationship between Age and Employment		X		
H13: There will be no relationship between Academic Success and Employment		X		

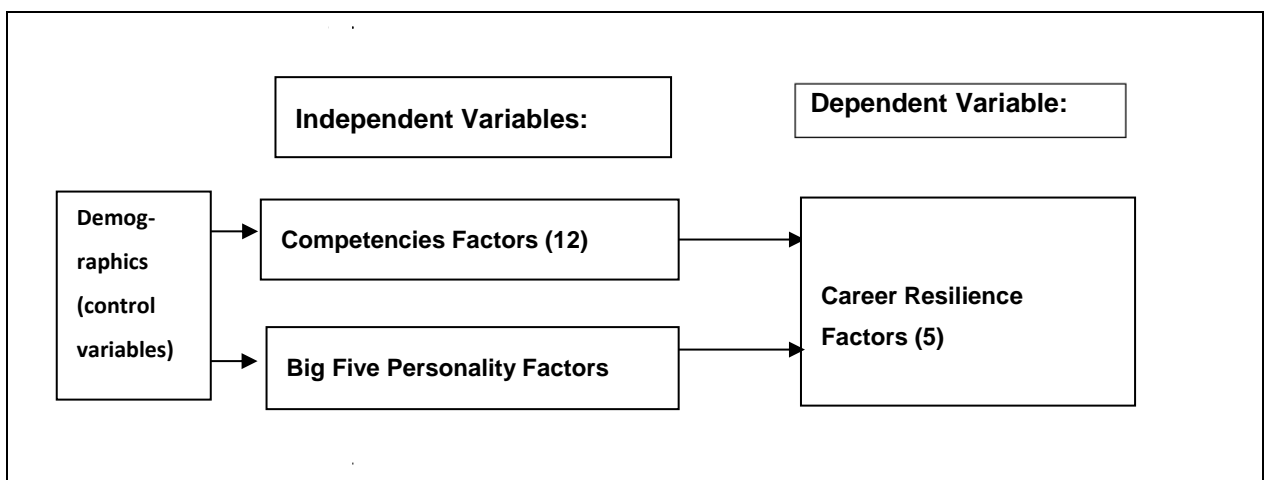
5 Results II: Model testing

5.1 Introduction

In this chapter, the results of testing the three models, Career Resilience, Academic Success and Type of Final Employment, are presented. They were tested using hierarchical multiple regression and discriminant analysis. Details of the results appear in the following sections.

5.2 Testing Model 1 Career Resilience: Regression analysis

Figure 5.1 The Career Resilience Model



The Career resilience model is presented above in Figure 5.1. The Control Variables are age and gender, the Independent Variables are the competencies and Big 5 personality factors and the Dependent Variable the total score on Career Reliance.

The Regression method is used in statistical analysis in order to explain the variation in a dependent variable using the variation in independent variables. Thus, in order to determine the strength of these relationships and which of these scores are more influential in predicting Career Resilience (CR), multiple regression was conducted by entering the predictor's Demographics, Competencies, and Big Five Personality factors.

Using the hierarchical regression method, it was found that the Competencies and Big Five Personality explain a significant amount of the variance on Career Resilience. The results shown in Table 5.1, yielded significant multiple correlations with $R = .811$ for Model 3, with an R^2 of .657, which shows the model accounts for 65.7% of the variance. From the model, the variables of Age and Gender are shown not to be significant; Sig F changes .121 at level 12% level. The most significant changes in the model as measured by Sig F were at levels 2 and 3, with Big5 Personality and Competencies (both with Sig F = <.001). Within this model,

the greatest change in F was from level 1 to 2, with the addition of Competencies, which shows the biggest change in R² from 2.8% to 59.9%. Personality factors added another 5.8% of the variance

Table 5.1 Hierarchical Regression: DV Career Resilience

Model	R	R Square	Change Statistics:				Sig. F Ch.
			R Sq. Change	F Change	df1	df2	
1 Demographics	.168a	0.028	0.028	2.144	2	148	0.121
2 +Competencies	.774b	0.599	0.571	16.146	12	136	0.001
3 + Big 5							
Personality	.811c	0.657	0.058	4.434	5	131	0.001

a Predictors: (Constant), Age, Gender M1 F2
 b Predictors: (Constant), Age, Gender, Competencies
 c Predictors: (Constant), Age, Gender, Competencies, Big 5 Personality

From Table 5.2 the ANOVA (analysis of variance) results show there is no significance at Level 1 of the model for gender and age. There is statistical significance at both of the other levels of the model, with both highly significant, $p < .001$. The largest Mean Square is at level 2, 32.217. This suggests that age and gender are not influencing factors on the model while models 2 and 3 show a good fit to the data.

Table 5.2 ANOVA Career Resilience

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.191	2	10.596	2.144	.121a
	Residual	731.576	148	4.943		
	Total	752.767	150			
2	Regression	451.038	14	32.217	14.521	.001b
	Residual	301.73	136	2.219		
	Total	752.767	150			
3	Regression	494.706	19	26.037	13.217	.001c
	Residual	258.061	131	1.97		
	Total	752.767	150			

Whilst the tests show that the results were significant, it is also important to consider which of the predictor variables' weightings contribute to this result from the Coefficients table (Table 5.3.) which only shows Model 3, with all of the variables included. The analysis shows that weightings of most of the level of the variables did not significantly contribute to Career Resilience. However, the weighting of Extraversion was significant as predicted (Beta = 1.2, t= 3.673, p < .001), as were two other variables: Achieving (Beta =.796, p<0.05) and Assertiveness (Beta, .79, p<0.05).

Table 5.3 Coefficients for Career Resilience Factors Total

Model3	Unstandardized:		Standardized		Sig
	B	Std. Error	Beta	t	
(Constant)	19.208	2.418		-7.945	0.000
Gender M1 F2	-0.116	0.259	-0.026	-0.449	0.654
Age	0.039	0.032	0.066	1.195	0.234
Strategic	0.247	0.174	0.093	1.417	0.159
Analysis	0.273	0.417	0.058	0.654	0.514
Planning	-0.321	0.238	-0.101	-1.350	0.179
Leadership	-0.059	0.242	-0.019	-0.244	0.808
Persuasive	0.377	0.268	0.107	1.406	0.162
Assertive	0.673	0.299	0.159	2.250	0.026
Sensitivity	0.119	0.254	0.031	0.468	0.641
Oral Communication	0.208	0.216	0.066	0.963	0.337
Resilience and Adapt	0.516	0.331	0.116	1.560	0.121
Energy and Initiative	0.116	0.343	0.029	0.337	0.737
Achieving	0.796	0.337	0.212	2.361	0.020
Business Sense	-0.245	0.181	-0.089	-1.350	0.179
Extraversion	1.204	0.328	0.263	3.673	0.000
Agreeableness	0.175	0.325	0.032	0.539	0.591
Conscientiousness	0.473	0.322	0.116	1.468	0.144
Neuroticism	0.187	0.279	0.049	0.672	0.502
Openness to experience	0.593	0.369	0.117	1.607	0.110

Dependent Variable: CRF Total

5.3 Testing Model 2 Academic Success: Regression Analysis

Figure 5.2 Academic Success Model

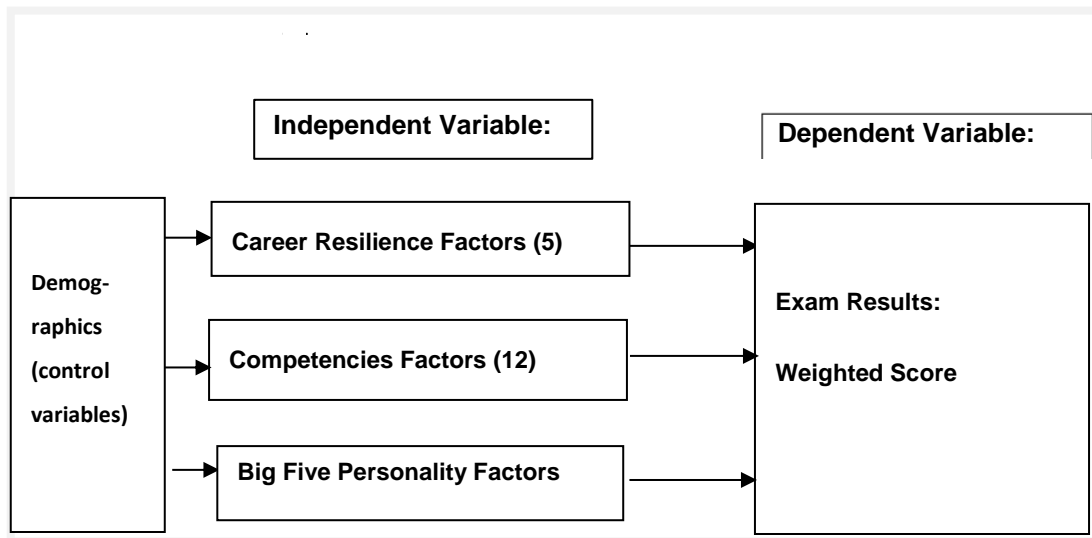


Table 5.4 Hierarchical Regression: DV Exam Weighted Total

Model Summary							
Model	R	R Square	Change Statistics			Sig. F	
			R Sq. Change	F Change	df1	df2	Ch.
1 Demographics	.050a	0.003	0.003	0.179	2	141	0.836
2 + CR	.230b	0.053	0.051	1.451	5	136	0.210
3 + Comps	.349c	0.122	0.069	0.809	12	124	0.640
4 + Big 5	.392d	0.154	0.032	0.894	5	119	0.488

a Predictors: (Constant), Age, Gender

b Predictors: (Constant), Age, Gender, Career Resilience

c Predictors: (Constant), Age, Gender, Career Resilience, Competencies

d Predictors: (Constant), Age, Gender, Career Resilience, Competencies, Big 5 Personality

The results of this regression model are shown in Table 5.4. For Model 4 with all predictor variables entered, there is an R of .392, and an R² of .154, which means that 15.4% of the variance on Exam Total Result can be explained by these independent variables. None of the F Change values is statistically significant.

The ANOVA results in Table 5.5. support the above findings. No significant relationships were found in the model, which therefore does not fit the data.

Table 5.5 ANOVA results

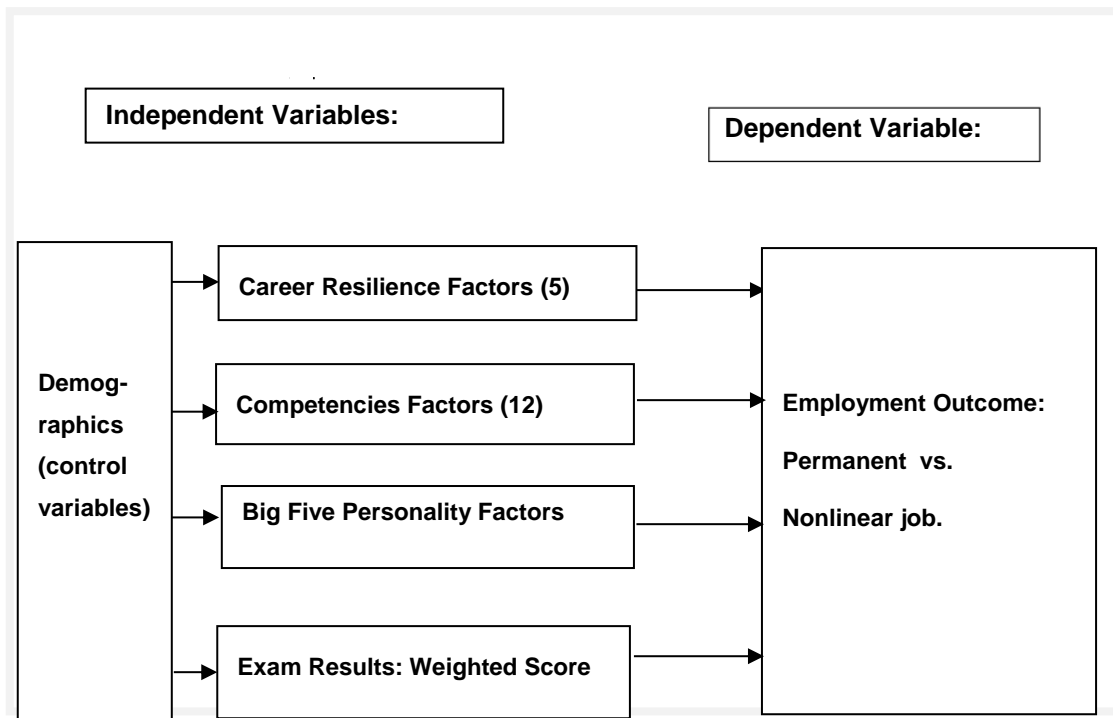
Model		Sum of Squares	df	Mean Squ.	F	Sig.
1	Regression	14.879	2	7.44	0.179	.836a
	Residual	5853.156	141	41.512		
	Total	5868.035	143			
2	Regression	311.257	7	44.465	1.088	.374b
	Residual	5556.778	136	40.859		
	Total	5868.035	143			
3	Regression	714.931	19	37.628	0.905	.577c
	Residual	5153.105	124	41.557		
	Total	5868.035	143			
4	Regression	901.451	24	37.56	0.9	.602d
	Residual	4966.584	119	41.736		
	Total	5868.035	143			

The results for Model 4, shown in Table 5.6. indicate there are no significant t-values from the data for the standardized Beta Coefficients. None even reached the 10% level of significance. As nothing is significant therefore the r-square value from earlier is of less value to practice.

5.4 Testing Model 3 Employment Outcomes: Discriminant Analysis

The Employment Outcomes model is presented in Figure 4.3. The Control Variables are age and gender, the Independent Variables are Career Resilience, the Competencies, and Big 5 personality factors, and the Dependent Variable is Employment Outcomes.

Figure 5.3 Employment Model



Why use Discriminant Analysis

Discriminant Analysis was used as it has various benefits as a statistical tool and can determine which predictor variables are related to the dependant variable. Discriminant Analysis also builds a predictive model for group membership. According to Brown and Wicker (2000) "Discriminant analysis evaluates the degree to which such variables differentiate the groups, hence the name "discriminator variables." The effectiveness of the discriminant analysis depends on the extent to which the groups differ significantly on these variables". Therefore, the decision to select certain variables as potential discriminator variables is critical to the success of discriminant analysis. The purpose of discriminant analysis is to maximally separate the groups and to determine the most parsimonious way to separate groups and to discard variables which are little related to group distinctions.

Discriminant analysis was conducted on two groups as with t-test analysis, 'Traditional vs Nonlinear', to see if Nonlinear jobs would differ from traditional jobs and if so, would differ significantly on a linear combination of three sets of variables; career resilience, competencies scores, and Big Five Personality scores. Discriminant analysis was used to further analyse the findings from the t-test (see Chapter 4) and was assessed by an 'adequacy a classification of individuals' technique, based on the weighted scores function produced.

5.5 Results of Traditional vs Nonlinear Job

The discriminant groupings are explained on the basis of employment outcomes. This study examines key independent variables of personality and competencies against the dependent variable of job outcome – divided into either graduates going into traditional Jobs (as discussed these are jobs which were longer-term and permanent) or Nonlinear Jobs (jobs that were classified as short-term, business start-ups or temporary). A discriminant analysis was conducted to predict whether a graduate entering nonlinear jobs would have different attributes with graduates who entered traditional jobs. Predictor variables were personality (Big 5), competencies and career resilience factors.

The output from Discriminant Analysis included the Standardized Canonical Discriminant Function Coefficients, the Structure Matrix, and Case classification technique showing correct and incorrect groupings.

The Standardized Canonical Discriminant Function is the coefficients table. Interpretation of the discriminant coefficients (or weights) is similar to that in multiple regression. As such they allow comparison of variables measured on different scales. Coefficients with large absolute values correspond to variables with greater discriminating ability. Table 5.6., provides an index of the importance of each predictor, in rank order, similar to the standardized regression coefficients in multiple regression. The sign indicates the direction of the relationship.

As with multiple-regression beta loadings, 0.30 is seen as the cut-off between important and less important variable weightings (Hair 2006, 2014). Three variables with large coefficients stand out as those that strongly predict allocation to the 'traditional job' or 'nonlinear job group: The Analysis competency score has the highest weighting at -.767, a negative weighting for traditional jobs takers; CR1 Positive self-concept at -0.589; Oral Communication at -.562 is a negative weighting for Nonlinear jobs; Other relatively high values are: Sensitivity at 0.476; Conscientious at -.453 and Achieving at -.443, both negative. Exam Total at .354 was also relatively high and noteworthy.

Table 5.6 Standardized Canonical Discriminant Function Coefficients

	Function 1
Analysis	0.767
Sensitivity	0.476
Conscientiousness	0.453
Exam Weighted Total	0.354
Strategic	0.303
Assertive	0.263
Planning	0.215
Openness to experience	0.122
CR3 Self Reliance	0.091
Extraversion	0.086
Energy and Initiative	0.029
Business Sense	0.025
Neuroticism	-0.010
CR4 Ambition and Network.	-0.013
Resilience and Adaptability	-0.056
Persuasive	-0.064
CR5 Motivation to Learn	-0.072
CR2 Adaptability and Risk	-0.220
Leadership	-0.312
Agreeableness	-0.388
Achieving	-0.443
Oral Communication	-0.562
CR1 Positive self- concept	-0.589

Findings can be compared to the Structure Matrix in Table 5.7 which also shows the variable classification in rank order. Many researchers use the Structure Matrix because it is considered to be more accurate than the Standardized Canonical Discriminant Function Coefficients because it separates (discriminates) between variables within two groups more explicitly (Agresti, 1996). The structure matrix table shows the correlations of each variable with the discriminant function. The correlations then are similar to factor loadings in factor analysis. Therefore, by identifying the largest absolute correlations associated with each discriminant function the researcher gains insight into how to name each function. Hair (2006, 2014) state that for the Discriminant Analysis Structure Matrix values of .3 and above a statistically important difference.

The results are similar to the t-test results in Chapter 4, regarding the highest loadings for each Discriminant function. This study shows Analysis, Openness to experience, CR3 Self

Reliance and Conscientiousness have the largest loadings on the function that best discriminates between Nonlinear and traditional jobs, with positive loadings for Nonlinear jobholders. A closer analysis of the Structure Matrix in Table 5.7 revealed four major loadings, namely Analysis .508, Openness to experience .351, Career Resilience Factor 3 Self Reliance .341 and Conscientiousness .338. Hair (2006, 2014) also state that values below the .03 level but above the .2 level are worthy of attention. In this study such variables are: Planning =.277, Sensitivity =.244, Strategic =.231, Achieving =.227 and Agreeableness =.226. Variables such as Career Resilience F5 Motivation to Learn and F4 Ambition and Networking are clearly not loaded on the discriminant function, i.e. the weakest loadings, and suggests that they are not associated with job type but are a function of other unassessed factors.

Table 5.7 Discriminant Analysis Structure Matrix: Traditional/Nonlinear: Career Resilience, Competencies, Big 5, Exam Weighted Total

	Function 1
Analysis	0.508
Openness to experience	0.351
CR3 Self Reliance	0.341
Conscientiousness	0.338
Planning	0.277
Sensitivity	0.244
Strategic	0.231
Achieving	0.227
Agreeableness	-0.226
Assertive	0.191
Energy & Initiative	0.186
Persuasive	0.169
CR2 Adaptability & Risk	0.153
Exam Weighted Total	0.151
Business Sense	0.143
Resilience & Adapt	0.115
CR1 Positive self-concept	-0.102
Neuroticism	-0.073
Oral Communication	-0.071
Leadership	0.045
Extraversion	0.022
CR4 Ambition & Networking	0.022

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions. Variables ordered by absolute size of correlation within the function.

Case classification is used here to assess how effectively the discriminant function works, and if it works equally well for each group on the dependent variable. Table 5.8 shows that this Discriminant Analysis correctly classifies 77.2% of the cases overall. Of the Nonlinear jobs, 79.5% were correctly classified while 75.5% of the Traditional jobs were. 'Ungrouped cases' refers to the other individuals for whom job data was not available.

Table 5.8 Classification Results

	Grad Job	Predicted Group Membership:		
		Not Perm.	Perm.	Total
Count:	Nonlinear	31	8	39
	Traditional	13	40	53
	Ungrouped cases	23	30	53
Percentages:	Nonlinear	79.5	20.5	100
	Traditional	24.5	75.5	100
	Ungrouped cases	43.4	56.6	100

N.B. 77.2% of original grouped cases correctly classified.

According to many experts in Discriminant Analysis such as Hair (2006, 2014), the comparable calculated hit ratio must be higher than what could be achieved by chance. If two samples are roughly equal in size, then we have a 50/50 chance. As 77.2% of cases have been correctly classified in this study, the case classification is far better than chance and thus merits further attention for theoretical and practical work.

Table 5.9 Summary of Results of Regression and Discriminant Analysis

	Career Resilience	Academic Success	Employment
Percent of DV Variance explained	65.7%	15.4%	Not Applicable
ANOVA (sig.)	Model 2 Competencies	Not significant	Not Applicable
	Model 3 Personality		
Classification Rate	Not Applicable	Not Applicable	77.2%
Ind. Vars./Predictors:			
Personality	Extraversion		Openness to Experience
			Conscientiousness
Competencies	Assertive		Analysis
	Achieving		Achieving
			Sensitivity
			Oral Communication
Career Resilience	Not Applicable		CR1 Pos. Self-concept
			CR3 Self Reliance

5.6 Summary of chapter

Three separate models were developed to consider three areas of analysis; career resilience, academic success and employment outcomes.

Results I presented the descriptive statistics of the sample and the results of the analyses for each research question using correlation analysis and t-tests.

Results II summarized the results obtained for these three separate models and used regression and discriminant multi-variate analysis to help understand the relationships within the three different areas of research. Regression analyses were undertaken to examine the relationship between the variables and a discriminant analysis for the categorical dependant variable.

A summary of the results of the Hierarchical Regression and Discriminant Analysis is presented in Table 5.9. The Dependent Variables (DVs) are Career Resilience, Academic Success, and Employment Outcome respectively. The percentage of the variance on the DVs and the significance of ANOVA results by model appear in the first two rows. The rate of the successful classification of individuals to groups in the Discriminant Analysis appears in the third. The Independent Variables, constructs of note with significant standardised beta weights appear in the first two columns and those with values above 0.3 from the Canonical Coefficients and Structure Matrix from the Discriminant Analysis appear in the third. They are listed according to Personality, Competencies and Career Resilience. These results are supported by the employment t-tests also with the significant items on the discriminant analysis also seen as significant on the t-test. The data were analysed using SPSS version 20.0. Both descriptive and inferential statistics were used. The hypotheses were tested by Pearson's Correlation and t-tests. All hypotheses were tested at a significance level of 0.05 or better. Results showed that Age and Gender were controlled for and there was no significance in findings.

This chapter presented the results using research quantitative techniques including correlations, regression analysis and t-tests. The research hypotheses related to the initial model were then addressed. The findings from model one and two showed that career resilience has a strong correlation between competencies and personality, but that academic outcomes are broadly not significantly related to personality, competence or career resilience or related to employment outcomes. For model three, the results showed that employment outcomes were comparing two groups; nonlinear/dynamic and traditional/permanent career choices and those that chose dynamic careers were individuals in choosing career paths that contain greater change and uncertainty at outset, had highly significantly differentiated qualities to those that chose traditional careers. Chapters 4 and 5 presented the results of the study, which will be discussed in the next chapter, 6.

6 Discussion

The search for life purposes and meanings, the journey to actualise oneself through various life and work-related roles, and the efforts by nations to deal with problems of employment and unemployment, are examples of universal issues

(Leung, 2008, 115)

6.1 Introduction

This study aims to contribute to three main fields of careers research; the field of employability research, the field of personality and career development research, and the field of career resilience research. Indeed, the motivation for undertaking this doctorate was to extend the research base within the field and to enhance the career tools to develop employability and career development - for a changing, more uncertain working world. The study is to provide food for thought to career professionals (both practitioners and researchers) by providing insights on career planning for the new world of work, with the expected increased emphasis on digitisation, automation and machine learning (Steiber and Alänge, 2016). It is hoped that the study will contribute to the policy and practice of career development, as well as highlight key areas of skills growth and progression to meet the challenges on the horizon with the anticipated changes in the world of work.

This chapter discusses the contextualisation of research models and how they were used as a process for estimating the relationships among the variables in the study, and to focus on the relationship between a dependent variable and the independent variables. The models, as previously discussed, are based on three independent variables and each model had separate dependant variables. The third model which considers findings on employment outcomes has greater analysis, as it will be of interest to career professionals in careers practice. This chapter also details the academic contributions of the study to demonstrate additional and new knowledge to this field. In addition, the chapter discusses a new careers model which has been developed from this research which can be applied in a service setting both within universities and employers (such as within HR and people development settings), as it shows specific qualities associated with career uncertainty, which are also mapped to future of work skills. These align to the critical skills required by organisations as discussed in Chapter 2 and bring together fields of study that have been lacking in literature, that is the connection of career development *with* organisation strategy.

6.2 Career Resilience Scale Development

The literature on the field of career resilience is scarce but is rapidly growing, possibly as a response to increased research interest in the impact of the pace of change in the workplace and how people will be able to withstand changes they will experience. Bimrose and Hearne (2012, 338–344) state that

Individuals' career development is no longer viewed as linear and hierarchical, but multifaceted, unstable, cyclical, and transitional over the life courses {and} this highlights the need for career counselling to help individuals develop strategies, like resilience and career adaptability, so that they might navigate better volatile labour markets.

Career resilient behaviours have been defined as critical to working in a new work-world economy and exhibit career behaviour that is moving into emergent (volatile and unstable) careers from traditional (stable and fixed) careers and therefore develop greater career self-management (Krumboltz, 1998). Thus, an important contribution to the careers field from this study is the development of an adapted *five-factor scale to measure career resilience*. The scale will need to be further tested, as discussed. This cross-correlates to the supra-competency scale, and Big Five personality scale and confirmed construct validity. The scale used in this DBA study was adapted from London and Noe's (1997) scale for career resilience, where London (1993) described career resilience as the ability to recover from vocational adversity. As discussed in Chapter 2, the scale developed by London consists of three sub-domains;

(a) *self-efficacy*; adapted from Self-Efficacy Theory (Bandura, 1977) which places emphasis on an individual self-belief in themselves that they have the ability to accomplish goals;

(b) *risk-taking*; developed from London's research that showed that people who are comfortable with uncertainty are able to take risks, even when uncertain of outcomes in order to achieve career goals. London suggests these individuals display higher levels of career resilience (London and Mone, 1987);

(c) *autonomy/independence*; described by London and Noe (1997) as the extent to which an individual feels they have agency over their own career path and exercises their own choice, therefore indicating career resilience, i.e., those with higher levels of autonomy and internal locus of control, will have higher career resilience.

In more recent work, London (2014) states that Career Resilience is needed for modern workers who are now subject to greater work-based change and volatility. London argues workers need develop an approach that overcomes career barriers caused by change using career resilience and developing personal resources, such as being more risk-orientated.

In Chapter 2 the literature review showed that modern career theory suggested resilience was related to behaviours described as those needed in an emergent world of work. The emergent new world of work was described in post-modern career theory as increasingly changeable, impermanent and uncertain. These were particularly espoused in Chaos Theory of Careers and Protean Careers Theory. These two theories, and similar modernists and contemporary career theorists, advocate that in a more dynamic working world individuals are not bound to one job or one career, but instead are now part of career change and career impermanence (Arthur and Rousseau, 1996). Thus, the increased emphasis of self-reliance on an individual to navigate career changes (and react positively to such changes) will require high levels of career resilience. Indeed London (2014) suggests qualities such as being conscientiousness are purposeful, determined, and will enable higher resilience. People in possession of such qualities believe in themselves, need to achieve, are willing to adapt to career changes. Furthermore, as discussed in the literature review, an individual's life experiences influence their cognitions of themselves and the world. Lent, Brown and Hackett, (2000) in their Social Cognitive Career Theory (SCCT), proposed that an individual's personal cognitions and perceptions establish their career expectations, and these will be higher or lowered by external influences on their own self-efficacy. A revised SCCT theory also emphasised the influence of internal input of career development such as key behaviours that influence in career success and adaptive career behaviours i.e., *personality and competencies*. These behaviours according to Lent (2017) reflect that an individual has personal agency and thus needs to be more *Self-reliant* and have *Ambition* (Lent and Brown, 2013). As Lent et al. (2000) suggests, self-reliance is a highly significant career-growth quality, saying that having self-reliance offers contextual support to overcoming barriers to career development and enable people to adapt and renew to different circumstances.

To show the literature support for the career resilience scale, Table 6.1 shows the considerable literature in this area against the specific factors. The adapted five-factor career resilience scale developed in this study incorporates the London and Noe's scale (London and Noe, 1997), and the importance of career self-reliance (Waterman et al 1994) as well as career self-management adaptive behaviours and SCCT (Lent, Brown, and Hackett, 2000). In addition, there is literature support from Savickas (1997); and his Career Adapt-Abilities Inventory (CAAI). As discussed in Chapter 3 Methodology, following the factor analysis, the scale was shown to have reliability as tested using Cronbach Alpha. Additionally, the scale was examined for both content and construct validity. (McLeod, 2018).

Table 6.1 Literature support for the factors in the adapted career resilience scale

Career Resilience Factor	Literature Links
1. Career Resilience Factor 1 (CRF1): Positive Self Concept	London, 1983, 2014; self-efficacy (with constructs of self-esteem, internal locus of control, initiation, and creativity) Betz and Hackett 1997; Self-efficacy career theory and self-efficacy Bright and Pryor; Chaos Theory of Careers (2011) and self-understanding
2. Career Resilience Factor 2 (CRF2): Adaptability and Risk	London, 1983, 2014; risk-taking (with constructs of the need for security, tolerance of uncertainty and ambiguity and management)
3. Career Resilience Factor (CRF3): Self-Reliance	London, 1983, 2014; autonomy (with constructs self-management) Lent and Brown, 2013; Career Theory Self-Management (CTM), with constructs of self-efficacy, outcome expectations, and goals Waterman et al, 1994; and the importance of career self-reliance Bright and Pryor; Chaos Theory of Careers (2013), and being self-driven in chaos and uncertainty Kossek et al. (1998) career self-management to progress King (2004) defining three types of career self-managing (reliance) 'positioning' behaviours
4. Career Resilience Factor 4 (CRF4): Ambition and Networking	Savickas, 1997; Career Adapt-Abilities Inventory (CAAI)- networking Bright and Pryor; Chaos Theory of Careers (2011) Lent and Brown, 2000, 2013; SCCT's <i>career self-management adaptive behaviours</i> (career advancement, negotiation of work transitions and multiple roles) Savickas, 1997; Career Adapt-Abilities Inventory (CAAI); explore surroundings
5. Career Resilience Factor 5 (CRF5): Motivation to Learn	Lent and Brown, 2000, 2013, 2017; SCCT; Self-efficacy to learn Lent and Brown, 2013; Cognitive model of career self-management (CTM), with constructs of learning, outcome expectations, and goals Bright and Pryor; Chaos Theory of Careers (2013) Savickas, 1997, 2013; Career Adapt-Abilities Inventory (CAAI); aware of the educational and vocational choices they need to make, the ability to learn new skills

Content Validity of the Five-Factor Scale

Content validity has been described as “the relevance of test content to a content universe.” (Fitzpatrick, 1983), and as such the factors used in the scale are supported in careers literature on career resilience as shown in Table 6.1. Further support for these competencies can be found with the American Psychological Association who describe factors in general resilience on their website which all relate to key findings in the relationship between career resilience, Big Five personality, and supra-competencies;

- Building personal networks and supportive relationships (linked to CRF4)
- The capacity to make realistic plans and take steps to carry them out (linked to CRF3, CRF2)
- A positive view of self and confidence in your strengths and abilities (linked to CRF1)
- Skills in communication and problem-solving (linked to CRF3)
- The capacity to manage strong feelings and impulses (linked CRF3)

Source: American Psychological Association, the Road to Resilience, 2015

Construct validity of a measure is generally established by considering other measures and comparing the correlations and patterns of correlations between variables (Westin and Rosenthal, 2003). Accordingly, the findings of this study show that the Career Resilience Scale has construct validity - as shown by the correlation with the Big Five Personality scale - the scales related to career resilience and this finding is supported in the literature, (Fayombo, 2010; Oshio et al., 2003). More specifically, the findings in this study found that correlation results (using Pearson Product Moment Correlation) support the literature on personality and resilience, as the results showed that there are highly statistically significant positive correlations for the variables Extraversion, Conscientiousness, and Openness to Experience and a high negative correlation for Neuroticism against Career Resilience Total. Agreeableness is seen to be significant and has, as expected for each finding, a weaker relationship with career resilience. For example, in a study on undergraduates, Nakaya et al. (2006) suggested that certain personality traits can partially predict resilient behaviours in students. Zhang (2011) found that in a large study of Chinese students there was a high correlation between resilience and Big-Five personality. Zhang (2011) further suggests that resilience can be predicted by personality. The literature on personality and resilience suggest that positive correlations will be found with Extraversion, Openness to Experience, Agreeableness and Conscientiousness, and a negative correlation with Neuroticism. This assumption was supported by a recent study by Friborg et al. (2005) using Big Five and

resilience, which found that people with a high score of a 'well-adjusted personality profile' in their sample also had higher correlations to personal resilience. Their study also found the group who scored higher in the well-adjusted personality also had low scores of Neuroticism. In this study, Career Resilience scale was shown in fact to be correlated with all Supra-Competencies. The correlation with the Supra-Competency scale indicated that there are, as expected, against the Career Resilience Total, statistically significant strong correlations for *Energy and Initiative*, *Oral Communication*, and *Achieving*, and that correlation results also show that *Analysis* has a moderate-strong positive relationship with Career Resilience. This is supported within careers literature on the competencies needed in career resilience (Collard et al., 1996; Lent and Brown, 1996; London and Noe 1997; Brown et al. 2012; Bimrose and Hearne, 2012).

With regards to the coefficients for Career Resilience Factors, whilst the tests show that the results were significant, it is also important to consider which of the predictor variables' weightings contribute to this result from the Coefficients table. The analysis shows that weightings of most of the level of the variables did not significantly contribute to Career Resilience. However, the weighting of *Extraversion* was highly significant. Two other variables: *Achieving* and *Assertiveness* were also significant.

6.3 Academic Success

The findings of this study are supported by the literature on several factors that affect academic outcomes, such as personality and competencies, rather than more direct influences such as IQ and outcomes of previous exams. Achievement and Planning Competencies were examined in a study by Van Yperen et al. (2013) who found that Conscientiousness was related to academic outcomes, as well as having an 'Achievement-orientation', which in its definition includes 'Planning' as an essential factor in predicting exam success within an achievement goal framework. The findings on academic outcomes in the study testing hypotheses showed the *Planning* competence has a significant relationship with Exam Total. In addition, positive relationships were found between Exam Total and the Competencies of *Oral Communication* and *Achieving*, as highly significant. In addition, in the regression model showed (that also included Big Five Personality), there was an explanation of variance on 15.4% on exam outcomes from competency and personality. This is a relatively significant explanation of the variance and could be important when considering the small margins that students have in grade boundaries. The data provided in the study showed the correlations between Exam Weighted Total and the Big 5 Personality Factors and that Conscientiousness was the only one of the five factors to be significantly correlated, highly at .01 level, with exam success. Comparing the two groups of High

(Highest 33%) and Low (Lowest 30%) exam scorers for group means showed similar two significant results; Conscientiousness, and Oral Communication for students who had higher exam results. This finding is supported in the literature where Conscientiousness was highlighted as an important behavioural factor for people in achieving academic goals (Noftle and Robins, 2007). However, the results also show that none of the F Change values is statistically significant. Thus, the findings of the study are supported by the literature in that 'working hard, planning well and staying focused on academic achievement' does impact on grades. Oral Communications are shown to be of significance to social science students as they need to also display verbal cognitive abilities to succeed, given the interactive and face-to-face type of study. Nevertheless, only two significant results were found in the t-tests, while the model was not supported by the ANOVA. Therefore 85% of academic success is accounted for by other factors, which is an important finding.

6.4 Employment outcomes with Career Resilience and comparisons of nonlinear and traditional careers

The findings in the study showed clear differences in outcomes for employment when using discriminant analysis, t-tests and regressions. For example, the results show differences in traits for those pursuing nonlinear jobs and those pursuing permanent jobs. These findings present thought-provoking perspectives for career practitioners to compare two distinct career paths, both in their nature and the type behaviours shown in the people pursuing. Of significance was the role of career resilience in employment outcomes. The Career Resilience model testing showed that the hypotheses of relationships between Competencies and Career Resilience Total were wholly supported. As were the other relationships hypothesised of; Supra-Competency Resilience and Adaptability and Career Resilience CR2 Adaptability and Risk, Supra-Competency of Achieving and Career Resilience CR3 Self Reliance as well as Supra-Competency of Energy and Initiative and Career Resilience CR3 Self Reliance.

A closer examination of the Big Five Personality and links to literature showed the findings supported the hypothesis in both the Career Resilience and Employment model. The personality relationships hypothesised were completely supported in that there was a significant relationship between Extraversion and Career Resilience Total, and a significant relationship between Conscientious and Career Resilience Total. Regarding the Employment Model, the hypothesis was wholly supported due to a relationship between Openness to Experience and Employment, and a relationship between Conscientiousness and Employment. Of note was that the hypothesis testing showed that demographic factors such as age and gender were not influential on the relationships tested. Further findings in this

study showed there were significant differences between High and Low Career Resilience scorers on the Big Five personality scale, again with hypothesised traits of Extraversion and Conscientiousness. Indeed, the results were that these two traits were higher in individuals who had higher scores of Career Resilience Total. Other results also showed significance if the Openness to Experience trait was significantly higher in those scoring higher in Career Resilience Total. The sub-hypotheses within Hypothesis 1, which discussed the relationship between Career Resilience and key Big Five Personality traits such as Extraversion and Competencies such as Energy & Initiative, supported as statistically significant relationships, were found between personality, competency scores and career resilience, and model testing of model 1 showed a good fit. There were statistically significant strong correlations for *Energy and Initiative*, and *Achieving*, as well as *Analysis*, which has a moderately strong positive relationship with Career Resilience. The findings for Big Five personality show significant correlations too, where Extraversion and Conscientiousness are found to have a strong positive relationship with Career Resilience. Openness to Experience was not hypothesised but showed to have a strong positive relationship with Career Resilience.

Results from the t-tests also showed there were significant differences in t-scores between High and Low scorers of Career Resilience, with all the Big Five Personality factors, except for Agreeableness. Extraversion and Conscientious showed highest differences, and both were higher in the group that scored higher for overall career resilience. Openness to Experience was significant and with higher mean differences. The t-tests showed that there was a significant difference between the two groups for all the Supra-Competences against the High and Low scores of Career Resilience. As hypothesised, the greater mean differences in groups show *Energy and Initiative* (highest t-score), *Achieving* and *Analysis* all with higher t-scores. The t-tests also showed that other key competencies also had significantly higher t-scores; *Persuasive*, *Leadership and Resilience* and *Adaptability*. The examination of Career Resilience and its relationship and prediction of variance to other factors using Hierarchical Regression further supported the hypotheses. The results showed that 66% of the variance of Career Resilience can be explained by Competencies and Big Five Personality. The biggest change to variance on the model was with the addition of Competencies. The ANOVA showed that in the analysis of variance, there was no significance for Gender and Age, and so showed the model was a good fit and proved that Conscientiousness and Extraversion corresponded with theoretical assumptions set out in the literature review.

These findings offered new insights that can be of use to both researchers and practitioners. The findings are supported in the literature where the three Big Five personality traits of Extraversion, Conscientiousness and Openness to Experience were observed as being

highly significant to employment outcomes. For example, Judge et al. (1999) suggest that *Extraversion* will be positively related to career behaviours as this type of trait will be more outgoing and thus be able to more easily build relationships and networks. Judge, in citing Watson and Clark (1997), said that people who demonstrate extravert behaviours will tend to also exhibit more relationship-building behaviours as they are more inclined to social networking including in the corporate environment. Forret and Dougherty (2004), suggest that an important aspect of career development is the ability in creating and maintaining networks. Barrick (2005) posits that the two Big Five personality traits of *Extraversion* and *Conscientiousness* denote key aspects of more 'pro-active career behaviour' that drive individuals toward career success. This type of behaviour is considered by authors to describe individuals who are aspirational in their career goals and are able to move towards them pro-actively (Heslin 2003). The work by Ohme and Zacher (2015) in looking at the relationships between career adaptability and conscientiousness on job outcome showed that *Conscientiousness* was highly significant and a predictor of job performance. In addition, studies also indicate that the extraverted individual by nature is more positive-minded, as well as pro-active career orientated and is therefore not only aspirational lead. They are also more able to deal with career situations they see as unacceptable or unsatisfactory (Seibert & Kraimer 2001). It can be determined, to some extent, that Extraverts by their nature will find networking an easier career management tool to adopt. The hypothesis is supported and is fully aligned with the literature.

The findings on both Extraversion and Conscientiousness were further underpinned by the results of the t-tests where results revealed that those students that scored high on career resilience had marked differences in these two personality traits to those that were low on career resilience. These results suggest that career resilience (and pro-active career behaviours) are underpinned by extraversion and conscientiousness. As discussed, having a proactive career approach requires a person to be committed to applying career-adaptive behaviours and displaying qualities needed, as such conscientiousness behaviours support pro-active career actions. Judge et al (1999) suggested that the traits of conscientiousness are manifested in three related facets—*achievement orientation* (shown by being hardworking and persistent), *dependability* (shown by being responsible and careful), and *orderliness* (shown by being planful and organised). Judge et al (1999) argue that *conscientiousness* is related to an individual's degree of self-control and will correlate to their achievement orientation in the workplace. Therefore, they suggest there is considerable evidence that individuals with this trait show higher levels of career success.

The findings also support the literature that Openness to Experience will influence job outcome positively and that Agreeableness, according to the literature will have little or no

relationship, and Neuroticism will negatively impact, and Agreeableness is seen to be moderately significant and has, as expected for each finding, a weaker relationship with career resilience. *Openness to Experience* was not hypothesised but shown to have a strong positive relationship with Career Resilience, and Neuroticism was negatively correlated at a moderate to strong level with Career Resilience Factors. According to Ostendorf and Angleitner (1994) people with an Openness to Experience will continuously be looking for new ideas, materials, and imaginative tools. McCrae (1987) described this trait as describing people with divergent reasoning, i.e., a more imaginative, fluid and flexible thinking. A recent study in Croatia on students self-reporting their leadership abilities found that those that had the higher Openness to Experience trait also reported higher as graduate 'Potential Future Leaders', where the authors felt openness to experience was positively related as a specific leadership trait, potentially resulting from their forward-looking, goal-oriented attitude (Samardžija et al., 2017).

It can be assumed that the workplace, on the whole, requires people to work well and be 'agreeable' as this creates a positive work culture. Agreeableness is seen as a pro-social behaviour and an agreeable person can be seen as sociable and likeable (Costa and McCrae, 1987). However, in terms of career development and career progression, the key skills that drive that are pro-activity and career aspirations. Agreeableness individuals, according to Lord (2018) are soft-hearted, collaborative, and mutual problem solving orientated, therefore less tough-minded individuals and may be influenced by feelings and influenced by others. Judge et al. (2002) found little correlation between agreeableness and being considered "leader like". In this study, agreeableness was only moderately significant and had a weaker relationship with career resilience, which partially is supported by the literature. According to Mottus et al. (2008), the Agreeableness trait does not correlate to the more proactive behaviours needed in job progression, because they do not relate to career-adaptive behaviours. It may be possible that whilst Agreeableness might be an important relationship trait, within career growth it is not significant. Indeed, Bruck and Allen (2003) found that Agreeable individuals, in their pursuit of harmony and being liked, would not progress as effectively in the workplace as they may be taken advantage of.

The findings highlighted that Neuroticism was observed to have significant differences and those higher in career resilience scored lower in this trait, suggesting that those *higher in Neuroticism associated with lower Career Resilience*. As discussed in Chapter 2, the literature shows that the Big Five trait of Neuroticism has a negative association between career progression, and in part, this may be because of inadequate use of effective coping strategies (Watson & Pennebaker, 1989). This is an important area for both universities and workplaces to consider with the greater emphasis on wellbeing and mental health. The

results in the study also offer further and useful insight into behaviours that may inhibit people from progressing. This is supported in the literature. As previously identified, individuals who are optimistic in career planning tend to be more self-reliance and exhibit higher levels of career-resilient behaviours, such as being more proactive, positive and focussed. This 'proactive personality' as described by Chiaburu and Baker (2006) has a positive relationship to career self-management. Career-management behaviours will include some practices that might feel uncomfortable, such as seeking feedback after a failed interview in order to adapt style and practice, or it could be making new contacts and networking with professionals in an unfamiliar setting. These more pro-active activities may feel daunting with individuals with high Neuroticism. A study by Boudreau, Boswell, and Judge (2001) showed that Neuroticism was correlated negatively with career satisfaction. Seibert and Kramer (2001) study also indicated that whilst extraversion was related positively to career fulfilment, neuroticism was a negative correlate of career satisfaction. Another study on unemployed German workers, Uysal and Pohlmeier (2011), found that Conscientiousness and Neuroticism have a strong impact on the instantaneous probability of finding a job, where the former has a positive effect and the latter has a negative effect. Judge et al. (1999) suggest that neuroticism refers generally to a lack of positive psychological adjustment and suggests it leads to at least two related tendencies; one dealing with anxiety (instability and stress proneness), the other addressing one's wellbeing (personal insecurity and depression). The SCCT model (Lent and Brown, 2013) discussed in Chapter 2, suggests that positive learning experiences can offer some improvement of an individual's self-esteem, which in turn can enable the individual to set higher goals and therefore adopt pro-active career behaviours in order to achieve them. Thus, for career practitioners and indeed HR partners, it may be essential to develop experiential learning experiences that initiate positive and stretching experiences within a safe environment to enable those individuals high in Neuroticism to develop new ways of developing their career-management skills. Or it is possible, that such individuals higher in Neuroticism may not be as successful as they might in their career.

6.5 Significance of findings

The overall findings of the employment model testing results indicated that there were significant differences in the two groups analysed. Results indicated that those who undertook 'nonlinear' jobs (this included; short-term jobs, business start-up, self-employment, re-training) showed greater levels of competencies that are required by employers (Andrews and Higson, 2008, Pool and Sewell, 2007), especially those needed in the new world of work (Davies et al., 2011). The nonlinear jobholders also showed personality traits that are also

consistent with higher-level graduate careers (Atfield and Purcell, 2012). The nonlinear group also showed evidence of possessing higher levels of the Career Resilience Factor (CRF 3) of *Self-Reliance* than those graduates entering permanent jobs, many of whom return to previously started professional career paths. This is an important finding as Self-Reliance as a career self-management trait was shown in the literature as highly important to career success. The structure matrix analysis used within the discriminant analysis revealed four highly significantly differentiated factors; *Analysis* competency, the *Openness to Experience* Big Five personality trait, CRF 3 of *Self Reliance* Career Resilience Trait, and the *Conscientiousness* Big Five personality trait. These are in order of difference and are higher with the nonlinear group. The t-tests further supported these results and wholly aligned with the findings in the Structure Matrix and showed that the nonlinear group reported higher scores on the same following constructs: The *Analysis* competency, *Openness to Experience* personality trait, the CRF 3 *Self-reliance* and *Conscientiousness* personality trait.

These findings are both significant and interesting as they offer an important new insight into the fields of employability, career and personality development. Firstly, they show that there are significant differences between the groups of those individuals who pursued jobs that were nonlinear, and therefore by being nonlinear, are considered unstable and uncertain. Secondly, they show that the individuals who pursued these nonlinear career goals possessed key employability qualities. For many career practitioners these results may seem counter-intuitive, especially so as the main practitioner model that has underpinned careers work and practice in most careers services broadly follow the traditional DOTS model as outlined by Law and Watts:

Decision learning – decision-making skills

Opportunity awareness – knowing what work opportunities exist and what requirements are

Transition learning – including job searching and self-presenting skills

Self-awareness – in terms of interests, abilities, values

Source: DOTS model Law and Watts (1977)

In pursuing the traditional DOTS model of careers delivery, careers practice tends to focus on the intention of making a steady/stable career decision. DOTS modelling encouraged career practitioners to work through a systematic method to establish clear career outcomes. Careers delivery in practice is often driven to enable students to make career choices that are stable, do not lead to uncertainty, and are aligned to secure jobs. This practice is often motivated by both the careers guidance professionals and the student, looking to help with uncertainty over career choice and resolution to coming to a firm decision making to alleviate discomfort associated with uncertainty. The process is enacted by enabling students to

understand themselves, then to understand the work available by gathering labour market intelligence, and then make choices between the two and then to transition into that career. However, the individuals in this study who have pursued nonlinear career paths, have made an 'unpredictable and unstable' career decision where there is often scant information on the work available, and therefore career decisions in weighing up their skills in relation to that unknown career is invalid. Instead, this group appears to make a 'leap of faith' and are taking on opportunities that are unclear. However, in examining the shared qualities of the 'nonlinear group', it would appear they may be more in possession of the key career qualities described in the literature in Chapter 2 that are needed for a new world of work, which are also characteristics described as needed by employers and organisations seeking to adopt a more competitive advantage. The literature suggests that key qualities are needed to survive and thrive in the world of work are being able to use *adaptive career skills and adopt proactive career self-management behaviours*. In addition, the literature on future of work skills highlights key attributes that are needed such as *managing in a changing, ambiguous world of work*. Qualities described in both fields of literature associated to important attributes as; *Analysis, Openness to experience, Career Resilience Factor 3 Self Reliance, and Conscientiousness* which were demonstrated by those on nonlinear career paths. Indeed, these four nonlinear career qualities could form a test in themselves.

The nonlinear career qualities that the findings show, align with those supported in postmodern and contemporary career theories employability theory, dynamic capability theory and future of work predictions. Thus, a critique of the traditional methods of developing students' employability would question the need to focus on secure career choice decision and ideal job-fit, instead of centring more on delivery of employability development, which is more aligned to career need for a volatile changing workplace (Gysbers and Lapan, 2009). The study's findings and the body of literature suggest that the traditional careers service model of delivery in university practices is increasingly inadequate for life-long employability. Yates (2019) argues that modern and contemporary careers theories acknowledge the complexities of career decision making and career development and accept that both agency and structure have a significant part to play; and they all understand the uncertainty of the world in which these choices are made.

The findings suggest that Career Services and HR teams may need to move away from enabling people to firming up a career choice (hoping for information on clear job pathways) and instead to move toward a greater emphasis on personal skills development, the development of personal regulation, and adaptability qualities - in order to remain career-relevant in the more uncertain new world of work. Equipping people with career essential attributes for them to stay economically relevant in a changing and uncertain world of work,

which places greater emphasis on them managing their own career, is a key quality suggested by the findings. An attitude shifts away from a twentieth-century approach of expecting an employer or university to manage careers away to higher levels of career self-management. As outlined in the postmodernist literature, this then requires career and HR services to adopt a practice where they act as *facilitators and enablers* of newer employability career attributes than *expert information holders*.

Key factors in nonlinear career paths and career uncertainty

Certain key qualities were seen as very significant in this study. Firstly it is of importance to this study to consider, as discussed, is 'Self Reliance' as it was shown in the literature as of considerable importance, and as hypothesised, the CFR 3 of Self Reliance given that was found to be highly significant in the Structure Matrix, showing it was a higher factor in nonlinear careers. This is an important finding because it was shown in the literature as a key quality having a significant bearing to career success and in also managing career uncertainty. Wanberg and Banas (2000) conducted a longitudinal study looking at how people responded to changing workplaces, they found that resilience (which they defined as a composite of self-esteem, optimism, and perceived control) was related to higher levels of *change acceptance*. This further supports the findings in this study of the nonlinear group possessing higher career reliance score of self-reliance, as this is a construct associated with the ability to manage change and be more adaptive. The qualities listed by King (2001) and Hall (2002) suggest that the nonlinear group demonstrate aspects of protean career theory and career self-management. In examining the role of resilience on an individual, authors such as Lundman et al (2007) define resilience comprising of key attributes which include having qualities such as self-esteem and confidence. Within all these studies, self-reliance has been consistently identified as a crucial part of resilience. This study also identifies self-reliance which they define as 'the belief in one' self and capabilities.

Therefore, it could be argued that career self-reliance is a key element of career planning, as for example, if an individual does not have the self-reliance to *achieve* their career goal, it may well be hard for a career practitioner to convince them to work towards career goals. People with low self-reliance may set lower outcome expectations of themselves and underachieve on their ambitions self-efficacy. As Collard et al. suggested (1996) if self-reliance is higher within an individual, it is likely they are more able to work toward a career goal and demonstrate career self-reliance. Thus, the nonlinear group in this study are possibly demonstrating higher career self-reliance because they have higher agency and the belief that their career goals will eventually lead to the outcomes they want. This shows that by taking up nonlinear roles they are in fact demonstrating greater self-reliance.

There were other key qualities that separated the nonlinear group to the traditional group. The results shown in Structure Matrix from the Discriminant Analysis used within the study, as discussed, revealed the four highly significantly differentiating factors; *Analysis competency, the Big Five personality trait Openness to Experience and Conscientiousness, (as well as the CRF 3 of Self Reliance)*. The literature also supports these qualities to be associated with people who are able to manage career uncertainty as well as show higher career self-management:

- Analysis is a key quality in being able to assess a situation and subsequently being able to position themselves into a career and make the strategic choice of opportunity (King, 2003). This quality requires a high-level analysis of the opportunity and themselves.
- Openness to Experience is a key quality pursued in unpredictable career paths as protean careers are change orientated and non-protean are more traditional (Hall, 2002) (traditional career paths would be returning to the previous job)
- Conscientiousness is linked to desire for control over a career as conscientious people are more goal orientated and thus control focused.
- CRF 3 of Self Reliance is linked to the description of high career self-managers by King (2004) as having higher-self efficacy, as self-reliance is a construct of self-efficacy (Bandura 1996)

King (2004) raises an important aspect of successful career self-management, which she says is the importance of *relationship building and networks*. King describes a 'positioning behaviour' of active network development as essential to success and suggests that for those pursuing a career change and career development, building networks is a crucial factor in enabling success.

In addition to the results from the Discriminant Analysis, the Career Resilience Factor Scale used in this study had findings that showed that there is a significant relationship between Career Resilience and Big Five personality and Supra-Competencies, especially in relation to *Extraversion, Openness to Experience and Conscientiousness* as well as *Energy and Initiative, Achieving, Persuasive and Leadership*. The importance of network building requires individuals to demonstrate extrovert type behaviour and show high Energy and Initiative behaviours. In a study on business school graduating students and job-hunting, it was found that Extraversion, Openness to Experience, and Conscientiousness were positively related to job search behaviours (Caldwell and Burger, 1998). People who demonstrate extraversion are likely to create a new network as they are likely to talk more, be more expressive and generally provide more information about themselves through verbal and nonverbal sources than highly introverted people. It can be argued that building networks to get jobs also requires higher levels of Energy and Initiative competence in order to keep motivated to create networks and opportunities, as well as demonstrate an

Achievement orientated competence to reach goals. George, et al (2011, 827) show that Extraversion is strongly linked to proactive career behaviours; "the link between Extraversion and attaining high-status jobs is likely to involve the use of social contacts, networking, and influence strategies to improve one's situation in the work environment". This is not to say introverts cannot develop networks, but rather, by temporarily adopting these extravert behaviours such as being expressive, talkative, gregarious and open, introverts also can develop and adopt extravert networking techniques at the time of career change. The findings suggest that it is important that individuals cultivate such 'extravert' behaviours. Whilst uncomfortable for introverts, it may become more of a responsibility of career practitioners to encourage the development of such behaviours in a supportive environment for all students, but especially those uncomfortable with networking and relationship building.

Findings in relation to employability

One of the purposes of students electing to undertake to study at university for postgraduate management courses such as an MBA is to develop greater employability to enhance career prospects (Purcell et al 2009). However, given the insights on the new world of work, it is also important that life-long employability should be seen as a work-based trait and not just something that ends at university as it considered now. As such, the need for effective employability is crucial for organisations as applying employability skills contribute to a firm's performance and success, as much as an individual. Heijde and Van Der Heijden (2006) suggests that employability is not just important at the individual level, but also at the firm level. Therefore, in the light of findings of this study it is prudent to re-look at literature on the qualities and attributes that support its development, and then to consider the place of these factors in a persons' development toward better employability. In Chapter 2, the literature, for example, proposed that *self-efficacy*, i.e., those that reflect the learner's notion of self, their self-belief (achievement, and the possibility for self-improvement and development) is a key aspect of employability success. This is supported by the hypotheses in this study in the findings on Career Resilience and the relationship with self-efficacy.

The results of this study demonstrate that employment outcomes are related to development of such competencies, but also show that personal traits further enable successful career behaviours. In addition, the study considers evidence that career resilience is a crucial factor to career success - especially in the light of a VUCA world of work that is present in graduate and postgraduate career opportunities (Kinsinger and Walch, 2012). For the purposes of this study, the view of employability is one that would be shared by all three. The Knight and Yorke (2003) definition as discussed in Chapter 2 proposed that self-efficacy, i.e., those that reflect the learner's notion of self, their self-belief (and the possibility for self-improvement and development) are key aspects of employability success.

Many frameworks of employability outline specific competencies needed for effective employability which appear to encompass the specific factors (i.e., competencies, career resilience factors, personality) that were all identified in the nonlinear group. The nonlinear group had higher qualities of *Analysis, Openness to experience, Career Resilience Factor 3 Self Reliance, and Conscientiousness*. These qualities are aligned to employability traits outlined in the literature. As discussed in Chapter 2, researchers such as Andrews and Higson (2008) and Cumming (2010) - in researching the curricular embedding of employability skills - identified key attributes as crucial to effective employability and meeting employer needs to indicate potential career success. These factors relate to findings in this study to nonlinear employment outcomes (according to their definitions) and are mapped to this study's findings in Table 6.2.

Table 6.2 Employability Factors and Comparisons

Employability Factors - Andrews and Higson	Career Resilience Factor	Big Five Personality	Supra-competency
Reliability		x	x
Ability to cope with uncertainty	x		
Ability to think and plan strategically			x
Capability to communicate and interact with others, either in teams or through networking	x	x	x
Creativity and self-confidence	x	x	
A willingness to learn and accept responsibility	x		x
Employability Factors - Cumming			
Communication	x	x	x
Teamwork		x	x
Problem-solving	x		x
Initiative and enterprise	x	x	x
Planning and organising	x	x	x
Self-management	x	x	x

The results demonstrate that certain skills and qualities that are needed in the new world of work - as well as currently needed by employers - are very much aligned to the nonlinear career group. This finding again shows that it is now crucial that careers practitioners are more mindful of changes in the working world and stay employable (Hall, 1976, 2002). The findings of nonlinear career qualities of *Analysis, Openness to experience, Career Resilience*

Factor 3 Self Reliance, and Conscientiousness are shown to be highly significant and more aligned to both employability requirements of organisations, as well as future of work needs, and it is perhaps these qualities that individuals may seek to develop in order to work in a more uncertain world of work. The literature on predictions to the changes in the workplace with the rise the 'Fourth Industrial Revolution' have highlighted the predicted skills needed for the future of work. As such, companies are increasingly starting to consider the impact of artificial intelligence (AI), robotics and machine learning into the world of work and the employee skills needed to work in this world. A very important finding is that these skills also map to factors identified in this study, and most markedly, in the ability to manage change in an uncertain world.

Newer employability skills linked to the Future of Work were described in Chapter 2, under Table 2.7. These newly identified skills are aligned with this study's finding in Table 2.7 as follows:

Cognitive Flexibility (*maps to Openness to Experience*)

Social Skills (*maps to Extraversion, Persuasion, Oral Communication and Networking*)

Process Skills (*maps to Self-reliance and Achieving*)

Resource Management (*maps to Initiative, Conscientiousness*)

Systems Thinking (*maps to Analysis*)

Further literature support for the additional factors demonstrated by the nonlinear group can be drawn from the theory of 'action regulation and career self-management' as this theory is often considered a crucial part of influencing employment outcomes (Frese and Zapf, 1994).

Furthermore, the nonlinear groups did not join employers who offered secure jobs and clear management support, outlined the skills/duties needed in a job description before starting, and gave longer-term contracts. Instead, the nonlinear jobs were in new, uncertain and in some cases only brief positions that they ran themselves. Thus, in order to start and maintain this path, the nonlinear career path group will have had to adopt an adaptive, pro-active and flexible approach.

Findings in relation to Dynamic Capabilities

Studies on dynamic capabilities, as discussed in Chapter 2, showed the three elements that Teece described that were essential in adopting this approach; Sensing, Seizing and Transforming, as the key components to effective changeability. The nature of skills needed to enable these three processes to occur is very much aligned to the findings in this study. For example, the ability to Sense requires effective Initiative, the ability to Seize, requires the ability to Analyse effectively and the ability to transform requires the aptitude to create

networks with the use of Persuasion competencies. As discussed in chapter 2, Teece (2014) described 'Microfoundations' as being essential to the delivery of dynamic capabilities that included the skills of workers. These skills have a clear overlap to the findings in this study and support the findings that there are clear VUCA type career behaviours needed for individuals and corporates. In Chapter 2, the work of Finch et al. (2016) discussed specific employability dimensions of dynamic capabilities, such as being transformative through developing supportive and enabling career networks. The skills needed were described as able to *communicate in person and having strong career self-management*. The findings of this study also supported this aspect of dynamic capabilities as well as the discriminant analysis showing that those who undertook non-traditional careers demonstrated higher levels of *Oral Communication* and *Self-reliance*.

Furthermore, as highlighted in Chapter 2, research from Thomas and Powell (2016, 78) found that organisations who are operating in this current state of work is akin to *hypercompetition*, where organisations need to be fast-moving and therefore, they favour a "more open organization and self-organizing processes that quickly convert individual capabilities into actionable collective intellect". Fallon-Byrne and Harney (2016) also include being *open to new ideas and open to risk* – which are subtraits of *Openness to Experience*. Other qualities include being able to develop a plan and have the ability to continue on that despite difficulties – which are subtraits of *Conscientiousness* and Career Resilience trait of *Self-Reliance*. Other qualities require people-skills to network and create opportunities – which are subtraits of *Extraversion*. These qualities are shown in the Competencies of *Oral Communication* and *Persuasion*. An important point here would be to consider the findings in the literature review in Chapter 2, in that people will need to see the value of career change for themselves, as well as consider their personal and collective abilities, in order to enable career change.

6.6 Contribution to academe

Contribution of the development of an adapted Career Resilience Scale:

The study considered the career and academic outcomes of an individual and to identify the required competencies and personality traits to drive forward a career, as well as what is the ability to enhance the 'bounceback' from adversity' with their career resilience. In order to establish relationships with Career Resilience, it was necessary to develop a scale which had five key factors; *Self Reliance, Positive Self-Concept, Motivation to Learn, Ambition and Networking and, Adaptability and Risk*. The scale was demonstrated as both reliable and has construct validity.

Contribution to the Systems Framework Theory:

In providing findings that support career theory at all three systems, the study substantiated the SFT in that it demonstrated that the philosophical underpinning from different theories can converge (given the dynamic nature of careers) and that careers theory considers constructs that relate to both intrinsic and extrinsic factors. The STF offers a broad model for systemic thinking in careers development, which allows for both positivist and constructivist traditions to live within it (McMahon et al 2005). This study contributes to the STF theory with the scales developed and used as they used quantitative methodology, these scales support the positivist careers approaches described within STF. The STF represents the individual's career experience, which shows at the core individual system level is related to a range of interpersonal 'geographies' of career development that influence career choices and paths. These include values and behaviours. To this individual part of the system, it is now possible to include career resilience qualities with the new scale developed in this study. In addition, it is conceivable to demonstrate the relationship between career resilience and personality and competencies at this system-level - these will be in-line with STF - and be linked given the highly significant relationships between these constructs. STF also outlines that the individual structures exist as part of a larger system known as the contextual system. This contextual system includes environmental and societal systems as well as the economic and labour market factors. To this system-level, from this study, it is possible to add the Future of Work skills frameworks outlined in Chapter 2 and demonstrate broader influences on career development from the changes in the world of work. Finally, the STF framework had a third system of external chance 'chaos' system events that are unexpected events that can influence careers but are unanticipated. This study offers a contribution to this system level as well as a key part of the study in showing the qualities of individuals taking a career approach change and chance orientated, and are supported by the qualities outlined in Chaos Theory of Careers which shows this view from an employer with the Dynamic Capabilities qualities. These attributes were aligned with desirable qualities in the future of work.

Contribution to theory in the development of a Career Dynamism model

The model is discussed in the next chapter but is constructed from the findings within this study, which demonstrated a set of behaviours shown by one group of graduates to be more aligned to future of work attributes, including being more able to deal with change by demonstrating more '*dynamic*' career behaviours. These are aligned to corporate capabilities identified as organisational qualities by firms adopting a process for competitive advantage. These behaviours have developed and evolved because of rapid changes in the business environment of the late twentieth and early twenty-first centuries (e.g., downsizing, rapidly

changing economic conditions, globalisation, and advances in technology). These are predicted to increase within the next few decades (WEF, 2016, 2017, 2018). This is supported by literature on Protean Career Theory, Ecosystems Career Theory, Chaos Theory of Careers and Dynamic Capabilities, where it is shown the individual needs to be self-generating/self-reliant, that is, protean in order to have better career management skills in a changing world of work. Individuals in the new world of work also need to be able to adapt and deal with uncertainty as described by the CTC. Corporates need themselves to adopt similar behaviours as demonstrated by Dynamic Capabilities. Research in these theories suggests that key behaviours need to be adopted by workers and companies to adapt to a more uncertain and less secure world of work, and this adaptation will provide skills and behaviours that lead to greater success.

Contributions to Practice

Contribution to sector and curriculum frameworks

A contribution from this study is that graduates and workers will need to develop pro-active career management skills related to working in career uncertainty. Qualities of self-reliance and adaptation were higher in the nonlinear group who displayed more pro-active career behaviours. These qualities could be considered by the university sector as key graduate attributes to integrate into their employability delivery – both at curricular and extra-curricular level in order to better equip students to meet the needs of a VUCA world, especially as high graduate employability is a key performance outcome for universities and business schools. This approach is supported by the literature, for example, Kossek et al (1998) described anticipatory career management as continual adaptation of self and taking a proactive stance on career progression, which enables workers to maintain better employability. If employability delivery in universities were able to focus on personal factors – such as those outlined in the findings in this study, they would also enable their students meet employer needs after graduation (Brigstock, 2009). For example, Lent et al (2016) suggest that part of career self-management is the ‘process’ aspects of job gaining. These include developing; career preparation (job information research), entry (understanding of skills/qualification needed), and adjustment (considering the level of personal adjustment they would need to undertake to enter the job). Such behaviours all require people to be analytical (relating to the *Analysis* competency) in order to pro-actively evaluate the job market, as well as simultaneously be ‘goal-focused’, in order to carry out timely job application procedures (relating to the *Conscientiousness* personality trait). Indeed, Chiaburu and Baker (2006) concluded from their study that having what they describe as a ‘pro-active personality’ drives individuals forward in their career by adopting progressive behaviours and actions, such as having an *Achieving* competence (Chiaburu and Baker 2006).

Contribution to career coaching practice

The implications and considerations for practitioners in Careers and HR services from this study can be found on different levels. For the career coach and HR partner, the questionnaires used in this study could offer a mechanism to apply theory to practice and enable constructive reflection within a career coaching session (Sharf, 2006). The results of the tools could provide a basis for discussion on outcomes and for a 'check-in' on what career progression plans the students or workers has, enabling the coach to offer feedback and career guidance on the findings. The use of feedback in coaching discussions can empower the recipient because of an increased sense of ownership, take risks and autonomy of their own career development process to overcome barriers (Ali et al, 1996; London, 2014). Discussing the results with the students and workers may stimulate the career coaching relationship and have a positive impact on how the student and worker may make career choices in an uncertain climate (Krumboltz, 2009). This might be of particular importance for those people, as discussed, who score higher on the Big Five Personality tool on *Neuroticism* for example and may lack a sense of career ownership due to self, emotion and behaviour regulation problems. For such students, discussing results with their career coach may stimulate self-insight and 'reframing' a possible-negative self-image and goal setting, aligning to the SCCT model of career delivery (Lent 2005).

Contributions to Knowledge

According to Summers (2001), the findings from research ought to be categorised into three broad categories; those of a *conceptual*, *empirical* or *methodological* nature. The study contributes to these as follows:

Conceptual contribution as defined by Summers (2001) includes new constructs for study or improvements in how existing constructs are defined and incorporated into a theoretical framework. This study makes a conceptual contribution by bringing together distinct elements of several existing models of careers, including the Chaos Theory of Career (CTC) and Social Cognitive Career Theory (SCCT) and locating them in the Systems Theory Framework. A contribution of this thesis is not only the development of an adapted scale but also through the application and examination of this scale; it was possible to see the importance of the relationship between career resilience factors on employment outcomes.

Empirical or Methodological contributions tend to focus "testing a theoretical linkage between two constructs that have not previously been tested" Summers (2001). A key finding found that was not identified before was that people choosing a nonlinear career path had highly differentiated traits to those that chose traditional career paths. The literature shows that a methodological study of this type has not been undertaken. This type of testing of

comparisons of two groups comparing those graduates pursuing traditional jobs to nonlinear had significantly different qualities, offering new empirical findings. These findings are counter-intuitive to the commonly held view that a) graduating cohorts pursue broadly similar career goals and b) that the qualities associated with those pursuing nonlinear jobs have qualities that are desirable by employers in a new world of work.

6.7 Summary of chapter

In answering the research question of “what is the relationship between career resilience, personality and competencies on job and academic outcomes, in the context of career uncertainty and future of work skills predictions”, the results from the research showed significant findings that will, it is hoped, contribute to both careers practice, as well as to career theory. Key findings showed that using discriminant analysis is a useful statistical tool, in that it evaluates the degree to which such variables differentiate two groups within the same population (Brown and Wicker, 2000) which therefore allowed for the study of statistical analysis on careers and employability that has not been previously undertaken. Key differences discovered were that the more dynamic/nonlinear group differentiated greatly in the following constructs: Analysis, Openness to experience, CR Factor 3 Self Reliance and Conscientious with a high Classification result of 77.2% as a highly significant finding. Furthermore, these were supported by independent t-tests which also showed the same factors that demonstrated that the findings were empirically rigorous. These and the results from ANOVA and Correlations that were mapped to desirable future of work skills showed there were again significant similarities of key qualities, such as Achieving, Analysis, Energy & Initiative, Oral Communication and Persuasion.

In addition, an exercise of mapping findings to dynamic capabilities was also undertaken. Here again, the ‘dynamic’ group (those graduates who were in nonlinear jobs) reported higher scores on similar constructs. Students at the School completing the full questionnaire and then discussing findings with their career coach will be able to develop the further application of these findings. Aspects of their ability to take on uncertainty, adapt, build relationships and develop career resilience (as part of a dynamic career mindset) will be explored, and enable the student to develop better insights in career self-management skills in an increasingly uncertain world of work.

7 Conclusion

What lies behind you and what lies in front of you, pales in comparison to what lies inside of you.

Ralph Waldo Emerson

7.1 Key inferences from the study

A significant outcome from this study was the finding that there were key differences in personal qualities of those individuals that undertook uncertain, nonlinear careers, to those that undertook traditional stable careers. As discussed in the literature, many modern career theories, including Chaos Theory of Careers, Protean Career Theory and Career Ecosystems Theory proposed that the modern world of work is affected by rapid changes and therefore will not offer the same level of long-term permanent security to workers compared to previous times – and this will result in workers having to deal with more uncertainty and nonlinearity. Therefore, those individuals that can manage uncertainty, nonlinearity and ‘career discontinuity’ better will manage their careers better (Park and Rothwell, 2009). As such, these findings offer a significant contribution to career and professional development, especially in enabling people to maintain employability in a new world of work (Bersin and Chamorro-Premuzic, 2019)

These ‘nonlinear’ qualities were also demonstrated to be closely aligned to the extensive literature on qualities needed in working in *dynamic* careers. The Chaos Theory of Careers shows that key aspects of managing in a more unclear, uncertain and ‘chaotic’ career world will require a greater need for *self-reliance*, and a strong ability to build *relationships/network*, as well as *self-efficacy* and *pro-active attributes* to create opportunities and maintain high employability. The Protean, Career Ecosystems, SCCT and CTC all espouse that an individual must see they have control to shape the form that their career takes and strongly suggest that in order to do well in this VUCA environment, workers need to be mindful of skills needed in self-managing careers in an uncertain world. This is a more ‘self-driven’ approach to career development where the individual must take responsibility for their own career and not handover their employability to the company (Hall 2002).

Dynamic Capabilities to Career Dynamism

This study is unique for a study of careers from the perspective that it looks at individual career attitudes and behaviours, but also considers these against the literature of fast-moving corporate cultures, such as those described by Teece. It, therefore, has relevance to individuals and employers. As discussed, dynamic capabilities are key strategic corporate

competencies adopted by firms to establish a competitive advantage. Literature in this field point to studies on several firms including large technology firms such as Google, IBM and Apple proposing that their success is related to how they can manage in a hypercompetitive and turbulent world (Teece, 2007). Due to a more turbulent work world, careers delivery is now also facing uncertainty, disruption and chaos and many commentators predict this state of work uncertainty to grow. The impact of AI, machine learning and robots is predicted to cause disruption to many sectors and occupations, a Deloitte report suggests that 35% of UK jobs in 2035 will be automated (Deloitte, 2017). As such, the need for a better approach to career development is critical to the embrace the fourth industrial digital revolution and therefore career planning now must embrace uncertainty and even chaos as the new world of work will demand it. It is not only career development fields, but there is also an increasing need for employers and universities alike to address this need, possible with effective solutions, indeed as Czakon (2017, 143) states:

In the present situation, organizations, due to continuous and fluctuating variability of the conditions, expect management sciences to offer adequate proposals and solutions in the globally transforming reality.

The results of this study support the proposition that there is a great need for people to develop employability skills for a more uncertain and disruptive world of work, as the study indicates that being able to change and evolve is critical to creating effective career self-management. A 'chaos and ecosystem' approach to career suggests that effective career management should be concerned with *effective career evolution*, which in turn aligns this study to the work of Teece et al (1997) and Teece (2011) on Dynamic Capabilities. Teece defined dynamic capabilities as an inherent ability to evolve rapidly and this gives as an explanation as to why successful companies have enjoyed achieving a competitive advantage (Teece, 2007, 2011).

As shown in this study, the nonlinear group in establishing a career within chaos and uncertainty have demonstrated skills of self-reliance and traits of '*career self-management*' to meet the changing world of work that is both *VUCA* and *Dynamic* in nature. Allied to this, dynamic capabilities are needed by firms to achieve sustainable growth (Harreld et al 2007). Thus, '*Career Dynamism*' is proposed as a new approach to career development that 'bridges' these two theoretical constructs. The attributes of the 'Career Dynamism' model developed from these findings are aligned to the Teece 'Dynamic Capabilities' method of creating competitive advantage. Central to 'Career Dynamism' is the concept that to manage change and uncertainty, workers need adaptive and pro-active career behaviours the qualities - and these same qualities are desirable for corporate success (Zhou and Li, 2010).

Key findings from the regression analysis, correlations, t-tests and discriminant analysis from Model 1 and Model 3 demonstrated key qualities associated with pro-active career skills. As discussed, Teece et al (1997) Teece (2011) in his model suggested to adopt effectively a dynamic capabilities approach, companies need to ensure they are doing these three essential things, *Seizing*, *Sensing* and *Transforming*. There are clear associations to these to the findings in this study:

Seizing – according to Teece (2011), this requires having a mindset of being *goal focussed* and an understanding of what is needed to for results to occur, in order to meet competitive advantage – both at the corporate level and individual level. Similarly, a *Results Focussed* mindset proposed at the start of the Career Dynamism model is because the findings from this study showed that those people who had this approach at the *outset* to career planning were inclined to take on uncertain work. Seizing also has similar constructs shown in Big Five Trait of *Conscientiousness* and Competency of *Achieving*. These two also form part of being Results Focussed as they are also essential to being goal-focused.

Sensing – according to Teece (2011) this requires an ability to make good use of *data and information*. Indeed, the skills of managing data, as data often coined as the new oil (Humby, 2006) and the term ‘Big Data’ has now come into common usage in firms, given the huge increase in electronic data (McAfee et al 2012). Therefore, for firms to manage this data well, the need for effective *Analytical* skills becomes critical for a competitive edge, and these skills are also crucial for workers operating in the same world, as well as being *Open* to career ideas around and take advantage of unexpected ‘chaos’ opportunities. Therefore, having a *Resourceful Mindedness* approach, and *being Open to Experiences and Analytical* is needed for career sense-making and individual career development.

Transforming – according to Teece (2011), this requires an ability for the corporation to ‘make things happen’ through its people. A crucial ability to gain competitive advantage according to Teece is the organisational ability to change and evolve, after gaining both resource and results insight. This clearly indicates that for a corporate to undertake essential adaption and adoption, responding to environmental changes and innovations, people must take the decision to bring others to accept and adopt the changes. The relates to *Relationship Building* and uses skills like *Oral Communication* and *Persuasion*, as transformations require the ability to connect with others (staff, customers, stakeholders) in order to create effective networks to enable transformations. The ability to transform will mean being able to build effective people networks and structures for change and having a relationship focus and as such, *Extraversion* traits are needed.

The findings in this study and of this model, shown in Figure 6.1 are supported by the work of Finch et al. (2016) as shown in Chapter 2 on comparisons of employability qualities in graduates that map to the Microfoundations within dynamic capabilities structures. For example, as shown in Figure 2.5 Finch et al. discovered that Big Five personality traits such as *Openness to Experience* and *Conscientiousness* were highly correlated, similar to findings in this study. In addition, skills such as *Achieving and Analysis* as part of Organisational skills also correlate. Finch et al. (2016) also describe *Extraversion* traits that are correlated by networking skills and relationship building ability.

7.2 A Career Dynamism Model

As discussed, firms rely on building competitive advantage for business growth by recruiting people with key skills and abilities in order to meet their strategic goals. Individual workers for personal ambition or economic interest will take up work. Therefore, as far as possible a career model should offer value to *both* workers and firms. However, much of career theory is at a distance from organisational theory. As such, it is proposed from the results of the findings and the literature, that there is a strong need for joint offering from career development that also contributes to corporate strategy to satisfy a twofold need. Indeed King (2004) calls for a 'dual empathy' to address both firm and worker needs and requirements with a more comprehensive framework. The findings from this study go some way toward creating such a 'dual empathy' framework with these three key factors:

Key Competencies needed to do a job well in this uncertain new work of work – especially *Analysis, Achieving and Energy and Initiative*

Key Personality traits to enable relationship building, stay open to new ideas, be pro-active behaviour and goal-focused – *Extraversion, Conscientiousness, and Openness to Experience*

Career resilience to maintain an ability to deal with the difficulties of a VUCA world, especially having *Self-reliance*

These factors are collated and placed in a schematic overleaf to show the three interrelated parts that form a three-part process for dynamic career management in the new VUCA world of work. As such, a new model of careers delivery is proposed based on these findings - the Career Dynamism Model - that incorporates these main findings from this study in relation to demands of employers and career self-management in a changing world of work. This model highlights key attributes that career practitioners can support their students to develop and starts with a capability to have a *results-focus mindset*, then a capability to *manage*

resources and situations well, and finally, a capability to *work with people* effectively in order to achieve desired outcomes, as outlined as follows:

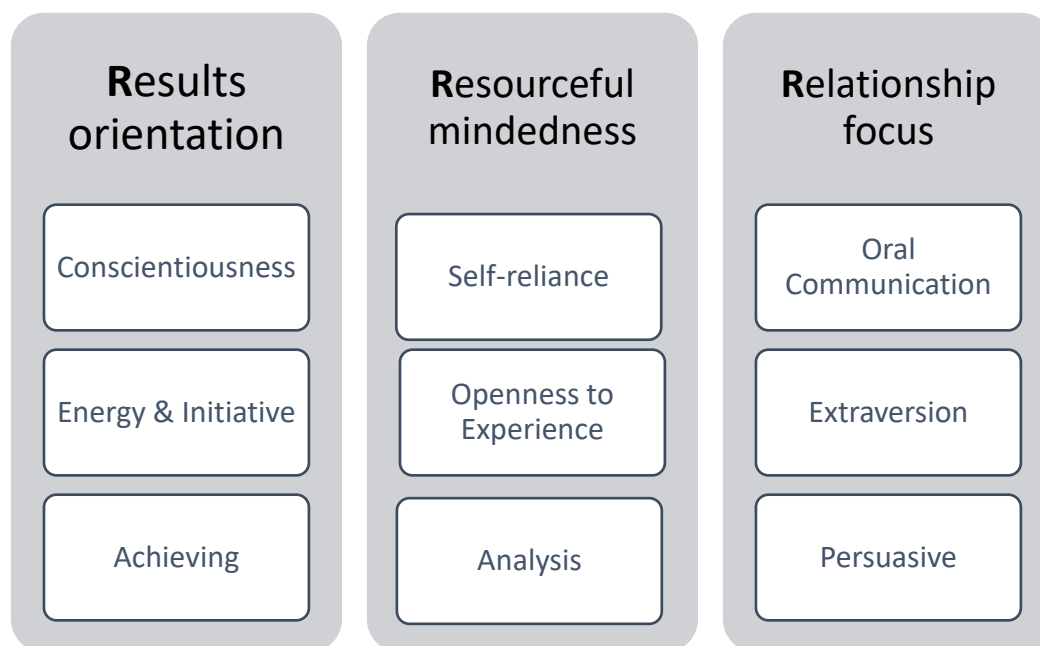
Part 1 – Results Orientation: There will be a need for a pro-active and results focus for an effective career self-management approach. There will be a need to ‘put the effort in’ and have an eye on the end goal in order to stay motivated and focussed. Therefore, the ability in *Achieving* is needed to create an effective career strategy, given its alignment to career self-reliance and goal setting. *Conscientiousness* is needed in order to stay on goal and to keep renewing, and adapting skills are key to success. This requires *Energy & Initiative* to stay motivated and to continue to maintain *Energy and Initiative*, as securing and maintaining a job takes effort, and working in continuous change requires energy and tenacity. *Initiative* is critical in reviewing new options and working in uncertainty and managing challenges as they arise.

Part 2 – Resourceful mindedness: There will be a need to be resourceful and use one’s own skills to work out ideas and solutions both in work and in career strategy in a new work environment, especially as ‘work’ may not be linear and traditional, and career ‘ownership’ is more likely to be located with the worker. Therefore, there will be a need to demonstrate Career Resilience to manage change, chaos and uncertainty well and in particular, in showing personal *Self-Reliance*, as this demonstrates autonomy and resourcefulness in problem-solving and an ability to deal with difficulties. Resilience shows a self-minded approach to career and aligns with aspects of *Self-determined behaviours*. There is a need to demonstrate *Openness to Experiences* to be able to meet and create new opportunities showing curiosity, openness to risk, diversity in its broadest sense and have the tolerance to ‘the new’, which may well be new forms of employment. Openness to Experiences trait also shows adaptability, which will be key. There is a need to show *Analysis* as continuously evaluating new opportunities and challenges will be the norm in the new world of work, as static careers and jobs being less common. It is therefore important to apply critical thinking and analyse new situations, opportunities and career options with an effective analytical problem-solving mindset. This aligns with dynamic capabilities not just to enable a firm’s strategic goals to be met, but also encourages a worker to continually be reviewing and evolving personal career goals.

Part 3 - Relationship focus: Relationship building is paramount to success in a changing world of work and can be demonstrated by showing skills in *Oral Communication*. There will be an increased need to continuously build new and effective networks, as new networks will form and reform in a more dynamic and fluid-working world. With complex new forms of employment (e.g. gig/contingent), it will be essential to be able to hold conversations with new people in order to build productive new relationships. These conversations should be

able to connect with people and build effective strong networks, and this is enabled by showing *Extraversion* behaviours of talking, connecting and engaging. If an individual is an introvert, this approach can be viewed as 'adopted behaviours' needed for successful career development. There will be a need for workers to be able to understand their own skills and strengths, have confidence (self-efficacy) in themselves, show competency in negotiating new forms of work and career by showing *Persuasiveness*. The model is shown below in Figure 7.1. This skill will also be a key requirement by workers to negotiate their way in a more dynamic working environment, as well as work across differing work/company structures.

Figure 7.1 Career Dynamism: a nine-factor career dynamism model



The significance of career resilience to this model

Therefore, to take a dual empathy approach as suggested by King (2004) and apply corporate capabilities to career capabilities, it is clear from the findings, Career Resilience is an essential aspect of careers development. In particular, this was emphasised in the Discriminant Analysis, where the Career Resilience factor of Self-Reliance was seen in the nonlinear career choice group. Concurrently, in both organisational and leadership literature, it is shown that that the ability to demonstrate organisational resilience is a key attribute for success. Aligned to the ability for a firm to react and respond effectively to the rapid changes around them, there is a nascent body of research on the subject of corporate resilience. Many commentators suggest that for a firm to achieve a competitive advantage, it must also be able to respond well to when it experiences any number of negative influences. Very recent research from authors such as Burnard et al. (2018, 351) proposes that “events, such

as natural hazards, pandemic diseases, terrorist attacks, political unrest, and economic instability, can all pose a significant threat to organizational performance and competitiveness.” Burnard’s study of organisational resilience showed the processes of how a firm reacted to major disruption and it developed resilience in order to grow from this. The key aspects, he suggests, relates to a firm’s ability to *develop resilience* in ways that it appears are not dissimilar to individual resilience, such as being adaptable and a ‘preparedness’ (which includes being *resourceful mindedness*) for change and uncertainty

This study indicates that career and HR practitioners ought to consider delivery processes to enable clients, students and workers to embrace uncertainty and feel more positive about change. As Kwok (2018, 141) suggests - in her study of career counselling for undergraduates at universities facing uncertain careers - that counsellors should to take a more optimistic approach to change, and posits;

“One way in which counsellors can encourage students to manage ambiguity in the external environment is through cultivating a positive view of uncertainty. Instead of perceiving ambiguity as a source of worry, individuals can adopt different perspectives and see changes as opportunities for possibilities where the end results might be even better than their initial plans”

The Employment model testing contributed thought-provoking results, in as much the graduates pursuing nonlinear career paths were differentiated in significant employability skills, many of these skills being identified as being crucial to the ‘future of work’ skills predictions. The results on academic success did not demonstrate a relationship between employment and career resilience – but these results in themselves are highly significant to show that an individual’s personal strengths and skills are more related to career outcomes. In addition, the data on academic outcomes did support literature on being conscientious, working hard and planning as being important factors in getting higher exam grades. The results show there was no relationship between exam grades and career outcomes. This is a significant finding for practitioners and academics teaching in universities, in that employers as shown in the literature, place a high value on skills and attributes often more than degree classifications. Therefore, the ‘student experience’ at universities should perhaps include an equal focus on developing personal factors, such as career resilience.

An analysis of all the key factors in all the models indicated there were key behaviours and traits that influenced career outcomes, and these were combined to develop the Career Dynamism Model. An important aspect of managing uncertainty found in this study is the building of career resilience, and specifically self-reliance. Indeed, if career services were to build internal careers education pieces, that are either curriculum embedded, or curriculum-aligned, that develop people’s ability to have self-reliance it may enable students to have better internal tools to manage change and uncertainty. This research showed that the most

significant factor within career resilience is self-reliance, demonstrated through people taking control and ownership of their career journeys, i.e. being responsible for their own learning and development, taking on more responsibility and being independent. Self-reliant people can survive better in a working world that has more contingent work, occupational hybridization, side hustling, gig working, and greater uncertainty with fewer stable jobs. The data shows that the dynamic-type career people had higher levels of self-reliance than those in traditional-type career people. The 'magic bullet' it could be suggested, is taking care of yourself with good career self-management and taking ownership of one's career and not relying on an employer to do this. In addition, this study also suggests that career resilience is made up of both competences and personality. Another key aspect of the study showed that Neuroticism is significantly negatively correlated with career resilience, which is conceivable for people who have higher anxieties. Therefore, another role of career delivery may be to address career anxiety by offering tools and experiences that build resilience, by building self-efficacy through the development of experiential projects that people would undertake to build self-reliance.

Another role of career delivery may be to address career anxiety by offering tools and experiences that build resilience, by building self-efficacy through the development of experiential projects that people would undertake to build more self-reliance. Examples of this could be taught interactive sessions that allow people to an immersive experience of building self-reliance by having to do a careers activity that is stretching and challenging, as suggested within the SCCT. The measure of self-reliance and other dynamic career qualities could be undertaken (via the online questionnaire) first to allow for participants to identify key gaps and capabilities, as well as build high extraversion and persuasion abilities – the 'people skills'. The development of an adapted Five-Factor Career Resilience Scale that had both content and construct validity was an important and valuable outcome of this study, given the literature on the effect that career resilience has in career development and on career outcomes. This scale may be a useful tool for practitioners to use when considering the career resilience of students to enable them to develop strategies for more resilient behaviours if needed.

The findings in this study offer to practitioners and researchers empirical evidence of which competencies and personality attributes are needed to manage career uncertainty, as well as key career resilient attributes that are aligned to the substantial literature in the field of behaviours that support working in change - including being more resilient and 'anti-fragile' (Taleb and Douady, 2013). For example, this study has highlighted the importance of Career Self-Management theory which has constructs of both career self-reliance and conscientiousness behaviours, where an individual's self-driven approach to career

development and job-gaining is improved by adopting pro-active career behaviours (Crites, 1969; Lent and Brown, 2013). This study emphasised that career self-reliance is a key driving factor in developing a pro-active career orientation, a trait shown to be essential in managing career uncertainty and a more dynamic world of work. Indeed, overall Career Resilience was found to be an important factor in developing such pro-active behaviours its strong and significant correlation with Big Five Personality and Supra-Competency.

As Inkson and King (2011, p41) noted that there needed to be a 'dual empathy' for both employers and workers in a world that is rapidly changing and uncertain, stating that new career theories should:

“explicitly prioritise the assertion of individual workers’ interests over organisations’ interests through ‘career self-management’ but also organizations’ potential to gain competitive advantage by developing structures, cultures and practices in line with the new career realities”

Therefore, this study provides a basis for a model with 'dual empathy' as the finding from the study demonstrated factors needed for effective 'uncertain/dynamic' career development. Through a new framework of qualities identified in managing career uncertainty, this study offers an applied model for a new world of work that needs both individual career and organisational dynamic capabilities.

7.3 Recommendations for practitioners

The study highlights that the specific quality of career resilience is highly significant in enabling people to manage careers that are very uncertain, and as such, developing career resilience ought to be a key element of practitioner delivery given that workers will face more uncertainty. In current careers settings, practitioners would not be far off the mark if they responded to clients with, “I am not sure if your job area will have disappeared in a few years and I’ve no idea what knowledge you’ll need for jobs that don’t exist yet” given the predicted impact of the new world of work. However, what they can instead do is enable people to develop the career skills of managing in uncertainty, including building career resilience, therefore enabling and empowering people to embrace the new world of work with a stronger 'positive-minded' approach to change that includes building career resilience to manage the ups and downs of work and indeed non-work scenarios (Seligman, 2011; Baigi, 2019).

The Career Dynamism Model offers careers practitioners a tool with which to enable their students and clients to develop key skills and qualities that are key to working in career uncertainty and that is aligned to the 'future of work'. An important contribution to both practice and knowledge is the development of an adapted 5-factor scale to measure career resilience, a tool that careers practitioners and human resource teams can apply to their setting. The questionnaire will have further testing, but is to be used in both coaching

sessions as well as career development teaching and training. This model has already been applied during this academic year in Henley Business School within group workshops and has had favourable evaluations. The Career Resilience, Big Five Personality and Competencies questionnaires will next be incorporated into one online form and users will be directed towards it via a Careers Coach in the Henley Careers service in the School. The questionnaires will be developed using Qualtrics, a web-based survey tool, and the Careers Coach will analyse responses. The results will be used as the basis for career coaching sessions.

This model will provide the career practitioner with an important framework of dynamic career skills that are needed in the future of work, and as such, provide a deeper level of conversation. Accordingly, based on results it can enable the coach and coachee to draw out an individual's strengths and attributes. Where individual scores low, for example in Career Resilience behaviours, the careers practitioner can use this as an opportunity for discussion on developing either coping behaviours or relying on aspects of their core strengths to offset. The discussion will also allow for more deep level discussion on how the user might approach change and ambiguity in their career.

The findings from the study indicate that there needs to be a different approach to careers delivery in both services and in organisations. As discussed, the delivery of careers in many universities is delivered in-curricula or extra-curricular employability sessions. Content of these employability sessions is very much focussed on job-gaining activities such as developing skills in job hunting, such as building skills in CV writing and job interview, etc., as well as on skills development for industry (Archer and Davidson, 2008; Andrewartha and Harvey, 2017). However, as the results of this study indicate, a greater part of career development for the new world of work should also include preparation for jobs that don't exist – and should be about developing skills and qualities that would enable success in this more uncertain career environment. This approach should also be considered for HR teams, especially in early talent recruitment, given that corporates will be undergoing significant changes and therefore need adaptive and resilient workers. It is proposed thus, that findings from this study could be developed into careers programmes with subjects such as developing analytical skills for data analysis, creative problem solving, oral communication for networking, developing an open mind to new experiences. These could be delivered alongside the 'traditional' employability offering. They could be taught interactive sessions that allow people to an immersive experience of building self-reliance by having to do a careers activity that is stretching and challenging. The measure of self-reliance and other dynamic career qualities could be undertaken (via the online questionnaire) first to allow for participants to identify key gaps and capabilities. A possible application of this study is that

the attributes of Career Dynamism could be incorporated into corporate Learning and Development tools within an organisation to allow workers to develop these traits as part of their contribution to the corporate dynamic capabilities, as well as for students.

7.4 Contribution to practice

The findings from this study give the careers practitioner two inter-related insights:

Practice Insight One: The results and literature indicate that career resilience is an important part of career success, as factors within it are related to better employability. A key aspect of career resilience and employability is to be career self-reliant, as career self-reliance enables an individual to create and complete career goals. Thus, careers practice should continue its move away from the giving/receiving of careers delivery, such as the emphasis on job-search information (which is responding to the student-as-consumer behaviours). Instead, emphasis on support toward enabling of skills/personality/resilience, which is needed to succeed, may be a better solution. The study highlights that these factors cannot be developed in isolation, and the SCCT approach of students' own experience is crucial to them identifying their own career goals (Lent and Hackett, 2000, 2005). Therefore, a much higher emphasis on experiences to affect behavioural change should be employed by careers practitioners. These can include courses, workshops and new forms of experiential learning that include key factors identified in this study that are highly linked to employability.

Practice Insight Two: The study findings also indicated that those graduates pursuing non-traditional jobs after graduating exhibited higher levels of key employability factors, and these attributes are expected to be more in demand by future employers especially in the light on research on the future of work. Whilst at first, the findings from the nonlinear group seemed counter-intuitive to the traditional careers practitioner, in as much traditional careers practice is placed on pursuing stable and certain career choices, the literature on work suggests that these qualities are in fact highly relevant to a new world of work (Lent and Brown, 1996; Arnold, 1997; Savickas, 2007). Indeed, Shaffer and Zalewski (2011) also suggest traditional careers service approaches need replacing with an offering to support individuals on how to maintain career success in uncertainty, as new-employability will mean working in ambiguity and job insecurity. Thus, delivery should move to place less emphasis on a 'DOTS model' delivery style, with its emphasis on labour market information gathering which may well be soon out of date and/or irrelevant. Instead, adopt deliverables that work toward enabling students to develop an ability to be comfortable with change. In addition, practitioners should encourage students to presume changes in their careers will occur – sometimes fast, sometimes slow as career changes are unpredictable. Practitioners should, therefore,

encourage their clients to develop the key attributes and behaviours highlighted in this study that are shown to be more aligned with 'chaos career change management'.

7.5 Contribution to theory and knowledge

The findings of this study provide a number of useful insights for both academe as well as practitioners. The offering to academe as Summers (2001) suggests should bring conceptual, empirical and methodological contributions. As such, the findings in this study offer a contribution to theory in both constructivist and positivist philosophical areas and suggests that both are interlinked, as demonstrated in the career Systems Theory Framework (STF) approach. The findings contribute to the STF by showing the influence on career and academic outcomes for an individual based on their personality, career resilience, and competencies. These constructs of examining career theory are 'positivist' in their philosophical basis as they are in essence 'Trait and Factor' theory-based. The level of examination in STF is at the 'individual' system. Whilst there is a criticism against Trait and Factor theory, there is still considerable literature to support the idea that people make career choices based on internal constructs such as personality traits, career resilience factors, and competence. The findings suggest that the personal-agency that people adopt in developing career paths is in part driven by these internal constructs. The results chapter supports this as there was a distinct separation in career outcomes for permanent and nonlinear career choices based on these constructs.

In gathering data on demographic backgrounds on the students, the study was also able to consider factors at the second system on STF, such as age and gender. In this study, these were factors shown not to influence outcomes for either academic or career outcomes.

The findings are set in the literature on careers, in this study considered as the external factors that influence employability, which would be set at the third system in STF. These include reviewing the changes at a 'world' level from technological influences on careers as suggested in the literature of Future of Work, in particular, a review of employability factors in the future. The findings from the study showed personal qualities that were identifiably different in individuals that pursued nonlinear (therefore non-certain, chaos-based and highly ambiguous) career paths, to those that pursued permanent jobs (therefore certain and clear). These qualities were more in line with those that have been suggested as needed in a new world economy, including a need for the ability to deal with change and ambiguity.

Summers suggests that the conceptual offer should, for example, include "the development of an improved theoretical rationale for existing linkages empirical contributions". Empirical focus - according to Summers (2001) - should include a "testing a theoretical linkage

between two constructs that have not previously been tested". A key empirical finding from this study that was not found before, was testing two constructs of linear and nonlinear career outcomes for recent graduates, and finding that nonlinear career path 'choosers' had definite differentiated traits to those that chose traditional career paths - an important contribution to this field of research. Summers (2001: 408) also suggested that a methodological contribution should "enhance the construct validity of key measures through the use of refined multiple-item measures and/or the use of measurement approaches that do not rely on self-reports". Accordingly, this study did not rely of self-reports but also used external data such as employment and exam data which was sourced from separate sources and at different times, as well as use different tools of measurements.

7.6 Limitations of the study

As with all studies, there are limitations, which are as follows:

The initial MSc Pilot Study of new graduates from a range of undergraduate courses using a quantitative study methodology formed the basis of key factors and constructs for this work. However, the population chosen for this study were drawn from a single year entry of Masters and MBA students. It is conceivable that the results may not be applicable to wider groups. The study was also based on only one single school at the University of Reading; Henley Business School, and only from the Whiteknights Campus as all the students were on one-year full-time courses. It is conceivable that the results may not be applicable to wider groups, such as other courses, levels of study and higher managerial jobholders.

The employment data for this study was difficult to gather and meant a higher reliance on other means (such as tracking on social media sites such as LinkedIn) than the University Employment Survey (DLHE), as many graduates do not respond to the survey, not least because they change their contact details. This meant only two-thirds eventually responded and as a result, it is conceivable that as the employment status of the final third is unknown, their results may have influenced the final findings.

Finally, it is possible that the models may be missing other important variables not considered for the purpose of this study.

7.7 Suggestions for future research

Further studies of the adapted Career Resilience scale are needed to be tested on other samples to test its reliability and validity further. It might also be useful to consider a follow-up study of graduates and their career paths in a longitudinal study 2, 3 and 5 years after graduation to examine if there are changes in key findings. The longitudinal study would

enable a more in-depth analysis of nonlinear and traditional career pathways, in order to examine people's approach to career management over a longer period

In addition, it would be useful to test these results on other University samples, as well as on graduate during their first or second year of employment within their organisations.

7.8 Personal learning

I have gained a great deal of insight into conducting academic studies while undertaking this DBA study. Specifically, I have learned how to develop a methodological approach in undertaking a major survey and learned quantitative research analysis and the use of SPSS. My understanding of the field of career resilience, personality and competencies has deepened and in developing both a new career resilience scale and the Careers Dynamism model, it has enabled me to contribute to the field of careers.

My personal learning has been tested greatly, in as much as my own career underwent significant changes after embarking on the DBA. I started with a secure university post and because of major staffing changes, I undertook a career move that was very uncertain and unclear as I left my stable and safe job, suddenly to become self-employed, with no client base or indeed any background in running a business - a true Chaos Theory of Careers application. The result of this experience developed my own skills and my ability to manage change and uncertainty in order to achieve career outcomes I wanted. This experience demonstrated in more depth my understanding of my own career resilience, as well as the importance of building career-relevant skills, such as effective relationship building. It might appear that my own experience predisposed the conceptual research planning for the DBA, but the irony is that my DBA research outline and design was completed before these experiences occurred. However, it does demonstrate that even careers practitioners are not immune to changing, uncertain and unpredictable work.

My view is that as workers are now facing increased uncertainty, disruption and chaos, career professionals need to do more to support them. AI, machine learning and robots are predicted to cause disruption to many sectors and occupations as discussed. Career and HR professionals will need to consider in more depth the career and skills development of workers, as traditional careers delivery and learning and development programmes have not been adapted enough to the future of work, and also do not cover a person's entire life of career management and maintaining life-long employability. It is imperative, therefore, that career development strategies should be developed to a much greater depth, to take into account the uncertainty that lies ahead for workers. My opinion is that it is critical to offer career and people development delivery that enables success in managing careers in

uncertainty throughout a lifetime. If we wish for workers to maintain a useful skillset throughout their career, career development should start in schools, colleges, and universities and then be continued in workplaces. Postmodern and contemporary theorists have vociferously argued this, and this study offers a clear empirical and methodological support for this approach as well as a model for delivery. The findings are of value to those considering career support in relation to the Future of Work, and it specifically identifies key traits (such as career self-reliance) that are needed to accomplish this purpose. I would like to be able to develop papers to promote the Careers Dynamism Model as well as the Five-Factor Career Resilience Scale. My next hope is to be able to develop further materials from this research to enable careers services to apply these in their own settings.

I have reflected further now on my own careers outlook as a result of my research findings, in particular to the importance of career self-reliance, to be less fixed on specific career goals and thus more open to new career opportunities. As a result, I am now more driven to support careers practitioners, HR leaders and students find tools to navigate their careers, and especially to have greater confidence in career development for these uncertain and unstable times.

7.9 To conclude,...

The literature on modern careers suggests that career paths are increasingly nonlinear and uncertain, and indeed this premise is supported by recent findings from an Inside HigherEd survey (2019) that tracked graduates in their first three jobs after graduating. The study found the typical career pathway did not follow a linear route. Many graduates instead ‘swirl’ rather than follow a straight lines, displaying desirable adaptive skills such as networking abilities:

“The results don’t look like neat cohorts entering a few high-profile careers with perfect intentionality. Instead, we see ‘real’ people moving in the market based on a complex web of factors, changing over time, finding their way & adapting as they go.”

In considering the employer viewpoint, Inkson and King (2011) argue that traditional career delivery does not address uncertain career paths, despite many employers employing greater numbers of temporary, contingent and gig workers. They suggest instead that there should be a ‘dual empathy’ and two-way method of approaching career practice to better meet employer requirements that takes into account both graduate and employer needs. Findings from this DBA study also showed that the key qualities of those undertaking nonlinear careers were more aligned to ideal career attributes preferred by employers, and especially those predicted in the literature of future of work. These nonlinear dynamic career qualities were described in the literature review as being more desirable given most careers are now subject to change, and as such, these qualities would be part of a more universal

life-long employability agenda. Similarly, as shown in Dynamic Capability theory, it is advocated that corporations should adopt dynamic attributes to maintain their competitive advantage. Furthermore, the theory of Dynamic Capabilities Microfoundations suggests that workers will also need to be dynamic, as they will need to continually evolve their career capabilities and renew themselves to remain economically active and career motivated – even within the same employer. In expanding the application of Dynamic Capabilities to the world of universities and business schools, Teece and Falconi (2018) argue that universities are not immune to environmental influences felt by corporations, and consequently they too need to adopt an evolutionary approach to ensure they survive in a VUCA higher education world. The propositions put forward by Teece and Falconi are that by adopting a dynamic capability approach, a university strategy, structure and even curriculum design can evolve at a relatively faster rate than currently observed, in order to meet rapidly shifting market needs. This rationale aligns with the discussion at the beginning of this thesis in describing the challenges faced by universities - including careers services in meeting changing stakeholder and societal expectations. Fundamental to this more dynamic evolutionary process is for people to develop behaviours and qualities associated with career uncertainty management, because as ‘work’ changes it is clear that a new approach to career development is needed. As Briscoe et al (2006, 31) state;

“the decline of the traditional organisational career requires new ways of viewing careers.”

Therefore, it is proposed, that there should be a ‘new paradigm’ of career delivery where services would offer delivery that is fully engaged in working with people to develop their career-uncertain and adaptive qualities including key competencies, personality, and career resilience, for a more Dynamic and VUCA world. The Career Dynamism model developed from this study offers a new career framework to support this purpose. It is suggested that career and HR practitioners could include it in their practice a process of identifying, measuring and then developing ‘career uncertainty qualities’ as a part of career practitioner-client and employer-worker interactions, in order to cultivate greater life-long employability.

References

- Access MBA (2015) The MBA Career Progression. Available at:
<https://www.accessmba.com/articles/view/mba-career-progression>. Accessed 14 August 2016
- Ackroyd, S. and Hughes, J. (1981). *Techniques of data collection*. London: Longman.
- Agresti, A. (1996). *An introduction to categorical data analysis*. 2nd edn. Hoboken, NJ: Wiley-Interscience.
- Akrivos, C., Ladkin, A. and Reklitis, P. (2007). Hotel managers' career strategies for success. *International Journal of Contemporary Hospitality Management*, 19(2), 107-119.
- Ali, L., Graham, B. and Lendrum, S. (1996). *The counselling approach to careers guidance*. London: Routledge.
- American Psychological Association. The Road to Resilience. Available at
<https://www.apa.org/helpcenter/road-resilience>. Accessed May 2015
- Amit, R. and Schoemaker, P. (1993). *Strategic assets and organizational rent*. *Strategic Management Journal*, 14(1), 33-46.
- Anafarta, N. and Çİzel, B. (2003). Career analysis in tourism industry: *Experiences from Turkey*. *Tourism Review*, 58(3), 15-19.
- Andrewartha, L. and Harvey, A. (2017). Employability and student equity in higher education: The role of university careers services. *Australian Journal of Career Development*, 26(2), 71-80.
- Andrews, J. and Higson, H. (2008). Graduate employability, 'soft skills' versus 'hard' business knowledge: a European study. *Higher Education in Europe*, 33(4), 411-422.
- Archer, W. and Davison J. (2008) Graduate employability: What do employers think and want? London, the Council for Industry and Higher Education (CIHE).
- Arnold, J. (1997). *Managing careers into the 21st century*. London: Chapman.
- Arnold, J., Cooper, C., Robertson, I., Burnes, B. and Patterson, F. (2005). *Work psychology: Understanding human behaviour in the workplace*. Essex: Pearson Educación.
- Arthur, M. and Rousseau, D. (1996). *Boundaryless Career, The*. New York: Oxford University Press.
- Arthur, M., Hall, D. and Lawrence, B. (1989). *Handbook of career theory*. Cambridge: Cambridge University Press.

- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191-215.
- Bandura, A. (1986). Fearful expectations and avoidant actions as coeffects of perceived self-inefficacy. *American Psychologist*, 41(12), 1389-1391.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W H Freeman/Times Books/ Henry Holt & Co.
- Bandura, A., Barbaranelli, C., Caprara, G. and Pastorelli, C. (2001). Self-efficacy beliefs as shapers of children's aspirations and career trajectories. *Child Development*, 72(1), 187-206.
- Bank of England Speeches (2018). The UK's Productivity Problem: Hub No Spokes. Available from <https://www.bankofengland.co.uk/-/media/boe/files/speech/2018/the-uks-productivity-problem-hub-no-spokes-speech-by-andy-haldane>. Accessed August 2018.
- Barrales-Molina, V., Montes, F. and Gutierrez-Gutierrez, L. (2015). Dynamic capabilities, human resources and operating routines. *Industrial Management & Data Systems*, 115(8), 1388-1411.
- Barrick, M. (2005). Yes, Personality Matters: Moving on to More Important Matters. *Human Performance*, 18(4), 359-372.
- Barrick, M. and Mount, M. (1991). The Big Five personality dimensions and job performance: a meta-analysis. *Personnel Psychology*, 44(1), 1-26.
- Baruch, Y. and Rosenstein, E. (1992). Career planning and managing in high tech organizations. *International Journal of Human Resource Management*, 3(3), 477-493.
- Baruch, Y. (2004). Transforming careers: from linear to multidirectional career paths. *Career Development International*, 9(1), pp.58-73.
- Baruch, Y. 2006, "Career development in organizations and beyond: Balancing traditional and contemporary viewpoints", *Human Resource Management Review*, vol. 16, no. 2, pp. 125-138.
- Baruch, Y. and Altman, Y., 2016. *The ecosystem of labor markets and careers*. *People and Strategy*, 39(3), p.16.
- Batistic, S. and Tymon, A. (2017). Networking behaviour, graduate employability: a social capital perspective. *Education + Training*, 59(4), 374-388.

- Beigi, M. (2014). Using fictional stories to facilitate training and development. *Human Resource Development International*, 17(4), 491-496.
- Beigi, M., Shirmohammadi, M., & Otaye, L. (2018). Half a century of work–nonwork interface research: a review and taxonomy of terminologies. *Applied Psychology*, 1-30.
- Bernstein, D. (2002). An additional model of the scholarship of teaching and learning. In: W. Buskist, V. Hevern and G. Hill, (eds.), *Essays from excellence in teaching*, 4th edn. Society for the Teaching of Psychology.
- Bersin, J. and Chamorro-Premuzic, T., 2019. New Ways to Gauge Talent and Potential. MIT Sloan Management Review, 60(2).1.
- Bice, J. Can Your Career Adapt to Changing Times? The Wall Street Journal Executive Career Site www.careerjournal.com/myc/survive/19990127-bice.html. Accessed 20 February 2011
- Bimrose, J. and Barnes, S. (2006). Is career guidance effective? Evidence from a longitudinal study in England. *Australian Journal of Career Development*, 15(2), 19-25.
- Bimrose, J., Barnes, S. and Hughes, D. (2008). *Developing career trajectories in England: the role of effective guidance*. London/Coventry: Department for Education & Skills/Warwick Institute for Employment Research.
- Bimrose, J., Barnes, S., Brown, A. and Hughes, D. (2011). *The role of career adaptability in skills supply*. Wath-upon-Deane, London: UK Commission for Employment and Skills.
- Bimrose, J. and Hearne, L. (2012). Resilience and career adaptability: Qualitative studies of adult career counseling. *Journal of Vocational Behavior*, 81(3), 338-344.
- BMJ Career Resilience 2012; 344 doi: Available at: <https://doi.org/10.1136/bmj.e3106> (Published 17 May 2012) Accessed August 2017.
- Boudreau, J., Boswell, W. and Judge, T. (2001). Effects of personality on executive career success in the United States and Europe. *Journal of Vocational Behavior*, 58(1), 53-81.
- Boudreau, J., Boswell, W., Judge, T. and Bretz, R. (2001). Personality and cognitive ability as predictors of job search among employed managers. *Personnel Psychology*, 54(1), 25-50.
- Bowling, A. (2005). Mode of questionnaire administration can have serious effects on data quality. *Journal of Public Health*, 27(3), 281-291.

- Boyatzis, R. (1982). *The competent manager*. New York: Wiley.
- Boyatzis, R. (2008). Competencies in the 21st century. *Journal of Management Development*, 27(1), 5-12.
- Bridgstock, R. (2009). The graduate attributes we've overlooked: enhancing graduate employability through career management skills. *Higher Education Research & Development*, 28(1), 31-44.
- Bright, J. and Pryor, R. (2005). The Chaos Theory of Careers: a user's guide. *The Career Development Quarterly*, 53(4), 291-305.
- Bright, J., Pryor, R., Wilkenfeld, S. and Earl, J. (2005). The role of social context and serendipitous events in career decision making. *International Journal for Educational and Vocational Guidance*, 5(1), 19-36
- Bright, J. and Pryor, R. (2007). Chaotic careers assessment: How constructivist and psychometric techniques can be integrated into work and life decision making. *Career Planning and Adult Development Journal*, 23, 46–56.
- Bright, J. and Pryor, R. (2008). Shiftwork: a chaos theory of careers agenda for change in career counselling. *Australian Journal of Career Development*, 17(3), 63-72.
- Bright, J. and Pryor, R. (2011). The Chaos Theory of Careers. *Journal of Employment Counseling*, 48(4), 163-166.
- Bright, J. and Pryor, R. (2014). Limitations and creativity: a chaos theory perspective. In: K. Maree and M. Lokhorst, (eds.), *Exploring New Horizons in Career Counselling: Converting Challenges into Opportunities*. Sense Publishing.
- .Briscoe, J. and Hall, D. (2006a). Special section on boundaryless and protean careers:. *Journal of Vocational Behavior*, 69(1), 1-3.
- Briscoe, J., Hall, D. and DeMuth, R. (2006). Protean and boundaryless careers: An empirical exploration. *Journal of Vocational Behavior*, 69(1), 30-47.
- Briscoe, J., Henagan, S., Burton, J. and Murphy, W. (2012). Coping with an insecure employment environment: The differing roles of protean and boundaryless career orientations. *Journal of Vocational Behavior*, 80(2), 308-316.
- Brott, P. (2001). The Storied Approach: A Postmodern Perspective for Career Counseling. *The Career Development Quarterly*, 49(4), 304-313.
- Brown, A., Bimrose, J., Barnes, S. and Hughes, D. (2012). The role of career adaptabilities for mid-career changers. *Journal of Vocational Behavior*, 80(3), 754-761.

- Brown, D. (1990) 'Summary, comparison & critique of the major theories', in Brown, D., Brooks, L. & Associates (Eds), *Career Choice & Development*, San Francisco, Jossey Bass, pp338-363.
- Brown, D. and Brooks, L. (1996). *Career choice and development*. San Francisco, CA: Jossey-Bass.
- Brown, M. and Wicker, L. (2018). Discriminant analysis. In: *Handbook of Applied Multivariate Statistics and Mathematical Modeling*. Academic Press, 209-235.
- Brown, S. and Lent, R. (1996). A social cognitive framework for career choice counseling. *The Career Development Quarterly*, 44(4), 354-366.
- Brown, S. and Lent, R. (2015). Vocational psychology: agency, equity, and well-being. *Annual Review of Psychology*, 67(1), 541-565.
- Bruck, C.S. and Allen, T.D., (2003). The relationship between big five personality traits, negative affectivity, type A behaviour, and work–family conflict. *Journal of vocational behaviour*, 63(3), pp.457-472.
- Burnard, K., Bhamra, R. and Tsinopoulos, C. (2018). Building organizational resilience: four configurations. *IEEE Transactions on Engineering Management*, 65(3), 351-362.
- Burns, A. and Bush, R. (2002). *Marketing research*. Upper Saddle River, N.J.: Prentice Hall, p.334.
- Burns, A. and Bush, R. (2008). *Basic marketing research using Microsoft® Excel data analysis*. 2nd edn. Pearson.
- Busato, V., Prins, F., Elshout, J. and Hamaker, C. (2000). Intellectual ability, learning style, personality, achievement motivation and academic success of psychology students in higher education. *Personality and Individual Differences*, 29(6), 1057-1068.
- Caldwell, D. and Burger, J. (1998). Personality characteristics of job applicants and success in screening interviews. *Personnel Psychology*, 51(1), 119-136.
- Callanan, G. and Greenhaus, J. (1999). Personal and Career Development. In: A. Kraut and A. Korman, (eds.), *Evolving practices in human resource management: Response to a changing world*. San Francisco: Jossey-Bass, 146-17.
- Campbell-Sills, L., Barlow, D., Brown, T. and Hofmann, S. (2006). Effects of suppression and acceptance on emotional responses of individuals with anxiety and mood disorders. *Behaviour Research and Therapy*, 44(9), 1251-1263.

- Campbell-Sills, L., Cohan, S. and Stein, M. (2006). Relationship of resilience to personality, coping, and psychiatric symptoms in young adults. *Behaviour Research and Therapy*, 44(4), 585-599.
- CBI (2018). *Future Fit: Preparing graduates for the world of work*. CBI on higher education. Available at: <https://www.cbi.org.uk/media-centre/articles/higher-skilled-roles-rise-as-skills-gap-grows-cbipearson-annual-report/>. Accessed November 2018
- Cedefop; The European Centre for the Development of Vocational Training (2005). *Vocational education and training in the United Kingdom*. Panorama series 111. Luxembourg: Office for Official Publications of the European Communities.
- Chambel, M. (2015). *Self-determination theory in new work arrangements; Psychology Research Progress*. Nova Science Publishers, Inc.
- Chamorro-Premuzic, T. (2010). *Personality and Individual Differences*, 49(8), p.1015.
- Chamorro-Premuzic, T. and Arteche, A. (2008). Intellectual competence and academic performance: Preliminary validation of a model. *Intelligence*, 36(6), 564-573.
- Chamorro-Premuzic, T. and Furnham, A. (2002). Neuroticism and “special treatment” in university examinations. *Social Behavior and Personality: an international journal*, 30(8), 807-811.
- Chamorro-Premuzic, T. and Furnham, A. (2008). Personality, intelligence and approaches to learning as predictors of academic performance. *Personality and Individual Differences*, 44(7), 1596-1603.
- Chamorro-Premuzic, T. and Reichenbacher, L. (2008). Effects of personality and threat of evaluation on divergent and convergent thinking. *Journal of Research in Personality*, 42(4), 1095-1101.
- Chamorro-Premuzic, T., Furnham, A. and Ackerman, P. (2006). Ability and personality correlates of general knowledge. *Personality and Individual Differences*, 41(3), 419-429.
- Chandrasekar, T. and Chidambaram, V. (2015). The impact of big five personality traits and positive psychological strengths towards job satisfaction: a review. *Periodica Polytechnica Social and Management Sciences*, 23(2), 142-150.
- Charuvastra, A. and Cloitre, M. (2008). Social bonds and posttraumatic stress disorder. *Annual Review of Psychology*, 59(1), 301-328.
- Chiaburu, D. and Baker, V. (2006). Extra-role behaviors challenging the status-quo. *Journal of Managerial Psychology*, 21(7), 620-637.

- Chiaburu, D., Baker, V. and Pitariu, A. (2006). Beyond being proactive: what (else) matters for career self-management behaviors?. *Career Development International*, 11(7), 619-632.
- Churchill, G. and Iacobucci, D. (2003). *Marketing research*. Beijing: Ji xie gong ye chu ban she.
- CIHE & AGR (2010). *Global Graduates into Global Leaders*.
- CIPD (2013). *Megatrends: The trends shaping work and working lives*. London: Chartered Institute of Personnel and Development.
- Collard, B., Epperheimer, J. and Saign, D. (1996). *Career resilience in a changing workplace*. Columbus, OH: ERIC Clearinghouse on Adult, Career, and Vocational Education, Center on Education and Training for Employment, College of Education, the Ohio State University.
- Cooper, C. (2002). The changing psychological contract at work. *Occupational and Environmental Medicine*, 59(6), 355-355.
- Costa Jr., P. and McCrae, R. (1992). Stability and change in personality assessment: the revised neo personality inventory in the year 2000. *Journal of Personality Assessment*, 68(1), 86-94.
- Council for Industry and Higher Education (Great Britain) (CIHE) (2008). *Graduate employability: what do employers think and want?*. London: CIHE.
- Crites, J. (1969). *Vocational psychology*. New York: McGraw-Hill.
- Crites, J. (1978). Career Counseling: For Beginners Only. *Contemporary Psychology: A Journal of Reviews*, 23(1), 37-38.
- Cronbach, L. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297-334.
- Cumming, J. (2010). Student-initiated group management strategies for more effective and enjoyable group work experiences. *The Journal of Hospitality Leisure Sport and Tourism*, 9(2), 31-45.
- Darke, P., Shanks, G. and Broadbent, M. (1998). Successfully completing case study research: combining rigour, relevance and pragmatism. *Information Systems Journal*, 8(4), p.280.
- Davda, A. (2011). Measuring resilience: A pilot study. *Assessment & Development Matters*, Autumn, 11 - 14.

- D'Aveni, R., Dagnino, G. and Smith, K. (2010). The age of temporary advantage. *Strategic Management Journal*, 31(13), 1371-1385.
- Davies, A., Fidler, D. and Gorbis, M., (2011). Future work skills 2020. Institute for the Future for University of Phoenix Research Institute, 540.
- De Bruin, G. and Lew, C. (2002). Construct validity of the career resilience questionnaire. *SA Journal of Industrial Psychology*, 28(1).
- Deloitte (2017) Future of Work Report. Available at:
<https://www2.deloitte.com/global/en/pages/human-capital/topics/future-of-work.html>.
 Accessed 24th January 2018
- Deloitte United Kingdom. (2018). *Future of Work | Deloitte UK*. [online] Available at:
<https://www2.deloitte.com/uk/en/pages/consulting/topics/future-of-work.html>
 [Accessed 29 Aug. 2018].
- DeVellis, R. (1991). *Scale Development: Theory and Applications*. Newbury Park, CA: Sage Publications.
- Dey, F. and Cruzvergara, C. (2014). Evolution of Career Services in Higher Education. *New Directions for Student Services*, 2014(148), pp.5-18.
- DeYoung, C. and Gray, J. (2009). Personality neuroscience: Explaining individual differences in affect, behavior, and cognition. In: P. Corr and G. Matthews, (eds.), *The Cambridge handbook of personality psychology*. New York: Cambridge University Press, 323–346.
- Donald W., Baruch Y., Ashleigh M. (2017) Boundaryless and Protean Career Orientation: A Multitude of Pathways to Graduate Employability. In: Tomlinson M., Holmes L. (eds) *Graduate Employability in Context*. Palgrave Macmillan, London
- Duckworth, A., Peterson, C., Matthews, M. and Kelly, D. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 92(6), 1087-1101.
- Dulewicz, V. (1989). Performance Appraisal and Counselling. In: P. Herriot, (eds.), *Assessment and selection in organizations: methods and practices for recruitment and appraisal*. New York: John Wiley & Sons, 645-649.
- Dulewicz, V. (2010). The competencies method for assessing staff. In: D. Ross, (eds.), *Managing People & Performance*. London: FT Prentice Hall.

- Dulewicz, V. and Herbert, P. (1999). Predicting advancement to senior management from competencies and personality data: a seven-year follow-up study. *British Journal of Management*, 10(1), 13-22.
- Dulewicz, V. and Herbert, P. (1999). The priorities and performance of boards in UK public companies. *Corporate Governance*, 7(2), 178-189.
- Dulewicz, V. and Higgs, M. (1999). Can emotional intelligence be measured and developed?. *Leadership & Organization Development Journal*, 20(5), 242-253.
- Eby, L., Butts, M. and Lockwood, A. (2003). Predictors of success in the era of the boundaryless career. *Journal of Organizational Behavior*, 24(6), 689-708.
- Fallon-Byrne, L. and Harney, B. (2017). Microfoundations of dynamic capabilities for innovation: a review and research agenda. *The Irish Journal of Management*, 36(1), 21-31.
- Fayombo, G. (2010). The relationship between personality traits and psychological resilience among the Caribbean adolescents. *International Journal of Psychological Studies*, 2(2).
- Feldman, D. and Ng, T. (2007). Careers: mobility, embeddedness, and success. *Journal of Management*, 33(3), 350-377.
- Finch, D., Peacock, M., Levallet, N. and Foster, W. (2016). A dynamic capabilities view of employability. *Education + Training*, 58(1), 61-81.
- Finn, J. and Rock, D. (1997). Academic success among students at risk for school failure. *Journal of Applied Psychology*, 82(2), 221-234.
- Forret, M. and Dougherty, T. (2004). Networking behaviors and career outcomes: differences for men and women?. *Journal of Organizational Behavior*, 25(3), 419-437.
- Fourie, C. and Van Vuuren, L. (1998). Defining and measuring career resilience. *SA Journal of Industrial Psychology*, 24(3).
- Freeman, L. (1978). Centrality in social networks conceptual clarification. *Social Networks*, 1(3), 215-239.
- Frese, M. and Zapf, D. (1994). Action as the core of work psychology: A German approach. In: H. Triandis, M. Dunnette and L. Hough, (eds.), *Handbook of Industrial and Organisational Psychology*, 4th edn. Palo Alto, CA: Consulting Psychologists Press, 271-340.

- Friborg, O., Barlaug, D., Martinussen, M., Rosenvinge, J. and Hjemdal, O. (2005). Resilience in relation to personality and intelligence. *International Journal of Methods in Psychiatric Research*, 14(1), 29-42.
- Fugate, M., Kinicki, A. and Ashforth, B. (2004). Employability: A psycho-social construct, its dimensions, and applications. *Journal of Vocational Behavior*, 65(1), 14-38.
- Gattiker, U. and Larwood, L. (1988). Predictors for managers' career mobility, success, and satisfaction. *Human Relations*, 41(8), 569-591.
- George, L.G., Helson, R. and John, O.P., 2011. The “CEO” of women's work lives: How Big Five Conscientiousness, Extraversion, and Openness predict 50 years of work experiences in a changing sociocultural context. *Journal of Personality and Social Psychology*, 101(4)-812.
- Georgellis, Y. and Sankae, N. (2016). The personality of managers in Britain: gender and sector differences. *Evidence-based HRM: a Global Forum for Empirical Scholarship*, 4(1), 67-80.
- Geramian, S., Mashayekhi, S. and Ninggal, M. (2012). The relationship between personality traits of international students and academic achievement. *Procedia - Social and Behavioral Sciences*, 46, 4374-4379.
- Gothard, B. (2001). *Careers guidance in context*. London: SAGE.
- Gov.UK Speeches, (2018) Available from <https://www.gov.uk/government/speeches/chancellor-speech-cbi-annual-dinner-2018>. Accessed September 23rd 2018
- Grissom, C. (2015). Resilience in students. *The Educational Forum*, 79(2), 206-207.
- Grote, H., Raouf, M. and Elton, C. (2012). Developing career resilience in medicine. *BMJ*, 3106.
- Gysbers, N. and Lapan, R. (2009). *Strengths-based career development for school guidance and counseling programs*. Chelsea, MI: Counseling Outfitters.
- Gysbers, N., Heppner, M. and Johnston, J. (2009). *Career Career Counseling: Contexts, Processes, and Techniques*. Alexandria, VA: American Counseling Association.
- Haapakorpi, Arja. (2014). Hybridization of occupation – background, process and outcomes.
- Hackett, G. and Betz, N. (1981). A self-efficacy approach to the career development of women. *Journal of Vocational Behavior*, 18(3), 326-339.

- Hair, J. F. (2010). *Multivariate data analysis: A global perspective*. Upper Saddle River, N.J: Pearson Education
- Hair, J., Bush, R. and Ortinau, D. (2006). *Marketing research*. Boston, Mass: McGraw-Hill/Irwin.
- Hair, J. (2014). *Multivariate data analysis*. Edinburg: Pearson.
- Hakimi, S., Hejazi, E. and Lavasani, M. (2011). The relationships between personality traits and students' academic achievement. *Procedia - Social and Behavioral Sciences*, 29, 836-845.
- Hall, D. (1976). *Career in Organizations*. Glenview, IL: Scott, Foresman.
- Hall, D. (1996). Protean Careers of the 21st Century. *Academy of Management Perspectives*, 10(4), 8-16.
- Hall, D. and Mirvis, P. (1996). The new protean career: Psychological success and the path with a heart. In: D. Hall, (eds.), *The career is dead, long live career: A relational approach to careers*. San Francisco, CA: Jossey-Bass, 15-45.
- Hall, D. and Moss, J. (1998). The new protean career contract: Helping organizations and employees adapt. *Organizational Dynamics*, 26(3), 22-37.
- Hall, D. (2002). *Careers in and out of organizations*. Thousand Oaks, Calif: SAGE.
- Hall, D. and Mirvis, P. (2013). Redefining work, work identity, and career success. In: D. Blustein, (eds.), *The Oxford Handbook of the Psychology of Working*. Oxford: Oxford University Press.
- Handy, C. (1996). *Beyond certainty: The changing worlds of organizations*. Boston, Mass.: Harvard Business School Press.
- Harkison, T., Poulston, J. and Ginny Kim, J. (2011). Hospitality graduates and managers: the big divide. *International Journal of Contemporary Hospitality Management*, 23(3), 377-392.
- Harreld, J., O'Reilly, C. and Tushman, M. (2007). Dynamic Capabilities at IBM: driving strategy into action. *California Management Review*, 49(4), 21-43.
- Heale, R. & Twycross, A. 2015, "Validity and reliability in quantitative studies", Evidence Based Nursing, vol. 18, no. 3, pp. 66-67. Arthur, N. (Ed.), McMahon, M. (Ed.). (2019). *Contemporary Theories of Career Development*. London: Routledge.
- Hearne, L. (2010). *Progression measurement in Adult Guidance in Ireland*. Waterford: Waterford Institute of Technology.

- HEFCE (2011). *Opportunity, choice and excellence in higher education*. [online] Bristol: HEFCE. Available at: <http://www.hefce.ac.uk/news/hefce/2011/strategy.html> [Accessed 25 Aug. 2018].
- Heijde, C. and Van Der Heijden, B. (2006). A competence-based and multidimensional operationalization and measurement of employability. *Human Resource Management*, 45(3), 449-476.
- Heppner, P., Reeder, B. and Larson, L. (1983). Cognitive variables associated with personal problem-solving appraisal: Implications for counseling. *Journal of Counseling Psychology*, 30(4), 537-545.
- Herring, H., Miller, D. and Form, W. (1951). Industrial Sociology. *Southern Economic Journal*, 18(1), p.116.
- Herrmann, A., Hirschi, A. and Baruch, Y., 2015. The protean career orientation as predictor of career outcomes: Evaluation of incremental validity and mediation effects. *Journal of Vocational Behavior*, 88, 205-214.
- Hillage, J and Pollard, E. (1998). Employability: Developing a framework for policy analysis. *Labour Market Trends*. 107. 83–84.
- Hirschi, A. (2010). The role of chance events in the school-to-work transition: The influence of demographic, personality and career development variables. *Journal of Vocational Behavior*, 77(1), 39-49.
- Hogan, J. and Ones, D. (1997). Conscientiousness and integrity at work. In: R. Hogan, J. Johnson and S. Briggs, (eds.), *Handbook of personality psychology*. San Diego, CA: Academic Press, 849-870.
- Hogan, R., Johnson, J. and Briggs, S. (1997). *Handbook of personality psychology*. San Diego: Academic Press.
- Hogan, R., Chamorro-Premuzic, T. and Kaiser, R.B., 2013. Employability and career success: Bridging the gap between theory and reality. *Industrial and Organizational Psychology*, 6(1), pp.3-16.
- Holland, J. (1966). On Vocational Development. *Contemporary Psychology: A Journal of Reviews*, 11(2), 89-90
- Holland, J. (1985). *Making vocational choices: A theory of vocational personalities and work environments*. 2nd edn. Englewood Cliffs, NJ: Prentice-Hall.
- Holland, J. (1997). *Making vocational choices*. Odessa, Fla.: Psychological Assessment Resources.

- Holland, J. (1977). Distributions of personalities within occupations and fields of study. *Vocational Guidance Quarterly*, 25(3), 226-231.
- Holland, J., Daiger, D. and Power, P. (1980). *My vocational situation*. Palo Alto, CA: Consulting Psychologists Press.
- Hsieh, H. and Shannon, S. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, 15(9), 1277-1288.
- Hunthausen, J., Truxillo, D., Bauer, T. and Hammer, L. (2003). A field study of frame-of-reference effects on personality test validity. *Journal of Applied Psychology*, 88(3), 545-551.
- Hypercompetition: managing the dynamics of strategic maneuvering. (1994). *Choice Reviews Online*, 32(02), 32-1031-32-1031.
- IFTF: Future Work Skills 2020, University of Phoenix (2011) Available from http://www.iftf.org/uploads/media/SR-1382A_UPRI_future_work_skills_sm.pdf. Accessed June 2017
- Inkson, K., Khapova, S. and Parker, P. (2007). Careers in cross-cultural perspective. *Career Development International*, 12(1), 5-8.
- Inkson, K. and King, Z. (2011). Contested terrain in careers: A psychological contract model. *Human Relations*, 64(1), 37-57
- Inside Higher Ed: Philosophy Degrees and Sales Jobs. Available from <http://www.insidehighered.com/news/2019/08/02/new-data-track-graduates-six-popular-majors-through-their-first-three-jobs> Accessed August 2019
- Institute for the Future for the University of Phoenix Research Institute (2011). *Future Work Skills 2020*. Palo Alto, CA.
- John, O., Donahue, E. and Kentle, R. (1991). The Big Five Inventory--Versions 4a and 54. *University of California, Berkeley, Institute of Personality and Social Research*.
- John, O. P., & Srivastava, S. (1999). The Big Five Trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (pp. 102-138). New York, NY, US: Guilford Press.
- John, O., Naumann, L. and Soto, C. (2008). Paradigm shift to the integrative big five trait taxonomy. In: O. John, R. Robbins and L. Pervin, (eds.), *Handbook of Personality*, 3rd ed New York, NY: Guilford Press.

- Judge, T. and Bretz, R. (1994). Political influence behavior and career success. *Journal of Management*, 20(1), 43-65.
- Judge, T., Cable, D., Boudreau, J. and Bretz, R. (1995). An empirical investigation of the predictors of executive career success. *Personnel Psychology*, 48(3), 485-519.
- Judge, T., Martocchio, J. and Thoresen, C. (1997). Five-factor model of personality and employee absence. *Journal of Applied Psychology*, 82(5), 745-755.
- Judge, T., Bono, J., Ilies, R. and Gerhardt, M. (2002). Personality and leadership: A qualitative and quantitative review. *Journal of Applied Psychology*, 87(4), 765-780.
- Judge, T., Higgins, C., Thoresen, C. and Barrick, M. (1999). The big five personality traits, general mental ability, and career success across the life span. *Personnel Psychology*, 52(3), 621-652.
- Judge, T.A., Higgins, C.A., Thoresen, C.J. and Barrick, M.R., 1999. The big five personality traits, general mental ability, and career success across the life span. *Personnel psychology*, 52(3), pp.621-652.
- Judge, T., Heller, D. and Mount, M. (2002). Five-factor model of personality and job satisfaction: A meta-analysis. *Journal of Applied Psychology*, 87(3), 530-541.
- Kaighobadi, M. and Allen, M. (2008). Investigating academic success factors for undergraduate business students. *Decision Sciences Journal of Innovative Education*, 6(2), 427-436.
- King, Z. (2001). Career self-management: a framework for guidance of employed adults. *British Journal of Guidance and Counselling*, 29(1), 65-78.
- King, Z. (2004). Career self-management: Its nature, causes and consequences. *Journal of Vocational Behavior*, 65(1), 112-133.
- King, Z., Burke, S. and Pemberton, J. (2005). The 'bounded' career: An empirical study of human capital, career mobility and employment outcomes in a mediated labour market. *Human Relations*, 58(8), 981-1007.
- Kinsinger, P. and Walch, K. (2012). *Living and leading in a VUCA world*. Thunderbird University.
- Knight, P. and Yorke, M. (2003). Employability and good learning in higher education. *Teaching in Higher Education*, 8(1), 3-16.

- Komaraju, M., Karau, S., Schmeck, R. and Avdic, A. (2011). The Big Five personality traits, learning styles, and academic achievement. *Personality and Individual Differences*, 51(4), 472-477.
- Koonce, R. (1995). Becoming your own career coach. *Training and Development*, 49(1), 18-25.
- Kossek, E., Roberts, K., Fisher, S. and Demarr, B. (1998). Career self-management: a quasi-experimental assessment of the effects of a training intervention. *Personnel Psychology*, 51(4), 935-960.
- Krumboltz, J. (1998a). Counsellor actions needed for the new career perspective. *British Journal of Guidance and Counselling*, 26(4), 559-564.
- Krumboltz, J. (1998). Serendipity is not serendipitous. *Journal of Counseling Psychology*, 45(4), 390-392.
- Krumboltz, J. (2009). The happenstance learning theory. *Journal of Career Assessment*, 17(2), 135-154.
- Kwok, C.Y.N. 2018, "Managing uncertainty in the career development of emerging adults: Implications for undergraduate students", *Australian Journal of Career Development*, vol. 27, no. 3, pp. 137-149.
- Larsen, R. and Ketelaar, T. (1991). Personality and susceptibility to positive and negative emotional states. *Journal of Personality and Social Psychology*, 61(1), 132-140.
- Lautsch, B. (2002). Uncovering and explaining variance in the features and outcomes of contingent work. *ILR Review*, 56(1), 23-43.
- Law, B. and Watts, A.G., 1977. *Schools, careers, and community: a study of some approaches to careers education in schools*. CIO Publishing for the General Synod Board of Education.
- Lazarova, M. and Taylor, S. (2009). Boundaryless careers, social capital, and knowledge management: Implications for organizational performance. *Journal of Organizational Behavior*, 30(1), 119-139.
- Lee, P., Lin, H., Chen, H. and Shyr, Y. (2011). Dynamic capabilities exploitation of market and hierarchy governance structures: An empirical comparison of Taiwan and South Korea. *Journal of World Business*, 46(3), 359-370.
- Lent, R., Brown, S. and Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior*, 45(1), 79-122.

- Lent, R. and Brown, S. (1996). Social cognitive approach to career development: an overview. *The Career Development Quarterly*, 44(4), 310-321.
- Lent, R., Brown, S. and Hackett, G. (2000). Contextual supports and barriers to career choice: A social cognitive analysis. *Journal of Counseling Psychology*, 47(1), 36-49.
- Lent, R. (2005). A social cognitive view of career development and counseling. In: S. Brown and R. Lent, (eds.), *Career development and counseling: Putting theory and research to work*. Hoboken, NJ: John Wiley & Sons Inc., 101-127.
- Lent, R. and Brown, S. (2013). Social cognitive model of career self-management: Toward a unifying view of adaptive career behavior across the life span. *Journal of Counseling Psychology*, 60(4), 557-568.
- Lent, R. (2013). Career-life preparedness: revisiting career planning and adjustment in the new workplace. *The Career Development Quarterly*, 61(1), 2-14.
- Lent, R., Ezeofor, I., Morrison, M., Penn, L. and Ireland, G. (2016). Applying the social cognitive model of career self-management to career exploration and decision-making. *Journal of Vocational Behavior*, 93, 47-57.
- Lent, M. (2017). Increasing the well-being of others on-the-job and outside the workplace. *SSRN Electronic Journal*.
- Leung, S. (2008). The big five career theories. In: J. Athanasou and R. Van Esbroeck, (eds.), *International Handbook of Career Guidance*, 1st edn. Dordrecht: Springer, 115-132.
- Lievens, F., Coetsier, P., De Fruyt, F. and De Maeseneer, J. (2002). Medical students' personality characteristics and academic performance: a five-factor model perspective. *Medical Education*, 36(11), 1050-1056.
- Lim, B. and Ployhart, R. (2004). Transformational leadership: relations to the five-factor model and team performance in typical and maximum contexts. *Journal of Applied Psychology*, 89(4), 610-621.
- Linley, P. and Joseph, S. (2004). *Positive psychology in practice*. 1st ed. Hoboken, N.J.: Wiley.
- Litvinova, E. (2013). Protean career: perspectives of study. *Journal of Modern Foreign Psychology*, [online] 2(2), 118–129. Available at: <http://psyjournals.ru/en/jmfp/2013/n2/61263.shtml> [Accessed 22 Aug. 2018].
- Liu Y C (2003) *Relationships between career resilience and career beliefs of employees in Taiwan*. PhD thesis, Texas A&M University.

- Lo Presti, A., Pluviano, S. and Briscoe, J. (2018). Are freelancers a breed apart? The role of protean and boundaryless career attitudes in employability and career success. *Human Resource Management Journal*, 28(3), 427-442.
- Lo Presti, A., Törnroos, K. and Pluviano, S. (2018). "Because I am worth it and employable": A cross-cultural study on self-esteem and employability orientation as personal resources for psychological well-being at work. *Current Psychology*.
- London, M. (1983). Toward a theory of career motivation. *The Academy of Management Review*, 8(4), p.620.
- London, M. (1993). Relationships between career motivation, empowerment and support for career development. *Journal of Occupational and Organizational Psychology*, 66(1), 55-69.
- London, M. and Mone, E. (1987). *Career management and survival in the workplace*. San Francisco: Jossey-Bass.
- London, M. and Noe, R. (1997). London's career motivation theory: an update on measurement and research. *Journal of Career Assessment*, 5(1), 61-80.
- London, M., 2014. *Career barriers: How people experience, overcome, and avoid failure*. Psychology Press.
- Lord, W. (2018). *NEO PI-R-A Guide to Interpretation and Feedback in a Work Context*. Hogrefe Ltd.
- Lorenz, E. (1963). Deterministic Nonperiodic Flow. *Journal of the Atmospheric Sciences*, 20(2), 130-141.
- Lundman, B., Strandberg, G., Eisemann, M., Gustafson, Y. and Brulin, C. (2007). Psychometric properties of the Swedish version of the Resilience Scale. *Scandinavian Journal of Caring Sciences*, 21(2), 229-237.
- Lyubomirsky, S., King, L. and Diener, E. (2005). The benefits of frequent positive affect: does happiness lead to success?. *Psychological Bulletin*, 131(6), 803-855.
- Martin, A. and Marsh, H. (2008). Academic buoyancy: Towards an understanding of students' everyday academic resilience. *Journal of School Psychology*, 46(1), 53-83.
- Masten, A. (2001). Ordinary magic: Resilience processes in development. *American Psychologist*, 56(3), 227-238.
- Mattern, K., Burrus, J. and Shaw, E. (2010). When both the skilled and unskilled are unaware: consequences for academic performance. *Self and Identity*, 9(2), 129-141.

- Maxwell, G., Williamson, E. and Macfarlane, D. (2007). Employability Skills on Postgraduate Programmes: An Exploratory Study of Key Stakeholders' Perspectives.
- McAfee, A., Brynjolfsson, E., Davenport, T.H., Patil, D.J. and Barton, D., 2012. Big data: the management revolution. *Harvard business review*, 90(10), 60-68.
- McAbee, S., Oswald, F. and Connelly, B. (2014). Bifactor models of personality and college student performance: a broad versus narrow view. *European Journal of Personality*, p.n/a-n/a.
- McCabe, K., Van Yperen, N., Elliot, A. and Verbraak, M. (2014). Big Five personality profiles of context-specific achievement goals. *Journal of Research in Personality*, 47(6), 698-707.
- McClelland, D. (1965). Toward a theory of motive acquisition. *American Psychologist*, 20(5), 321-333.
- McClelland, D. (1975). *Power: the inner experience*. New York: Irvington.
- McClelland, D. (1985). How motives, skills, and values determine what people do. *American Psychologist*, 40(7), 812-825.
- McCrae, R. (1987). Creativity, divergent thinking, and openness to experience. *Journal of Personality and Social Psychology*, 52(6), 1258-1265.
- McCrae, R. and Costa, P. (1991). The NEO personality inventory: using the five-factor model in counseling. *Journal of Counseling & Development*, 69(4), 367-372.
- McIlroy, D. and Bunting, B. (2002). Personality, behavior, and academic achievement: principles for educators to inculcate and students to model. *Contemporary Educational Psychology*, 27(2), 326-337.
- McKinsey & Company. (2017). *Technology, jobs, and the future of work*. [online] Available at: <https://www.mckinsey.com/featured-insights/employment-and-growth/technology-jobs-and-the-future-of-work> [Accessed 29 Aug. 2018].
- McLeod, S. (2018). *What is Validity in Psychology | Simply Psychology*. [online] Simplypsychology.org. Available at: <https://www.simplypsychology.org/validity.html> [Accessed 20 Aug. 2018].
- McMahon, M. and Patton, W. (1995). Development of a systems theory of career development. *Australian Journal of Career Development*, 4(2), 15-20.

- McMahon, M., Watson, M. and Patton, W. (2005). Qualitative career assessment: developing the system of career influences reflection activity. *Journal of Career Assessment*, 13(4), 476-490.
- McQuaid, R. and Lindsay, C. (2005). The concept of employability. *Urban Studies*, 42(2), 197-219.
- McMahon, M., Bimrose, J. and Watson, M. (2010). *Stories of careers, learning and identity across the lifespan: considering the future narrative of career theory*.
- Mirvis, P. and Hall, D. (1994). Psychological success and the boundaryless career. *Journal of Organizational Behavior*, 15(4), 365-380.
- Mitchell, L. and Krumboltz, J. (1996). Krumboltz's learning theory of career choice and counselling. In: D. Brown and L. Brooks, (eds.), *Career Choice and Development*, 3rd edn. San Francisco, CA: Jossey Bass, 223-280.
- Morris, M. and Vekker, A. (2001). An alternative look at temporary workers, their choices, and the growth in temporary employment. *Journal of Labor Research*, 22(2), 373-390.
- Möttus, R., Allik, J., Konstabel, K., Kangro, E. and Pullmann, H. (2008). Beliefs about the relationships between personality and intelligence. *Personality and Individual Differences*, 45(6), 457-462.
- Muzzolon, C., Spoto, A. and Vidotto, G. (2015). Why choose a temporary employment?. *International Journal of Manpower*, 36(8), 1146-1163.
- Nakaya, M., Oshio, A. and Kaneko, H. (2006). Correlations for adolescent resilience scale with big five personality traits. *Psychological Reports*, 98(3), 927-930.
- Nash, L. (2018). The virtual job. *The Wilson Quarterly*, [online] 18(4), 72-81. Available at: https://www.jstor.org/stable/40259130?seq=1#page_scan_tab_contents [Accessed 22 Aug. 2018].
- Noe, R., Noe, A. and Bachhuber, J. (1990). An investigation of the correlates of career motivation. *Journal of Vocational Behavior*, 37(3), 340-356.
- Noftle, E.E. and Robins, R.W., 2007. Personality predictors of academic outcomes: big five correlates of GPA and SAT scores. *Journal of personality and social psychology*, 93(1), p.116.
- Nogalski, B., Niewiadomski, P. and Szpitter, A. (2017). Dynamic competences in the opinion of the machine sector experts – from management theory to practice. *Management*, 22(1), 11-30.

- O'Connor, M. and Paunonen, S. (2007). Big Five personality predictors of post-secondary academic performance. *Personality and Individual Differences*, 43(5), 971-990.
- Ohme, M. and Zacher, H. (2015). Job performance ratings: The relative importance of mental ability, conscientiousness, and career adaptability. *Journal of Vocational Behavior*, 87, 161-170.
- O'Regan, M. (2010). *Graduate transitions to employment: career motivation, identity and employability*. Reading: University of Reading.
- Oshio, A., Kaneko, H., Nagamine, S. and Nakaya, M. (2003). *Construct validity of the adolescent resilience scale*. *Psychological Reports*, 93(3_suppl), 1217-1222.
- Osipow, S. and Fitzgerald, L. (1996). *Theories of career development*. 4th edn. Boston: Allyn and Bacon.
- Ostendorf, F. and Angleitner, A., 1994. *A comparison of different instruments proposed to measure the Big Five*. *European Review of Applied Psychology*, 44(1), pp.45-53.
- Parsons, F. (1909). *Choosing a vocation*. Boston: Houghton Mifflin.
- Patton, W. and McMahon, M. (1999). *Career development and systems theory: A new relationship*. Pacific Grove, CA: Brooks/Cole.
- Patton, W. and McMahon, M. (2006). The systems theory framework of career development and counseling: connecting theory and practice. *International Journal for the Advancement of Counselling*, 28(2), 153-166.
- Patton, W. and McMahon, M. (2014). *Career development and systems theory*. 3rd edn. Pacific Grove, Calif.: Brooks/Cole Publ.
- Pryor, R. and Taylor, N. (1989). Circumscription and compromise: Some problems and some possibilities. *Australian Psychologist*, 24(1), 101-113.
- Pryor, R. and Bright, J. (2003). Order and chaos: a twenty-first century formulation of careers. *Australian Journal of Psychology*, 55(2), 121-128.
- Pryor, R. and Bright, J. (2003). The chaos theory of careers. *Australian Journal of Career Development*, 12(3), 12-20.
- Pryor, R. and Bright, J. (2005). Chaos in practice: techniques for career counsellors. *Australian Journal of Career Development*, 14(1), 18-28.
- Pryor, R. and Bright, J. (2006). Counseling chaos: Techniques for practitioners. *Journal of Employment Counseling*, 43(1), 9-17.

- Pryor, R. and Bright, J. (2007). Applying chaos theory to careers: attraction and attractors. *Journal of Vocational Behavior*, 71(3), 375-400.
- Pryor, R. and Bright, J. (2009). Game as a career metaphor: a chaos theory career counselling application. *British Journal of Guidance & Counselling*, 37(1), 39-50.
- Pryor, R. and Bright, J. (2010). Good hope in chaos: Beyond matching to complexity in career development. *South African Journal of Higher Education*, 23(3).
- Pryor, R. and Bright, J. (2011). The value of failing in career development: a chaos theory perspective. *International Journal for Educational and Vocational Guidance*, 12(1), 67-79.
- Purcell, K., Elias, P. and Atfield, G. (2009). *Analysing the relationship between higher education participation and educational and career development patterns and outcomes*. Warwick: Institute for Employment Research, University of Warwick.
- R. McCrae, Robert & Costa, Paul. (1997). Personality Trait Structure as a Human Universal. *The American psychologist*. 52. 509-16. 10.1037//0003-066X.52.5.509.
- Redmond, P. (2010). *The graduate jobs formula*. Richmond: Trotman.
- Remenyi, D. (1998). *Doing research in business and management*. London: SAGE.
- Rigdell, S. and Lounsbury, J. (2004). Predicting academic success: general intelligence, "big five" personality traits, and work drive. *College Student Journal*, 38(4), 607-618.
- Roberts, K. (1968). The entry into employment: an approach towards a general theory. *The Sociological Review*, 16(2), 165-184.
- Roberts, K. (1977). The social conditions, consequences and limitations of careers guidance. *British Journal of Guidance and Counselling*, 5(1), 1-9.
- Roberts, K. (1997). Prolonged transitions to uncertain destinations: The implications for careers guidance. *British Journal of Guidance & Counselling*, 25(3), 345-360.
- Rogers, C. (1965). The therapeutic relationship: Recent theory and research¹. *Australian Journal of Psychology*, 17(2), 95-108.
- Rothwell, A. and Arnold, J. (2007). Self-perceived employability: development and validation of a scale. *Personnel Review*, 36(1), 23-41.
- Royal, C. and Althausen, R. (2003). The labor markets of knowledge workers. *Work and Occupations*, 30(2), 214-233.
- Ryan, R. and Deci, E. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78.

- Samardžija, J., Walker, J. and Bazdan, V. (2017). Career development and personal success profile of students - followers and students - potential future leaders: The case of RIT Croatia. *Management : Journal of Contemporary Management Issues*, 22(Special Issue Studeni 2017), 85-107.
- Savikas, M. and Lent, R. (1994). *Convergence in career development theories*. Palo Alto (Calif.): CPP Books
- Savickas, M. (1997). Career Adaptability: An Integrative Construct for Life-Span, Life-Space Theory. *The Career Development Quarterly*, 45(3), 247-259.
- Savickas, M. (2005). The theory and practice of career construction. In: S. Brown and R. Lent, (eds.), *Career development and counseling: Putting theory and research to work*. Hoboken, NJ: Wiley, 42-70.
- Savickas, M. (2007). Internationalisation of Counseling Psychology: Constructing Cross-National Consensus and Collaboration. *Applied Psychology*, 56(1).
- Savickas, M. (2007). Reshaping the story of career counselling. In: K. Maree, (eds.), *Shaping the Story: A Guide to Facilitating Narrative Career Counselling*. Rotterdam, NL: Sense, 1-7.
- Savickas, M. (2011). Constructing careers: actor, agent, and author. *Journal of Employment Counseling*, 48(4), 179-181.
- Savickas, M. (2011). The Centennial of Counselor Education: Origin and Early Development of a Discipline. *Journal of Counseling & Development*, 89(4), 500-504.
- Savickas, M. L. (2013). Career construction theory and practice. In R. W. Lent & S. D. Brown (Eds.). *Career development and counseling: Putting theory and research to work* (2nd ed., pp. 147-183). Hoboken, New Jersey: John Wiley & Sons.
- Schäfer, M. (2018) 'the fourth industrial revolution: How the EU can lead it', *European View*, 17(1), pp. 5–12. doi: 10.1177/1781685818762890.
- Schmeck, R. (1999). Thoughtful learners: Students who engage in deep and elaborative information processing. In: R. Riding and S. Rayner, (eds.), *International Perspectives on Individual Differences*. Stamford: Ablex Publishing.
- Schmeck, R., Ribich, F. and Ramanaiah, N. (1977). Development of a self-report inventory for assessing individual differences in learning processes. *Applied Psychological Measurement*, 1(3), 413-431.
- Seibert, S. and Kraimer, M. (2001). The Five-Factor Model of Personality and Career Success. *Journal of Vocational Behavior*, 58(1), 1-21.

- Seligman, M.E., 2011. Building resilience. *Harvard business review*, 89(4), 100-6.
- Shaffer, L. and Zalewski, J. (2011). Career Advising in a VUCA Environment. *NACADA Journal*, 31(1), 64-74.
- Sharf, R. (2006). *Applying career development theory to counseling*. Belmont, CA: Brooks/Cole.
- Song, J., Lee, K. and Khanna, T. (2016). Dynamic Capabilities at Samsung: optimizing internal co-opetition. *California Management Review*, 58(4), 118-140.
- Steiber, A. and Alänge, S. *The Silicon Valley model*. 1st edn. Cham: Springer, 19-35.
- Sternberg, R. J., & Ben-Zeev, T. (2001). *Complex cognition: The psychology of human thought*. New York, NY, US: Oxford University Press.
- Stone, G. and Ineson, E. (1997). An international comparison of personality differences between hospitality and other service sector managers. *International Journal of Selection and Assessment*, 5(4), 215-228.
- Sullivan, S. (1999). The changing nature of careers: a review and research agenda. *Journal of Management*, 25(3), 457-484.
- Summers, J. (2001). Guidelines for conducting research and publishing in marketing: from conceptualization through the review process. *Journal of the Academy of Marketing Science*, 29(4), 405-415.
- Super, D. (1953). A theory of vocational development. *American Psychologist*, 8(5), 185-190.
- Sutton Trust, Elitist Britain. Available at: <https://www.suttontrust.com/research-paper/elitist-britain-2019/>. Accessed July 2019
- Taleb, N.N. & Douady, R. 2013, "Mathematical definition, mapping, and detection of (anti)fragility", *Quantitative Finance*, vol. 13, no. 11, pp. 1677-1689.
- Teece, D., Pisano, G. and Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533.
- Teece, D.J., 2007. Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic management journal*, 28(13), pp.1319-1350.
- Teece, D. (2011). Achieving integration of the business school curriculum using the dynamic capabilities framework. *Journal of Management Development*, 30(5), pp.499-518.
- Teece, D and Falconi, S (2018). What the 'American College President' Needs Today Available at: <https://www.insidehighered.com/advice/2018/11/20/todays-presidents->

should-focus-their-colleges-dynamic-capabilities-and-ecological Accessed August 5th 2019

TEF Data (2017), Office for Students. Available from

<https://www.officeforstudents.org.uk/advice-and-guidance/teaching/tef-data/>

Accessed 24th August 2015

Tomlinson, M. (2007). Graduate employability and student attitudes and orientations to the labour market. *Journal of Education and Work*, 20(4), 285-304.

UK Commission for Employment and Skills (2014). *The future of work: jobs and skills in 2030*. London: UK Commission for Employment and Skills.

Uysal, S. and Pohlmeier, W. (2011). Unemployment duration and personality. *Journal of Economic Psychology*, 32(6), 980-992.

Veliyath, R. and D'Aveni, R. (1996). Hypercompetition: Managing the Dynamics of Strategic Maneuvering. *The Academy of Management Review*, 21(1), p.291.

von Bertalanffy, L. (1940). Der Organismus als physikalisches System betrachtet. *Naturwissenschaften*, 28(33), 521-531.

Wall, T., Cordery, J. and Clegg, C. (2002). Empowerment, performance, and operational uncertainty: a theoretical integration. *Applied Psychology*, 51(1), 146-169.

Wanberg, C. and Banas, J. (2000). Predictors and outcomes of openness to changes in a reorganizing workplace. *Journal of Applied Psychology*, 85(1), 132-142.

Waterman, R., Waterman, J. and Collard, B. (1994). Toward a career resilient workforce. *Harvard Business Review*, 72(4), 87-95.

Waters, L., Briscoe, J. and Hall, D. (2014). Using protean career attitude to facilitate a positive approach to unemployment. *Psycho-social Career Meta-capacities*, 19-33.

Watson, D. and Clark, L. (1997). Extraversion and its positive emotional core. In: *Handbook of personality psychology*. San Diego, CA: Academic Press, 767-793.

Watson, D. and Pennebaker, J.W., (1989). Health complaints, stress, and distress: exploring the central role of negative affectivity. *Psychological review*, 96(2), p.234.

Watts, A. (1996). toward a policy for lifelong career development: a transatlantic perspective. *The Career Development Quarterly*, 45(1), 41-53.

Wilks, S. (2008). Resilience in undergraduate social work students: social support and adjustment to academic stress. *Social Work Education*, 29(3), 276-288.

- Wolfe, D.M. and Kolb, D.A., (1984). Career development, personal growth and experiential learning. *Organizational Psychology: Readings on human behavior*, 4th edition, eds D. Kolb, I. Rubin and J. Macintyre, Prentice-Ha.
- Wolfe, R. and Johnson, S. (1995). Personality as a predictor of college performance. *Educational and Psychological Measurement*, 55(2), 177-185.
- Wolff, H. and Kim, S. (2012). The relationship between networking behaviors and the Big Five personality dimensions. *Career Development International*, 17(1), 43-66.
- World Economic Forum (2016). The Future of Jobs. [online] Geneva: World Economic Forum, p.21. Available at: http://www3.weforum.org/docs/WEF_Future_of_Jobs.pdf [Accessed 20 May 2018].
- World Economic Forum Future of Jobs (2015) Available from http://www3.weforum.org/docs/WEF_Future_of_Jobs.pdf. Accessed 12 September 2016
- World Economic Forum Future of Jobs (2018) Available from <http://reports.weforum.org/future-of-jobs-2018/>. Accessed 16th December 2018
- World Economic Forum. (2016). *The 10 skills you need to thrive in the Fourth Industrial Revolution*. [online] Available at: <https://www.weforum.org/agenda/2016/01/the-10-skills-you-need-to-thrive-in-the-fourth-industrial-revolution/> [Accessed 29 Aug. 2018].
- Yates, J. 2019, "Contemporary Theories of Career Development: International Perspectives", *British Journal of Guidance & Counselling*, pp. 1-2.
- Zhang, L. (2002). thinking styles and the big five personality traits. *Educational Psychology*, 22(1), 17-31.
- Zheng, S., Zhang, W. and Du, J. (2011). Knowledge-based dynamic capabilities and innovation in networked environments. *Journal of Knowledge Management*, 15(6), pp.1035-1051.
- Zhang, L. (2003). Does the big five predict learning approaches?. *Personality and Individual Differences*, 34(8), 1431-1446.
- Zhang, L. (2011). Hardiness and the Big Five personality traits among Chinese university students. *Learning and Individual Differences*, 21(1), 109-113.
- Zhou, K. and Li, C. (2010). How strategic orientations influence the building of dynamic capability in emerging economies. *Journal of Business Research*, 63(3), 224-231.

APPENDIX A: CAREERS PLANNING AND RESEARCH QUESTIONNAIRE

This questionnaire contains a list of questions relating to individuals' Career Resilience, Personality and Personal Competencies, found in previous research studies to be related to success at work. Your responses will be anonymous and treated in strictest confidence – only the researcher and her supervisors will see your data.

Results will also be a useful part of your career planning whilst studying for your Masters course and will also be used for doctoral research. Completion of the questionnaire means you have given consent to your data being used in this research study. Please be open and honest in your responses.

Section A: Personal Data

1. FORENAME 2. SURNAME
3. AGE..... (To nearest Year)
4. GENDER: Male.....Female..... (Check one category)
5. COURSE ENROLED ON
6. RISIS ID NUMBER
7. FIRST DEGREE SUBJECT (Check one category)
Arts.....
Science....
Business/Management Studies.....
Technical
- Other area Please specify which area.....

8. HAVE YOU HELD A FULL-TIME JOB IN THE PAST? YES NO

IF SO:

9. FOR HOW LONG? (Months)

10. TYPE OF WORK (Check one category):

Management

Technical

Administration

Other

Please specify type



Section B: Career Resilience

Please rate the degree to which each statement applies to you by placing an "X" in only ONE box, using the following response format:

1 = Very Low

2 = Low

3 = Medium

4 = High

5 = Very High

- | | | | | | |
|---|---|---|---|---|---|
| 1. I welcome job and organizational changes. | 1 | 2 | 3 | 4 | 5 |
| 2. I am willing to take risks (actions with uncertain outcome). | 1 | 2 | 3 | 4 | 5 |
| 3. I can handle any work problem that comes my way. | 1 | 2 | 3 | 4 | 5 |
| 4. I look forward to working with new and different people. | 1 | 2 | 3 | 4 | 5 |
| 5. I am able to adapt to changing circumstances. | 1 | 2 | 3 | 4 | 5 |
| 6. I have made suggestions to others even though they may disagree. | 1 | 2 | 3 | 4 | 5 |
| 7. I make and maintain friendships with people in different areas. | 1 | 2 | 3 | 4 | 5 |
| 8. I will design better ways of doing my work. | 1 | 2 | 3 | 4 | 5 |
| 9. I have outlined ways of accomplishing jobs without waiting for my boss. | 1 | 2 | 3 | 4 | 5 |
| 10. I accept compliments rather than discount them. | 1 | 2 | 3 | 4 | 5 |
| 11. I believe other people when they tell me that I have done a good job. | 1 | 2 | 3 | 4 | 5 |
| 12. I will evaluate my job performance against personal standards rather than comparing it with what others do. | 1 | 2 | 3 | 4 | 5 |
| 13. I will take the time to do the best possible job on a task. | 1 | 2 | 3 | 4 | 5 |
| 14. I look for opportunities to interact with influential people. | 1 | 2 | 3 | 4 | 5 |
| 15. My career goals are clear and I have a good idea of where I'm heading. | 1 | 2 | 3 | 4 | 5 |

16. I can identify three important accomplishments from my current/last job. 1 2 3 4 5
17. My skills have been upgraded to keep pace with the current technique. 1 2 3 4 5
18. I have adequate computer knowledge/skills to do my job. 1 2 3 4 5
19. I explore trends in my field/industry and have identified various changes that are occurring 1 2 3 4 5
20. I have sought opportunities to take on new responsibilities in my work. 1 2 3 4 5
21. I have sought opportunities to work with others or contribute to work teams. 1 2 3 4 5
22. The skills and abilities that I need to be employable are clear to me. 1 2 3 4 5
23. I have a network of people in and outside my field that can help my career. 1 2 3 4 5
24. I have actively sought better assignments in my current or past jobs. 1 2 3 4 5
25. Regularly, I try to identify the future direction of my field by making personal contacts, reading or attending professional meetings. 1 2 3 4 5
26. I'm more comfortable than ever with the constantly changing world of work. 1 2 3 4 5
27. If I identify what I need to learn, I will actively seek the learning opportunity. 1 2 3 4 5
28. I like to read or attend conferences and workshops to learn new knowledge or skills. 1 2 3 4 5

Section C: Personality Characteristics

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Answer according to "How I am in general"

Please rate yourself on each statement by placing an "X" in only ONE box to indicate the extent to which you agree or disagree with that statement, using the following response format:

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neither Agree nor Disagree
- 4 = Strongly Agree
- 5 = Strongly Agree

I am someone who...

- | | |
|--|-----------|
| 1. Is talkative | 1 2 3 4 5 |
| 2. Tends to find fault with others | 1 2 3 4 5 |
| 3. Does a thorough job | 1 2 3 4 5 |
| 4. Is depressed, blue | 1 2 3 4 5 |
| 5. Is original, comes up with new ideas | 1 2 3 4 5 |
| 6. Is reserved | 1 2 3 4 5 |
| 7. Is helpful and unselfish with others | 1 2 3 4 5 |
| 8. Can be somewhat careless | 1 2 3 4 5 |
| 9. Is relaxed, handles stress well. | 1 2 3 4 5 |
| 10. Is curious about many different things | 1 2 3 4 5 |
| 11. Is full of energy | 1 2 3 4 5 |
| 12. Starts quarrels with others | 1 2 3 4 5 |
| 13. Is a reliable worker | 1 2 3 4 5 |
| 14. Can be tense | 1 2 3 4 5 |
| 15. Is ingenious, a deep thinker | 1 2 3 4 5 |
| 16. Generates a lot of enthusiasm | 1 2 3 4 5 |
| 17. Has a forgiving nature | 1 2 3 4 5 |
| 18. Tends to be disorganized | 1 2 3 4 5 |
| 19. Worries a lot | 1 2 3 4 5 |
| 20. Has an active imagination | 1 2 3 4 5 |
| 21. Tends to be quiet | 1 2 3 4 5 |
| 22. Is generally trusting | 1 2 3 4 5 |
| 23. Tends to be lazy | 1 2 3 4 5 |

- | | | | | | |
|---|---|---|---|---|---|
| 24. Is emotionally stable, not easily upset | 1 | 2 | 3 | 4 | 5 |
| 25. Is inventive | 1 | 2 | 3 | 4 | 5 |
| 26. Has an assertive personality | 1 | 2 | 3 | 4 | 5 |
| 27. Can be cold and aloof | 1 | 2 | 3 | 4 | 5 |
| 28. Perseveres until the task is finished | 1 | 2 | 3 | 4 | 5 |
| 29. Can be moody | 1 | 2 | 3 | 4 | 5 |
| 30. Values artistic, aesthetic experiences | 1 | 2 | 3 | 4 | 5 |
| 31. Is sometimes shy, inhibited | 1 | 2 | 3 | 4 | 5 |
| 32. Is considerate and kind to almost everyone | 1 | 2 | 3 | 4 | 5 |
| 33. Does things efficiently | 1 | 2 | 3 | 4 | 5 |
| 34. Remains calm in tense situations | 1 | 2 | 3 | 4 | 5 |
| 35. Prefers work that is routine | 1 | 2 | 3 | 4 | 5 |
| 36. Is outgoing, sociable | 1 | 2 | 3 | 4 | 5 |
| 37. Is sometimes rude to others | 1 | 2 | 3 | 4 | 5 |
| 38. Makes plans and follows through with them | 1 | 2 | 3 | 4 | 5 |
| 39. Gets nervous easily | 1 | 2 | 3 | 4 | 5 |
| 40. Likes to reflect, play with ideas | 1 | 2 | 3 | 4 | 5 |
| 41. Has few artistic interests | 1 | 2 | 3 | 4 | 5 |
| 42. Likes to cooperate with others | 1 | 2 | 3 | 4 | 5 |
| 43. Is easily distracted | 1 | 2 | 3 | 4 | 5 |
| 44. Is sophisticated in art, music, or literature | 1 | 2 | 3 | 4 | 5 |
| 45. Is full of energy | 1 | 2 | 3 | 4 | 5 |
-

Section D: Personal Competencies

Please rate yourself on each competency statement by placing an “X” in only ONE box. Compare yourself to your peer group at your previous university, using the following response format:

1 = My performance on this competency fails to meet acceptable standards of my peer group.

2 = My performance is not quite up to acceptable standards of my peer group.

3 = Acceptable performance compared to my peer group.

4 = Good performance, better than acceptable standards of my peer group.

5 = Outstanding performance, far exceeds acceptable standards of my peer group.

Do try to be objective and reasonably self-critical, using ratings of 1 or 2 whenever they might be appropriate. Nobody is perfect, and even outstanding individuals have some weaknesses. Ability to be self-critical is a valuable quality, and a pre-requisite for successful self-development.

Most respondents would be expected to make between 5 and 15 ratings of 2 or 1

INTELLECTUAL

1 Information Collection **1 2 3 4 5**

Seeks all possible relevant information for the task systematically. Elicits relevant information from others.

2 Problem Analysis **1 2 3 4 5**

Identifies a problem and breaks it down into its constituent parts. Links together and evaluates information from different sources, and identifies possible causes of the problem.

3 Numerical Interpretation **1 2 3 4 5**

Assimilates numerical and statistical information accurately and makes sensible, sound interpretations.

4 Judgment **1 2 3 4 5**

Makes sensible, sound decisions or proposals based on reasonable assumptions and factual information.

5 Creativity **1 2 3 4 5**

Produces or adopts highly imaginative and innovative ideas which are sound and practical and not obvious to less perceptive colleagues.

6 Risk Taking **1 2 3 4 5**

Makes decisions which involve a significant risk in order to achieve a recognised benefit or advantage. Seeks new experiences and situations rather than the security afforded by well-established or familiar ones.

7 Decisiveness **1 2 3 4 5**

Prepared to make decisions or recommendations, or to show commitment, even if information is incomplete and/or of uncertain validity.

8 Business Sense **1 2 3 4 5**

Identifies those opportunities which will increase sales or profits; selects and exploits those activities which will result in the largest returns.

9 Helicopter **1 2 3 4 5**

Rises above the immediate problem or situation and sees the broader issues and the wider implications; relates facts and problems to an extremely wide context through an ability to perceive all possible relationships.

10 Critical Faculty **1 2 3 4 5**

Challenges existing facts and assumptions. Rapidly identifies the shortcomings and flaws in a plan or proposal, and the reasons why it might not work.

COMMUNICATION

11 Reading **1 2 3 4 5**

Shows by the use made of written information that it has been effectively assimilated and retained.

12 Written Communication

Written work is readily intelligible; points and ideas are conveyed clearly and concisely to the reader.

13 Perceptive Listening **1 2 3 4 5**

Listens dispassionately, is not selective in what has been heard; conveys the clear impression that key points have been recalled and been taken into account.

14 Oral Expression **1 2 3 4 5**

Is fluent, speaks clearly and audibly, has good diction.

15 Oral Presentation **1 2 3 4 5**

In formal presentations, is concise and to the point; does not use jargon without explanation; tailors content to the audience's understanding. Is enthusiastic and lively when speaking.

PLANNING and ORGANISATION

16 Planning **1 2 3 4 5**

Establishes future priorities and visualises all foreseeable changes required to meet future requirements. Identifies appropriate resource requirements to achieve long-term objectives

17 Organising **1 2 3 4 5**

Sets tasks to achieve current objectives and coordinates their activities effectively. Manages all resources efficiently and effectively.

18 Self-Management **1 2 3 4 5**

Makes effective use of own time and other resources. Organises paperwork efficiently and tidily, adopts effective filing and retrieval procedures.

INTER-PERSONAL

19 Impact **1 2 3 4 5**

Makes a strong, positive impression on first meeting. Has authority and credibility, establishes rapport quickly with colleagues.

20 Persuasiveness **1 2 3 4 5**

Influences and persuades others to give their agreement and commitment to a decision or course of action which they initially opposed.

21 Sensitivity **1 2 3 4 5**

Is aware of the needs and feelings of other people, and responds accordingly.

22 Flexibility **1 2 3 4 5**

Adopts a flexible (but not compliant) style when interacting with others. Takes their views into account and changes position when appropriate.

23 Ascendancy **1 2 3 4 5**

Is forceful and assertive when dealing with others. Takes charge of a situation and commands the respect of others.

24 Motivating Others **1 2 3 4 5**

Inspires others to achieve goals by showing vision and a clear idea of what needs to be achieved; and by showing commitment and enthusiasm.

25 Negotiating **1 2 3 4 5**

When negotiating, communicates proposals effectively, identifies a basis for compromise and reaches agreement with others through personal power and influence.

26 Leadership 1 2 3 4 5

Fosters cooperation and effective teamwork by adopting the appropriate leadership style and methods to achieve team goals.

PERSONAL

27 Energy 1 2 3 4 5

Shows energy and vitality. Produces a high level of output. Works rapidly at all times so that a backlog does not build up.

28 Achievement-Orientation 1 2 3 4 5

Sets stretching goals, and expects high standards of performance and quality from self and others. Continuously endeavours to improve standards and will not accept poor performance.

29 Initiative 1 2 3 4 5

Initiates action and influences events through own efforts. Is always seeking, and is keen to accept, additional tasks or responsibilities.

30 Stress Tolerance 1 2 3 4 5

Whenever challenged or put under significant pressure, maintains performance level and does not appear to become irritable or anxious, or to lose composure.

31 Adaptability 1 2 3 4 5

Whenever placed in a new situation or culture, adapts behaviour rapidly to the new requirements and maintains effectiveness.

32 Independence 1 2 3 4 5

Behaviour is determined by own judgments, opinions and beliefs, and not unduly by other people's.

33 Integrity 1 2 3 4 5

Is truthful, honest and trustworthy, and conforms to current ethical standards. Does not compromise on matters of principle.

34 Resilience 1 2 3 4 5

Maintains performance in the face of adversity. Does not react negatively to disappointments, insults or unfair remarks.

35 Tenacity 1 2 3 4 5

Shows an unwavering determination to achieve objectives when faced with setbacks or obstacles.

36 Detail Consciousness

1 2 3 4 5

Works precisely and accurately with highly detailed factual information. Is methodical and ensures detail is not overlooked.

37 Receptive to Change

1 2 3 4 5

Actively seeks to change the job and environment whenever appropriate. Is proactive, encourages the introduction of new structures, methods and procedures.

38 Learning Orientation

1 2 3 4 5

Actively identifies own learning needs and opportunities. Is effective in applying new learning in a business context.

Please go back and check that you have responded to every item.

Thank you very much for completing this questionnaire.

Appendix B

McQuaid and Lindsay (2005, p:209): Employability Skills and Attributes

Essential attributes

Basic social skills; honesty and integrity; basic personal presentation; reliability; willingness to work; understanding of actions and consequences; positive attitude to work; responsibility; self-discipline

Personal competencies Proactivity; diligence; self motivation; judgement; initiative; assertiveness; confidence; act autonomously

Basic transferable skills Prose and document literacy; writing; numeracy; verbal presentation

Key transferable skills Reasoning; problem-solving; adaptability; work-process management; team working; personal task and time management; functional mobility; basic ICT skills;

Basic interpersonal and communication skills; emotional and aesthetic customer service skills

High level transferable skills Team working; business thinking; commercial awareness; continuous learning; vision; job-specific skills; enterprise skills

Qualifications Formal academic and vocational qualifications; job-specific qualifications

Work knowledge base Work experience; general work skills and personal aptitudes; commonly valued transferable skills (such as driving); occupational specific skills Labour market attachment Current unemployment/ employment duration; number and length of spells of unemployment/inactivity; 'balance' of work history

Effective use of formal search services/information resources (including ICT); awareness and effective use of informal social networks; ability to complete CVs/application forms; interview skills/ presentation; access to references; awareness of strengths and weaknesses; awareness of location and type of opportunities in the labour market; realistic approach to job targeting

Adaptability and mobility Geographical mobility; wage flexibility and reservation wage; occupational flexibility (working hours, occupations, sectors)

Appendix C

List of generated dimensions/distinguishing marks of dynamic competences

D - [1] Ability to learn fast, adapting the company to changes simultaneously implementing different action options

D - [2] Creativity of employees; thinking leading to original and appropriate solutions; ability to create something new;

D - [3] Knowledge in the field of technology, design, operation and construction of machines;

D - [4] Having resources implying the ability of the company to provoke and take advantage of opportunities;

D - [5] Ability to dynamically adjust the goals of the organization to the conditions in which it has to operate;

D - [6] Resources being in readiness for intensive development – through the implementation of appropriately designed and adjusted – according to the goals adopted by the organization;

D - [7] Knowledge, ability, experience and motivations to carry out evolutionary and revolutionary changes;

D - [8] Possession of and the ability to use resources in the form of machines, tools and devices used for processing and manufacturing;

D - [9] Attitudes and behaviours of performers of the tasks, which will cause acceptance for new technologies, which, in the perspective of having dynamic capabilities, with their appropriate reconfiguration, implies maintenance of the leading cost leader's position;

D - [10] Ability to practically apply knowledge determining the ability to immediately respond, which, through properly harmonized resources reconfiguration, implies the possibility of taking advantage of opportunities appearing in environment;

D - [11] Collections of knowledge and skills underlying the enterprise's sustainable competitive advantage. To a large extent they are of intellectual nature and are related to management systems. They apply to the entire enterprise; are interfunctional; in order to maintain competences, they need to be anchored in the organizational culture as well as implanted into the organizational structure and systems of actions

D - [12] Ability to adapt to changes taking place within the enterprise and in its environment;

- D - [13] Visible characteristics, in the form of material resources, knowledge, skills or behaviours, permitting successful utilization of any emerging opportunities;
- D - [14] Knowledge, experience, capabilities and dispositions for team activities applied at the work post, specific skills required at work and personal culture;
- D - [15] Ability to solve technological and management (managerial) problems on the of knowledge and experience;
- D - [16] Integrated utilization of capabilities, personality traits as well as acquired knowledge and skills, in order to achieve successful implementation;
- D - [17] Instructions regarding know-how, skills and attitudes, making it possible to pursue production objectives at an appropriate level;
- D - [18] Knowledge, manual capabilities (dispositions), experience (routine) and motivations of employees, which as a result of the adopted technical culture bring the company closer to implementation of the adopted assumptions;
- D - [19] Art of effective, responsible, energetic, economic and competent management of the whole of matters, tangible, capital, human and information resources, intended to execute the assumed tasks;
- D - [20] Tangible resources, including means of production (machines, devices, tools, instruments), items of work (raw materials, materials, semi-finished products, energy) and technology (method of operation) that, as a result of available engineering knowledge and the skill of its translation into practical solutions, and also based on dispositions of executive employees, their experience, attitudes, motives and behaviours (intangible resources) allow the enterprise to take advantage of the opportunities emerging in the environment;
- D - [21] Strategic capabilities of the enterprise offering the possibility to take actions that are difficult to imitate. They are to be developed in order to take advantage of new opportunities. Operations are indicated that are considered as unique resources in the company
- D - [22] Key competencies being bundles of resources, processes and capabilities underlying the enterprise's competitive advantage, providing access to new target and supply markets. They allow to create a network of internal and external bonds constituting the basis for creating value added
- D - [23] The technological potential which, by knowledge, skills, motor characteristics of executive employees, their attitude and experience, contributes to achieving specified (desired) results

Rotated Component Matrix for Resilience Scale

Item	Factor	1	2	3	4	5
1. I welcome job and organizational changes.			0.703			
2. I am willing to take risks (actions with an uncertain outcome).			0.782			
3. I can handle any work problem that comes my way.		0.613	0.526			
5. I am able to adapt to changing circumstances.			0.628			
6. I have made suggestions to others even though they may disagree.				0.610		
7. I make and maintain friendships with people from different areas.		0.627				
9. I have outlined ways of accomplishing jobs without waiting for my boss.				0.472		
12. I will evaluate my job performance against personal standards rather than comparing it with what others do.				0.528		
14. I look for opportunities to interact with influential people.					0.492	0.472
15. My career goals are clear and I have a good idea of where I'm heading.					0.712	
16. I can identify three important accomplishments from my current/last job.				0.655		
17. My skills have been upgraded to keep pace with the current technique.		0.564				
19. I explore trends in my field/industry and have identified various changes that are occurring		0.636				
20. I have sought opportunities to take on new responsibilities in my work.		0.475		0.508		
21. I have sought opportunities to work with others or to contribute to work teams		0.534				
22. The skills and abilities that I need to be employable are clear to me.		0.580				
23. I have a network of people in and outside my field that can help my career.					0.779	
24. I have actively sought better assignments in my current or past jobs.				0.560		
25. Regularly, I try to identify the future direction of my field by making personal contacts, reading or attending professional meetings.					0.453	
27. If I identify what I need to learn, I will actively seek the learning opportunity.						0.787
28. I like to read or attend conferences and workshops to learn new knowledge or skills.						0.748

Extraction Method: principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 8 iterations.

