

**Constructing A Successful Career in The Fourth
Industrial Revolution for Young Graduates in The UAE**

بناء مستقبل مهني ناجح لحديثي التخرج في دولة الإمارات العربية المتحدة خلال
الثورة الصناعية الرابعة

by

AYMAN MOUSTAFA HANAFY AHMED

**A thesis submitted in partial fulfilment
of the requirements for the degree of
DOCTOR OF PHILOSOPHY IN BUSINESS MANAGEMENT
at
The British University in Dubai**

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ABSTRACT

A lifetime career, job security, promotions, and career development in one organization are no longer guaranteed for young graduates. Today, during the fourth industrial revolution, career ambiguity and rapid changes in the nature of work have presented young graduates with many challenges in constructing their careers. For example, globalization, advances in technology, the COVID-19 pandemic, and the trend towards more information and service-based business have required individuals to have a clear career path, and to be adaptable, flexible, and proactive in their career behavior.

In recent years, and particularly during the COVID-19 pandemic, young graduates have found it increasingly difficult to secure full-time employment with career prospects, and many individuals have begun questioning the meaning of their jobs and careers (Baruch and Sullivan, 2022; Duffy *et al.*, 2016; Trevor-Roberts *et al.*, 2018).

Due to technological advancements, economic changes, and global competition, individuals often have to change employer or retrain for a new career. To respond to changing labor market needs and job opportunities, individuals need to carefully plan and manage their career development, improving both their career competencies and commitment. Career competencies have become important in today's labor markets (Kong *et al.*, 2012), so that individuals can obtain, retain, and effectively manage their careers (Heijde and Van Der Heijden, 2006). Employees worldwide are experiencing uncontrollable job losses and career interruptions (Ng *et al.*, 2005). Accordingly, individuals are required to pay high attention to managing and shaping their careers to address the complex and unpredictable changes in business.

Akkermans *et al.* (2012) identified three categories of career competencies – namely reflective, communicative and behavioral – which reflect the four perspectives of boundaryless career, protean career, career self-management, and human capital. Few studies have examined the effects of boundaryless and protean career competencies components on young graduates' subjective career success. To our knowledge, only Eby *et al.* (2003) have investigated the impact of boundaryless career competencies on young graduates, while other studies investigated boundaryless career competencies in general, with less emphasis on specifying which component significantly impacts career success (e.g., Akkermans and Tims, 2017;

Blokker *et al.*, 2019; Cappellen and Janssens 2008; Francis-Smythe *et al.*, 2013; Kuijpers *et al.*, 2006; Park, 2020).

To our knowledge, no study has examined the effects of protean career competencies components on young graduates' career success. Additionally, all the research that has investigated the impacts of career commitment (career planning, career resilience, and career identity) on career success are general and did not specify which component of career commitment has the superior impact on career success (Ballout, 2009; Carson *et al.*, 1999; Day and Allen, 2004; Karavardar, 2014; Najam *et al.*, 2020; Poon, 2004; Sultana *et al.*, 2016).

This research aims to assess the significant impacts of the different components of career competencies and career commitment on young graduates' career success, and how these individuals construct their careers in the fourth industrial revolution. Thus, the study seeks to answer the following research questions:

- To what extent do career competencies impact upon the career success of young graduates in the fourth industrial revolution?
- To what extent does career commitment impact upon career success of young graduates in the fourth industrial revolution?
- How do young graduates build successful careers during the fourth industrial revolution?

The study adopted a quantitative, deductive, cross-sectional research method to explain how young graduates in the United Arab Emirates (UAE) construct their successful careers in the fourth industrial revolution.

To our knowledge, this is the first study to investigate the combined impacts of career competencies and career commitment components on recent graduate career success. This research contributes to boundaryless career, protean career, and career construction theory, by improving our understanding of the role of the various components within the related constructs. In addition, it addresses a recent call for more research that investigates aspects of job crafting, whereby individuals make changes to their jobs or job roles to make better use of their skills and abilities, and to ensure their career development (Tims *et al.*, 2022). By examining the impacts of career competencies and career commitment components on subjective career success, the study also makes a useful contribution to the career success

literature, which contains considerable ambiguity and contradictions. Since existing studies were mostly undertaken in Western countries, this study, which was conducted in an Arab Gulf/Middle Eastern context, allows us to account for the possible influences of economic, political and social factors, such as culture and religion, as well as the composition of labor forces in this region (there are very high proportions of expatriate labor in some Arab Gulf countries).

ملخص البحث

لم تعد الحياة المهنية ، والأمن الوظيفي ، والترقيات ، والتطوير الوظيفي في مؤسسة واحدة مضمونة للخريجين الشباب. اليوم ، خلال الثورة الصناعية الرابعة ، أدى الغموض الوظيفي والتغيرات السريعة في طبيعة العمل إلى ظهور العديد من التحديات للخريجين الشباب في بناء حياتهم المهنية. على سبيل المثال ، تطلبت العولمة والتقدم التكنولوجي ووباء كوفيد-19 الاتجاه نحو المزيد من المعلومات والأعمال القائمة على الخدمات مما يتطلب من الأفراد أن يكون لديهم مسار وظيفي واضح وأن يكونوا قابلين للتكيف، لديهم مرونة واستباقية في سلوكهم الوظيفي.

في السنوات الأخيرة ، وخاصة أثناء جائحة كوفيد-19 ، وجد الخريجون الشباب صعوبة متزايدة في تأمين عمل بدوام كامل مع آفاق وظيفية ، وبدأ العديد من الأفراد في التشكيك في معنى وظائفهم ومهنتهم.

بسبب التقدم التكنولوجي والتغيرات الاقتصادية والمنافسة العالمية ، غالبًا ما يتعين على الأفراد تغيير العمل أو إعادة التدريب لمهنة جديدة. للاستجابة لاحتياجات سوق العمل المتغيرة وفرص العمل ، يحتاج الأفراد إلى تخطيط وإدارة تطورهم الوظيفي بعناية ، وتحسين كفاءاتهم المهنية والتزامهم. أصبحت الكفاءات المهنية مهمة في أسواق العمل اليوم ، بحيث يمكن للأفراد الحصول على وظائفهم والاحتفاظ بها وإدارتها بفعالية.

يعاني الموظفون في جميع أنحاء العالم من فقدان وظائفهم وانقطاعات وظيفية لا يمكن السيطرة عليها . وفقًا لذلك ، يتعين على الأفراد إيلاء اهتمام كبير لإدارة وتشكيل حياتهم المهنية لمعالجة التغييرات المعقدة وغير المتوقعة في عالم الأعمال.

اكرمنس و علماء اخرين في سنة 2012 حددو ثلاث فئات من الكفاءات المهنية - وهي الانعكاسية والتواصلية والسلوكية - والتي تعكس وجهات النظر الأربعة لمهنة بلا حدود ، والوظيفة المهنية ، والإدارة الذاتية المهنية ، ورأس المال البشري. لقد قامت دراسات قليلة بدراسه آثار مكونات الكفاءات المهنية غير المحدودة والمتجددة على النجاح المهني الذاتي للخريجين الشباب. على حد علمنا ، فقط ابيي ومؤلفين اخرين في سنة 2003 قاما بالتحقيق في تأثير الكفاءات المهنية بلا حدود على الخريجين الشباب ، بينما بحثت دراسات أخرى في كفاءات مهنية بلا حدود بشكل عام ، مع تركيز أقل على تحديد العنصر الذي يؤثر بشكل كبير على النجاح الوظيفي.

على حد علم الباحث ، لم تقم أي دراسة يبحث آثار مكونات الكفاءات المهنية على النجاح الوظيفي للخريجين الشباب. بالإضافة إلى ذلك ، فإن جميع الأبحاث التي بحثت في آثار الالتزام الوظيفي (التخطيط الوظيفي ، والمرونة المهنية ، والهوية المهنية) على النجاح الوظيفي عامة ولم تحدد أي عنصر من عناصر الالتزام الوظيفي الذي له التأثير الأكبر على النجاح الوظيفي.

يهدف هذا البحث إلى تقييم التأثيرات الهامة للمكونات المختلفة للكفاءات المهنية والالتزام الوظيفي على النجاح الوظيفي للخريجين الشباب ، وكيف يبني هؤلاء الأفراد حياتهم المهنية في الثورة الصناعية الرابعة. وبذلك تسعى الدراسة للإجابة على أسئلة البحث التالية:

• إلى أي مدى تؤثر الكفاءات المهنية على النجاح الوظيفي للخريجين الشباب في الثورة الصناعية الرابعة؟

• إلى أي مدى يؤثر الالتزام الوظيفي على النجاح الوظيفي للخريجين الشباب في الثورة الصناعية الرابعة؟

• كيف يبني الخريجون الشباب مهن ناجحة خلال الثورة الصناعية الرابعة

اعتمدت الدراسة أسلوب البحث الكمي والاستنباطي المقطعي لشرح كيفية قيام الخريجين الشباب في دولة الإمارات العربية المتحدة ببناء حياتهم المهنية الناجحة في الثورة الصناعية الرابعة.

على حد علمنا ، هذه هي الدراسة الأولى التي تبحث في التأثيرات المجمعّة للكفاءات المهنية ومكونات الالتزام الوظيفي على النجاح الوظيفي لحديثي التخرج. يساهم هذا البحث في تطوير عدد من النظريات وهي نظرية المهنة بلا حدود ، ونظريه حياة مهنية متقنة ، ونظرية البناء الوظيفي ، وذلك من خلال تحسين فهمنا لدور المكونات المختلفة داخل الهياكل ذات الصلة. بالإضافة إلى ذلك ، فإنه يستجيب لدعوة حديثة لمزيد من الأبحاث التي تبحث في جوانب صياغة الوظائف ، حيث يقوم الأفراد بإجراء تغييرات على وظائفهم أو أدوارهم الوظيفية للاستفادة بشكل أفضل من مهاراتهم وقدراتهم ، ولضمان تطورهم الوظيفي من خلال دراسة آثار الكفاءات المهنية ومكونات الالتزام الوظيفي على النجاح الوظيفي الشخصي ، تقدم الدراسة أيضاً مساهمة مفيدة في أدبيات النجاح الوظيفي ، والتي تحتوي على قدر كبير من الغموض والتناقضات. نظرًا لأن الدراسات الحالية أجريت في الغالب في الدول الغربية ، فإن هذه الدراسة ، التي أجريت في سياق الخليج العربي / الشرق الأوسط ، تسمح لنا بتفسير التأثيرات المحتملة للعوامل الاقتصادية والسياسية والاجتماعية ، مثل الثقافة والدين ، وكذلك تكوين القوى العاملة في هذه المنطقة (توجد نسب عالية جدا من العمالة الوافدة في بعض دول الخليج العربي).

DEDICATION

To the soul of my grandfather Ibrahim Ammar, grandmother Samira Hashem and my aunt Fatima Hashem. They were the most generous and kind people I ever met in my life. I will never forget you and I will keep praying for your soul till the end of my life. Best unforgettable moments in my life I spent with my grandfather and grandmother.

To my dad and mother who spent their whole life supporting and praying for me to see me successful. You are the reason behind all my life successes and for who I am now. Your endless support means a lot to me. I promise to make you proud all the time.

To my close family, Zain, Maryam and my sister, Samar, and brother Tarek, I can't imagine my life without you. To many more memories together.

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To all my friends and life supporters, your endless support means a lot to me. May we always support each other and be together through thin and thick.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter presents background details and information for the study. It determines the research problem and its importance. The research questions, the research aim, and the objectives are identified. The last section presents a summary of the research methodology and the thesis structure.

1.2 Research context and background information

A lifetime career, employment, job security, promotions, and career development in one organisation are no longer guaranteed for the recent graduate. Young graduates need to continuously evaluate their situation and awareness of job opportunities while building their careers (Blokker et al. 2019). Many individuals are facing involuntary employment loss, lateral job rotation inside and outside the organisational boundaries, and career disruptions (Arthur & Rousseau 1996b; Eby & DeMatteo 2000; Sullivan 1999; Sullivan, Carden & Martin 1998). Blokker et al. (2019) have defined young professionals as graduates who are between 21 and 35 years old. While Akkermans et al. (2012, 2013) and Akkermans and Tims (2017) have ranged the age of young graduates between 16 and 30. Students in the United Arab Emirates (UAE) complete their compulsory school education at 18 (Godwin 2006) and then spend around four years completing their bachelor's programme. Their age is likely to be around 22 at the time of graduation. In this study, 'young graduates' is used to designate those who are currently employed, ranging from 22 to 30 years old.

Today, during the Fourth Industrial Revolution, young graduates are facing many challenges in constructing their careers due to career ambiguity. This career ambiguity is likely to increase

because of fast changes occurring in the workplace, such as the impacts of globalisation (Burke & Cooper 2006; Pink 2006), advances in technology (Barley et al. 2017; Phelps et al. 2012; Susskind & Susskind 2015), and a move towards more information and service-based businesses (Alvesson 2004; Phelps et al. 2012). Previously recognisable, organisational career paths are no longer guaranteed (De Cuyper et al. 2011; McElroy & Weng 2016), leaving individuals with more liability to direct their own career paths and be adaptable, flexible, and proactive in their career behaviour (Hall 2004). It is difficult to find full-time jobs because of the increase in unemployment (Duffy et al. 2016; Trevor-Roberts et al. 2018). This is the situation for young graduates who are facing many challenges at the beginning of their careers. Their difficulties have been especially exacerbated during the coronavirus disease (COVID-19) crisis. The crisis has affected the world economy, which is likely already in recession. Economic assessments have indicated that employment losses in the second half of 2020 may have exceeded those experienced during the Great Recession in 1930 (Gangopadhyaya & Garrett 2020).

Global organisations agree that the COVID-19 crisis is likely to have significant short- and long-term impacts on society (Remuzzi & Remuzzi 2020). Employment contracts have been postponed in organisations that cannot follow social distancing directions or which have encountered an immediate drop and reduction in demand for their products and services (Baert et al. 2020). There is a fear that what began as a health crisis may develop into a deep economic crisis, with a drop in growth in the long term and increasing unemployment (McKibbin & Fernando 2020).

Technological advancement, economic changes, and global competition result in unpredictable careers and alteration of job opportunities, changing how individuals develop and manage their careers (Kuijpers & Scheerens 2006). Given the trend towards unstable career patterns,

successful individuals are those who can develop their careers by improving their career competencies and career commitment. Career competencies have become very important in the contemporary context (Kong, Cheung & Song 2012b) for obtaining, retaining, and managing individuals' careers (Heijde & Van Der Heijden 2006). Employees are experiencing uncontrollable job loss and career interruptions (Ng et al. 2005). Individuals must pay serious attention to managing and shaping their careers to meet the complex and unpredictable changes in business (Nikandrou & Galanaki 2016).

1.3 Research novelty and contribution

The effect of work alteration on an individual's attitude and career has been considered one of the important research topics in human resources, organisational behaviour, and work psychology since the late 1980s (Arnold, 1997; Rothwell & Arnold, 2007).

This research contributes theoretically by bridging the gap between career construction theory (CCT), boundaryless theory, and protean career theory. It sets out to explain how young graduates construct their successful careers in the Fourth Industrial Revolution through career commitment and career competencies.

The study aims to extend CCT addressed competencies, such as cognitive, comprehension, and problem-solving (Savickas 2005). Career competencies and career commitment are not tested, and this could add value as effective career resources. Career construction theory can be extended by expanding the competencies involved and addressing the career resources required to construct a successful career.

Boundaryless, protean, and CCT were all developed over 20 years ago. It is worth exploring the significant impact of boundaryless and protean career competencies components on young

graduates' career success (CS) and their application to the contemporary labour market. Such an examination is especially relevant for the current labour market during the Fourth Industrial Revolution and the COVID-19 pandemic.

'Knowing why,' 'knowing whom,' and 'knowing how' are all significant in expectations for perceived career success. These factors have been supported in previous theorising on the significance of boundaryless career competencies in comprehending career success (Arthur et al. 1999; Defillippi & Arthur 1994). There is a gap in the literature, however, on the factors leading to career success in a protean and boundaryless career, with only a few pertinent studies, such as Park (2020) and Eby, Butts and Lockwood (2003) have selected career success predictors by following the boundaryless career perspective and highlighting the significance of knowing why, knowing whom, and knowing how. This research uses the same career competencies and the protean career competencies presented by self-knowledge skills, interpersonal knowledge skills, and environmental knowledge skills to assess the impact of career competencies on young graduates' career success.

This research also aims to contribute to career success literature by studying the significant impact of career competencies components on subjective career success. Previous literature studying the relationship between subjective career success and career competencies, such as Presti et al. (2022) Sherif, Nan & Brice (2020); Blokker et al. (2019); Akkermans and Tims (2017); De Vos and Soens (2008), have not investigated the significant impact of career competency components on recent graduates' subjective career success. Only one study by Eby, Butts, and Lockwood (2003) done on recent graduates has pointed out that the knowing why career competency appears as the most significant set of predictors and knowing whom appears as the least significant set of predictors. Another study undertaken by Wang (2013) has found that career adjustment and control competencies are the most impactful

factors for career success. The relationship between career competencies and career success is under-researched.

Various research studies have examined the relationships between career commitment and career success, but none have discussed or explained the significant impact of career commitment components on career success. For instance, Carson et al. (1999) have emphasised that career commitment influences career success by foregrounding the connection between career commitment and organisational commitment to work-related results. Individuals who scored higher on career commitment also experienced higher career satisfaction compared to others who scored less on career commitment. Carson et al.'s (1999) study has not discussed the significant impact of career commitment components on career success. Srikanth et al. (2012) have called for research on the impact of the career commitment components. Poon (2004) has tested the moderating influence of the basic component of emotion perception on the relationship between career commitment and career success. Similarly, Day and Allen's (2004) study has found that career commitment is positively related to career satisfaction in the case of a municipal employee (Ballout 2009).

It is worth studying the effects of career commitment components presented in career planning, career resilience, and career identity; boundaryless career competencies components presented by know why, know whom, and know how; and protean career competencies components presented by self-knowledge skills, interpersonal knowledge skills, and environmental knowledge skills. None of the previous scholars have tested the impact of those variables on young graduates' career success. Such a study could usefully be applied to young graduates' career success in the UAE, Gulf Cooperation Countries (GCC), and the Middle East region.

Explaining how young graduates are constructing their careers during the Fourth Industrial Revolution has never been studied before in the UAE or the GCC because all career research has focused on Western countries. Non-Western countries, such as the UAE, have a different culture, economy, and a highly competitive labor market, which would make the research findings in this area unique. The UAE's labour market includes individuals with different social foundations and backgrounds who work under different conditions and experience different social realities, as expatriates account for 88.5% of the country's population (Edarabia, 2021). This unique work environment is one of the main reasons for conducting this research. Career competencies and commitment in the UAE differ from Western countries. Sullivan & Baruch (2009) claimed that there is a need for research on career enactment resulting from national and cultural differences in non-Western countries. Most of the previous career studies have been carried out in Western countries (Sullivan & Baruch 2009). The career competencies concept and measurement are still in their early stages (Akkermans et al. 2012). There is an urgent need for explanatory research on the required career competencies and career commitment in today's job market for recent graduates to construct a successful career.

This research focuses on an investigation of the career commitment and career competencies that are inconsistent in different career model perspectives. For instance, career competencies from the boundaryless career perception consist of the three dimensions of knowing. 'Knowing why' covers career motivation, career values, and passions, which are important for constructing a successful career. 'Knowing who' addresses the networks that are also important in any career development and can support many aspects, such as promotions and finding better career opportunities. 'Knowing how' incorporates the skills and knowledge needed for a certain job, which are significant in career development. Jones and Defillippi (1996) have proposed the

extra categories of ‘knowing what’ (opportunities, needs, and threats), ‘knowing where’ (training and development), and ‘knowing when’ (timing of activities and selections).

It has been claimed that such competencies meet the needs of today’s job market, where individuals take ownership of their career by selecting from different choices and not being limited to one employer (Baruch 2004a). Career competencies from the protean career perspective claim a different set of career competencies, such as ‘self-knowledge skills’, which contain a diversity of skills, including active listening, time management, and stress management. ‘Interpersonal knowledge skills’ contain, for example, conflict management and delegation skills. ‘Environmental knowledge skills’ relate to the individual’s awareness of the surrounding environment and knowing how to adapt to recent changes.

The human capital perspective addresses reflective, proactive, and interactive behaviours (Kuijpers, Meijers & Gundy 2011). Meijers, Kuijpers and Gundy (2013) have differentiated between four career competencies: career reflection (reflective), self-presentation (interactive), career control, and work exploration (proactive). This frame has been advanced in various other empirical studies.

These various perspectives are inconsistent and require further investigation to support an individual’s career development and success. This research tested the boundaryless career competencies perspective represented by the dimension of knowing (know why, know whom, and know how) and the protean career competencies perspectives represented by (self-knowledge skills, interpersonal knowledge skills, and environmental knowledge skills) to explain how young graduates use their career competencies in constructing successful careers. This research contributes to the understanding of the boundaryless and protean career

competencies perspectives and can indicate directions for enhanced career success for young graduates (Arthur, Khapova & Wilderom 2005).

This study focuses on career competencies. It includes an investigation of how career commitment is represented by career planning, career resilience, and career identity. It examines subjective perspectives on how career commitment can lead to career success. Many studies have claimed that career competencies lead to career success, which is the obvious result every individual is looking for in their career. The claim that career competencies lead to career success has been supported in many highly cited studies, such as ‘The boundaryless career: A competency-based perspective’ (Defillippi & Arthur 1994); ‘The impact of career boundarylessness on subjective career success’ (Colakoglu 2011); ‘Predictors of success in the era of the boundaryless career’ (Eby, Butts & Lockwood 2003); ‘Crafting your career: How career competencies relate to career success via job crafting’ (Akkermans & Tims 2016); ‘Competencies for the contemporary career: Development and preliminary validation of the career competencies questionnaire’ (Akkermans et al. 2012); ‘Career competencies for career success’ (Kuijpers, Schyns & Scheerens 2006); ‘Protean attitude and career success: The mediating role of self-management’ (De Vos & Soens 2008) and many others.

Some of these research studies and others call for future studies for each one of these career competencies, and on the interdependence and relationships between them, which can contribute to the protean and boundaryless career theories perspectives by explaining more about the relationships, influence, and overlap among the career competencies and their impacts on career success. For instance, proactivity presented by knowing why could be a cause or reason for network development presented by knowing whom, since individuals who clearly define their goals and are willing to attempt new things are more likely to seek out connections with others and develop their networks. Constructing relationships inside and outside the

organisation (knowing whom) may result in a better understanding of an individual's own capabilities and motivations which can encourage exploration (knowing why) or support more effective use of know how, which presents the skills required to build explicit knowledge needed to perform a certain job (Eby, Butts & Lockwood 2003).

There are contradictions in some studies on the effectiveness of career competencies. For instance, one study has argued for the importance of certain career competencies, such as knowing why and knowing how to improve career independence and reduce career insecurity (Colakoglu 2011). Another study has claimed the importance of knowing who, presented by networking, to obtain the position of a global manager (Cappellen & Janssens 2008). A very important quantitative study undertaken by Kuijpers and Scheerens (2006) on 1,579 employees in 16 Dutch organisations has studied the relationship between career competencies and career success. This study found that career control and networking factors are strongly connected with career success (Kuijpers & Scheerens 2006). This finding contradicts Eby, Butts, and Lockwood (2003) study, which has emphasised that the knowing why career competency appears as the most significant set of predictors and knowing whom appears as the least significant set of predictors.

This research aims to explain and investigate the effectiveness and impact of career competencies, which can contribute to the explanation and clarification of the boundaryless and protean career theories perspectives.

Many studies have highlighted the positive relation between career competencies and career commitment for career success. No studies, however, have confirmed the significant impact of career competency components (reflective, communicative, or behavioural) or career

commitment components, presented by career planning, career resilience, and career identity on young graduates' career success.

Few studies have investigated the impact of career commitment and career competency components on career success. This is the first study to investigate the impact of career competencies (reflective, communicative, or behavioural) and career commitment components (career planning, career resilience, and career identity) on young graduates' career success in the UAE and GCC regions. This is also the first study to examine the significant impact of career competencies and career commitment components on young graduates' career success.

Recently published studies, such as Blokker et al. (2019), continue to cite Eby, Butts, and Lockwood (2003) on career competencies, which indicates there is a gap in the literature in studying career competencies and their effect on career success in the Fourth Industrial Revolution (Akkermans et al. 2012).

The topic of this study was selected because of the researcher's interest in investigating how young graduates construct a successful career. This interest has grown out of and is supported by the researcher's knowledge and experience in career advising in higher education for more than 14 years. It is based on a review of leading, global trends and important career topics undertaken before starting a Ph.D. in 2018. Career success (number one trend) and career competencies under employability (number three trend) are the most important topics in career research, according to Akkermans and Kubasch (2017), who reviewed 693 papers in 105 issues to reach their results (Akkermans & Kubasch 2017).

1.4 Research problem

Based on the previously mentioned status, unstable labour market, job insecurity, economic and technological development are forcing individuals to be more flexible and adaptable to new and

ambiguous conditions and trends. These trends are reflected in career unpredictability, which has set more demands on individuals to manage and shape their careers. Thus, career management skills, career commitment, career conduct, attitudes, and new career competencies are importantly required to be explored by individuals and young graduates while managing and building their successful careers in the Fourth Industrial Revolution.

1.5 Research aims and objectives

1.5.1 The aim of the research:

The aim of this research is to explain the impact of career competencies and career commitment on young graduates' career success during the Fourth Industrial Revolution.

1.5.2 Research objectives:

- To understand and analyse the effect of career competencies and career commitment on career success from a subjective perspective.
- To explain how young graduates, construct their careers in the Fourth Industrial Revolution.

Based on these aims and objectives, this study investigates the following research questions.

1.5.3 Research questions

- To what extent do career competencies impact upon the career success of young graduates in the Fourth Industrial Revolution?
- To what extent does career commitment impact upon career success in the Fourth Industrial Revolution?
- How do young graduates build successful careers during the Fourth Industrial Revolution?

1.6 Research methodology

The research methodology of this study is outlined in this section. Details and further clarification on the methodology are provided in the methodology chapter.

Objectivist, positivist, and deductive approaches are adopted. Positivist considered appropriate because a controlled method was selected to conduct this research by recognising a clear study topic, building suitable hypotheses, and considering the appropriate research methodology. The researcher remained separate from the participants to maintain a lack of bias.

An analysis of the collected survey responses was reported, which presents the participants' opinion about the impact of career commitment and career competencies on young graduates' career success. The tasks and stages of the research are outlined below.

The first task was a literature review on the selected topic to gain knowledge of the study constructs of career competencies, career commitment, career success, and their related frameworks. **The second task** was identifying the subvariables of each construct in the literature. The researcher built the conceptual framework and adopted a measurement scale based on highly cited studies. **The third task** was the distribution of the questionnaire among the selected participants. **The fourth task** was the last phase of data collection and analysis using SPSS, the AMOS programme, and Microsoft Excel to present the study's statistical findings and overall conclusion.

1.7 Thesis structure

This thesis is divided into seven chapters.

Chapter 1: Chapter 1 presents the study's introduction, aim, and objectives. The chapter includes the theoretical overview and the research rationale.

Chapter 2: Chapter 2 presents more details about the study constructs presented by career competencies, career commitment, and career success constructs. Chapter 2 also presents the theoretical underpinning, proposed hypothesis, and the theoretical contribution of the study.

Chapter 3: Chapter 3 presents the conceptual framework and the research hypothesis. It outlines the variables that constitute the boundaryless career competencies, protean career competencies, and career commitment. Boundaryless career competencies are constituted from know why, know whom and know how, and the protean career competencies comprise self-knowledge skills, interpersonal knowledge skills, and environmental knowledge skills. Career commitment consists of career planning, career resilience, and career identity.

Chapter 4: Chapter 4 focuses on the methodology used in this research and the justification for this approach, with an overview of related studies and the adopted measurement scale.

Chapter 5: Chapter 5 presents and analyses the gathered data from the participants, interprets them in a descriptive analysis, and accepts or rejects the hypotheses.

Chapter 6: Chapter 6 summarises, explains, and analyses the results of this study. Chapter 6 also focuses on the study's contributions and previous studies that agree or conflict with the research results.

Chapter 7: Chapter 7 provides the research summary, conclusion, limitations, and recommendations for future studies.

CHAPTER 2

LITERATURE REVIEW

The literature review consists of three sections. The first section presents the background of the used constructs and their development (career, career competencies, career commitment, career success, and the Fourth Industrial Revolution). The second section outlines the impact of career competencies and career commitment on career success, while the last section highlights the theoretical underpinning and the literature summary.

2.1 Constructs and subconstructs background and evolvement

- 2.1.1. Career
- 2.1.2. Career competencies
- 2.1.3. Career commitment
- 2.1.4. Career success
- 2.1.5. Fourth Industrial Revolution

2.2. Impact of career competencies and career commitment on career success

- 2.2.1 Impact of career competencies on career success
- 2.2.2 Impact of career commitment on career success

2.3. Theoretical underpinning

- 2.3.1 Boundaryless career perspective
- 2.3.2 Protean career perspective
- 2.3.3 Boundaryless and protean career overlapping
- 2.3.4 Career construction theory

2.1. Constructs and subconstructs background and evolvement

- 2.1.1. Career

2.1.2. Career competencies

2.1.3. Career commitment

2.1.4. Career success

2.1.5. Fourth Industrial Revolution

2.1.1 Career

The table below presents the evolving concept of career in chronological order.

Stage	Author(s)	Career definitions in chronological order
1	Parsons (1909)	‘In the wise choice of a vocation, there are three broad factors: (1) a clear understanding of yourself, your aptitudes, abilities, interests, ambitions, resources, limitations, and their causes; (2) knowledge of the requirements, conditions of success, advantages and disadvantages, compensation, opportunities and prospects in different lines of work; (3) true reasoning on the relations of these two groups of facts.’ (p. 5)
2	Hughes (1937)	‘In a highly and rigidly structured society, a career consists, objectively, of a series of status and clearly defined offices. In a freer one, the individual has more latitude for creating his own position or choosing from a number of existing ones. ... Subjectively, a career is the moving perspective in which the individual sees his life as a whole and interprets the meaning of his various attributes, actions, and the things which happen to him. ... The career is by no means exhausted in a series of business and professional achievements. There are other points at which one’s life touches the social order, other lines of social accomplishment. ... It is possible to have a career in an avocation as well as in a vocation.’ (pp. 409–411)
	Hughes (1958)	‘Subjectively, a career is the moving perspective in which persons orient themselves with reference to the social order, and of the typical sequences and concatenations of office.’ (p. 67)
3	Wilensky (1961)	‘A career is a succession of related jobs, arranged in a hierarchy of prestige, through which persons move in an ordered (more or less predictable) sequence.’ (p. 523)
	Super (1980)	‘A career is a sequence of positions held during the course of a lifetime, some of them simultaneously (Super, 1957); an occupational career is the sequence or combination of occupational positions held during the course of a lifetime.’ (p. 286)

4	Arthur et al. (1989)	‘Our adopted definition of career is the evolving sequence of a person’s work experiences over time. A central theme in this definition is that of work and all that work can mean for the ways in which we see and experience other individuals, organisations, and society. However, equally central to this definition is the theme of time, along which the career provides a “moving perspective’ (Hughes, 1958: 67) on the unfolding interaction between a person and society... The notion of a career also links matters internal to the individual with matters external, such as those concerning official position. ... The study of careers is the study of both individual and organisational change ... as well as of societal change.’ (p. 8)
	Arthur & Rousseau (1996)	‘CAREER Old meaning: a course of professional advancement; usage is restricted to occupational groups with formal hierarchical progression, such as managers and professionals. New meaning: the unfolding sequence of any person’s work experiences over time.’ (p. 372) [emphasis in original]
	Sullivan & Baruch (2009)	‘We define a career as an individual’s work-related and other relevant experiences, both inside and outside of organisations that form a unique pattern over the individual’s lifespan. This definition recognises both physical movement ... as well as the interpretation of the individual, including his/her perceptions of career events ... career alternatives ... and outcomes. Moreover, careers do not occur in a vacuum. An individual’s career is influenced by many contextual factors ... as well as by personal factors.’ (p. 43) [emphasis in original]

Table 1: Career definitions in chronological order Adopted from Harney & Monks (2014)

The four main, evolving stages of the career concept were summarised and analysed, as shown in Table 1. The first stage, presented by Parsons (1909), focuses on the career choice factors ranging from self-understanding factors to knowledge of success factors at work and the logic of relations between them.

The second stage, presented by Hughes (1937, 1958), discusses a distinct career by emphasising how it consists, objectively, from a series of statuses and, subjectively, through the individual’s self-reflection.

The third stage, presented by Wilensky (1961) and Super (1980), defines a career as a series of related jobs, focusing on the connection and hierarchy of the jobs occupied.

The fourth stage, presented by Arthur et al. (1989), is close to the third stage career perspective but adds the factors and impact of individual, organisational, and societal changes to the concept of career. Arthur and Rousseau (1996) underline that career is the expanding sequence of any person's work experiences over time regardless of promotions and with no hierarchical progression, which is more developed and flexible from the third stage perspective where the hierarchical sequence of occupied jobs is emphasised.

Finally, Sullivan and Baruch (2009) consider one of the modern, broader career perspectives because it covers many essential areas, such as work experience inside and outside of the organisation, physical movement, an individual's perceptions of career events and alternatives, outcomes, and personal factors influences.

Table 1 reflects the evolving concept of a career in chronological order, but none of the concepts point out the importance of career competencies and career commitment, which may lead to an individual's success in the new economy (Hirschi 2018). Arthur (1989) mentions that the study of career is the study of individuals, organisational, and social change, but the technological impact on an individual's career competencies and career commitment is not addressed. Sullivan and Baruch's (2009) career perspective does not cover career competencies, career commitment, and technological impacts that influence individuals' careers for success in the technologically changing labour market. Finally, none of the definitions mention career success except the first stage definition by Parsons (1909).

Change has consistently been with us, yet it appears that the speed of change is speeding up. Trading firms, non-revenue driven organisations, governments, and private organisations all encounter a mix of quick advancements in different areas—economy, innovation, and society overall. These have broad significance for the management of individuals at work, and specifically for the arranging and overseeing of careers (Baruch 2004b).

A further contemporary definition of a career considers it to be ‘a process of development of the employee along a path of experience and jobs in one or more organisations’ (Baruch & Rosenstein 1992). On the one hand, careers are considered as the ‘property’ of persons, but on the other hand, for current working individuals, it is planned and handled by their organisations.

Initially, a career was under the individual’s ownership and responsibility, Arthur et al. (1989) define career as ‘an evolving sequence of person’s work experience over time’ after this time the career development moved from individual ownership to organisational ownership and recently by the end of 2000, career development returned to be under an individual’s responsibility and ownership (Baruch 2004b).

Modern work places attention on the varying meanings of career. Researchers have underscored the transition from long-term career relationships toward short-term career relationships that progress between employees and their hiring organisations (Adamson, Doherty & Viney 1998). Earlier, individuals were expected to work for one organisation for their whole life. Even if this was not the case, this was the aspiration. Currently, individuals anticipate that their relationship with their organisations lasts for a few years. The primary change is shown in the difference of the psychological agreements. From the organisational perspective, there is a move from offering careers of protected work for all to ‘opportunities for development’ (Baruch 2004b). The old career style presented a linear path, established on a ranked basis, which was extremely structured and inflexible. Career progression was based on promotion, by which employees progressed vertically in one organisation. The organisational scale was viewed as a ladder to ascend. Thus, career success was assessed through the pace of upward versatility of accomplishment (for example, salary and social position). The constancy of structure and clearness of career progression implied clear career routes, which were linear. In the contemporary workplace, the nature and characteristics of careers have changed significantly.

Considering boundaryless organisations and boundaryless careers (Defillippi & Arthur 1994), career has developed to be more flexible and dynamic. New career models include many options and directions for growth and development. Career success is defined in various ways, so there is no singular mode of accomplishing success. Therefore, multidirectionality is not limited to a specific career path. We now have many options, measurements and standards to assess achievement in a career, such as life balance, self-sufficiency, and autonomy, which offer inner satisfaction. Autonomy has entered career assessment values, alongside the usual external measures, such as income and position.

Career development was previously used to gather job skills and experience received in a specific job. In the previous decade, more dynamic careers evolved in which employees developed horizontally among various organisations. This kind of career makes the employee assume accountability for their employability. This shift has become a leading trend in the modern labour market, with the option of having flexible contracts or changing jobs many times (Akkermans et al. 2012).

The decrease of the classical hierarchical career requires different approaches to careers. Throughout the last decade, various contemporary” career concepts have been presented in the career’s literature declare that in response to broader economic, societal, and technological developments, these concepts generally presume that individuals are, or should be, increasingly mobile and self-directed in their careers which is considered contradictory to the earlier traditional career called organizations career which was concentrating more on hierarchal progression and less mobility. Throughout the recent decade, two career concepts, protean (Hall,1996) and boundaryless (Arthur & Rousseau,1996), have become widely acknowledged.

The protean career, as adopted and promoted by Hall (1976) and Hall (2002), emphasises accomplishing subjective career success by self-directed career behaviour. While the boundaryless career, presented by Arthur (1994), emphasises the intersection of both objective and subjective scopes and components of career at numerous degrees of investigation and examination, including organisational position, flexibility in the work setting, and the opportunity structure, while simultaneously deemphasising dependence on organisational hierarchical and career paths (Briscoe et al. 2006).

Arthur (1994) claims that the old image of steady employment and related organisational careers is disappearing. A modern image of active employment and boundaryless careers requires our consideration. The aim here is not to scrutinise the hierarchical career as a legitimate foundation of inquiry, but to endorse a second take-off point. This second take-off point recognises the changeable, market-complex world in which numerous careers now unfold (Arthur 1994).

2.1.2 Career competencies

Table 2, below, reflects all the career competencies in the main research literature and frameworks, in chronological order, based on the most recent studies. This section focuses on the boundaryless and protean career competencies perspectives.

Frameworks & concepts of career competencies (Date & Authors)	Explanation
Integrative Career Competencies Framework (Akkermans et al. 2012)	Akkermans et al. (2013) developed the modern career competencies framework and its measurement instrument. The framework of career competencies incorporates numerous points of view from the literature. The framework distinguishes between reflective, communicative, and behavioural career competencies. Six career competencies are determined: reflection on motivation, reflection on qualities, networking, self-profiling, work exploration, and career

	control. Based on this framework, Akkermans et al. (2013) developed the Career Competencies Questionnaire.
Human capital perspective (Kuijpers, Meijers & Gundy 2011)	<p>The human capital perspective on career competencies concentrates on employees' constant learning and employability. According to this perspective, career competencies are mainly designed in reflective, proactive, and interactive behaviours (Kuijpers, Meijers & Gundy 2011).</p> <p>Kuijpers (2003) differentiated between four career competencies: career reflection (reflective), self-presentation (interactive), career control, and work exploration (proactive). This framework has been extended in some empirical studies. Human capital perspectives have a similar prospect on the essential competencies for managing a successful career (Akkermans et al. 2012).</p>
Career self-management perspective. De Vos, De Clippeleer, & Dewilde (2009)	<p>Consistent with the protean career model, career self-management stresses that individuals are accountable for managing their own careers (Akkermans et al. 2012). Career self-management stresses the proactive nature of career competencies. De Vos, De Clippeleer, and Dewilde (2009) define proactive career manners as a careful and cautious action taken by individuals to recognise their career goals.</p> <p>De Vos, De Clippeleer, and Dewilde (2009) distinguish between two factors of career self-management; the first one is a behavioural factor such as career planning and career opportunities, which is related to individuals's behaviour in managing their career and the second factor is the cognitive factor, which covers individuals's development and desires, related to their careers. Various studies focusing on career self-management have suggested similar concepts, such as Kossek et al. (1998) and De Vos (2009) (Akkermans et al. 2012).</p>
Protean career perspective (Anakwe, Hall & Schor 2000)	<p>The concept of a protean career was presented by Hall in 1976 and 2002 and focuses on accomplishing subjective career success through self-directed career conduct. While there is some overlap with the boundaryless career perception, protean career focuses on the added value of career competencies to subjective career success, such as career satisfaction instead of organisational values (Briscoe, Hall & Frautschy DeMuth 2006). Anakwe, Hall, and Schor (2000) describe three types of career competencies related to protean career perspective represented by self-knowledge skills, interpersonal knowledge skills, and environmental knowledge skills.</p> <p>Self-knowledge skills contain active listening, time management, and stress management, which are related to reflective skills and linked to individual growth and career self-management.</p>

	<p>Interpersonal knowledge skills, such as conflict management and delegation skills, indicate knowing how others may add value to the individual's career.</p> <p>Environmental knowledge skills relate to the individual's environment along with their regular monitoring of it to know how to adapt to new changes. The knowledge concept has been emphasised because of its importance of reflection in career development. Having skills only is not adequate, but knowing when and how to use them is crucial (Akkermans et al. 2012).</p>
Career management competencies - the individual perspective (Ball 1997)	<p>Ball (1997) highlights the need for a competencies model related to leaders, technical, and professional employees, which can have and add sense to employees in their workplace, represented by the following competencies:</p> <ul style="list-style-type: none"> - Optimising career prospects - Career planning - playing to your strengths - Engaging in personal development - Balancing work and non-work
Boundaryless Perspective (Defillippi & Arthur 1994)	<p>To comprehend career development, Defillippi and Arthur (1994) differentiate between job skills and career competencies in their boundaryless career viewpoint. According to Defillippi and Arthur, organisations need to constantly adjust to fluctuating markets and needs. This adaptive method requires increasing adaptability from the labour force, aligning work skills with new requirements. Career competencies are expected to hold a vital role in supporting the employee's value toward their organisations (Arthur & Rousseau 1996). Defillippi and Arthur (1994) present the three 'dimensions of knowing': knowing why, knowing whom, and knowing how.</p>
The Development of a Taxonomy of Career Competencies for Professional Women (Hackett, Betz & Doty 1985)	<p>This study was carried out in 1985 and was the first attempt to capture career competencies through developing a taxonomy of the competencies necessary for women's pursuit of professional-level, and particularly academic, careers. This group of career competencies was then tested by three counselling psychologists, and a sorting scheme to define the data was established. The career competencies are described under the following categories:</p> <ul style="list-style-type: none"> - Communication skills - Interpersonal skills - Political skills - Organisational skills - General career planning and management skills - Career advancement skills - Job-specific skills - Adoptive cognitive strategies.

Table 2: Career competencies concepts and framework

As shown in Table 2, various perspectives on career competencies have developed from 1985 to 2012. The career competencies presented earlier in the broad context of generic competencies included communication skills and interpersonal skills. An analysis of the first studies on career

competencies by Hackett, Betz, and Doty (1985) and Defillippi and Arthur (1994) shows that they have a few similarities. Job-specific skills in Hackett, Betz, and Doty's (1985) study match the know how competency in the boundaryless career competencies perspective, which presents the technical skills related to an individual's work.

Other perspectives presented by the career management competencies perspective, the protean career perspective, career self-management, and the human capital perspective hold different viewpoints, ranging from leadership, accomplishing subjective career success, proactive manner of continuing to learn.

Job roles, experience, and various work activities have been characterised as the main components of a career development method. Obtaining career associated competencies is fundamental for the career development advancement process (Lichtenstein & Mendenhall 2002).

Career competencies accumulated by learning lead to efficiency in career management and perform as a tool to assist in explicit career results (Francis-Smythe et al. 2013; Wolff & Moser 2009). Job skills are, likewise, linked to career competencies, which place importance on general competencies necessary for all labour forces (Ahmad et al. 2019).

Career competency additionally alludes to self-management of work environment matters for career advancement and other associated objectives (Kuijpers et al. 2006).

Recent studies have empirically reinforced the differences between career competencies and professional competencies. Career competencies are general transferable skills, regardless of type of work or business. In contrast, professional competencies are limited to certain jobs or roles and are not transferable (Kuijpers et al. 2006). Consequently, a group of 12 competencies was suggested by Ohio State University in 1995. These competencies include:

- Career development
- Business venture
- Economical information
- Continues learning
- Leadership
- Problem-solving
- Decision-making
- Job search skills
- Career development and work retention skills
- Innovation
- Work and personal balance
- Workplace citizenship and workplace principles

Briscoe (2002) has recommended an identical group of competencies for employees to accomplish career objectives. Following the development of the Columbus Vocational Instructional Material Laboratory (1995) competencies, four career competencies were proposed by Chung-Herrera et al. (2003)—ethics and integrity, flexibility and adaptability, self-development, time management—in a behaviour-based competency model to help organisations and staff remain competitive (Ahmad et al. 2019).

Building on the literature on competency streams outlined above, Akkermans et al. (2013) have suggested a multidimensional career competency framework that contains a reflection on motivation, reflection on qualities, networking, self-profiling, work exploration, and career control. The framework has been broadly used in the latest research on career management and related topics (Dumulescu, Balazsi & Opre 2015; Plomp et al. 2016; Akkermans & Tims 2017).

Career competency and its connection with career management and career success (Kong, Cheung & Song 2012a), job satisfaction (Crites 1982), job crafting (Plomp et al. 2016), career

satisfaction (Godshalk & Sosik 2003), work engagement, and job resources (Akkermans et al. 2013) has gained increasing interest from scholars (Ahmad et al. 2019). None of these studies, however, have tested and studied the impact of boundaryless and protean career competency construct perspectives on young graduates' career success, with the exception of Eby et al. (2003). Eby et al.'s study, carried out in 2003, has studied the effect of boundaryless career competency components on career success. It is worthwhile investigating the impact of boundaryless and protean career competency construct perspectives on recent graduates' career success during the Fourth Industrial Revolution.

Career competencies are expected to play a vital role in maintaining an individual's value for an organisation. To understand career development, Defillippi and Arthur's (1994) philosophy of career competencies draws on the modern flow of work related to firm competencies and their vital and competitive consequences. This work refers to overlapping fields of comprehensive competency linked to a firm's culture, know how, and networks (Hall 1992). Every arena of firm competency recommends an equivalent arena of career competency, which is presented as know why, know whom, and know how competencies. The firm-based competencies viewpoint recognises that individuals' competencies lie behind the firm's competencies. It likewise recognises that organisations can add novel and modern competencies through hiring (Simon 1991) or lose competencies over undesirable resignations (Hall 1992). Nevertheless, Defillippi and Arthur (1994) have stressed the more extensive reliance of firm competencies on individual career conduct. Know why, know whom, and know how are considered a form of knowledge resource (Defillippi & Arthur 1994; Winter 1986). Defillippi and Arthur (1994) have differentiated among career competencies and job skills from boundaryless career perceptions in three '**dimensions of knowing**', which ease the adaptive process. The knowing why dimension relates to career motivation, career values, core needs,

and giving personal meaning to work. The knowing whom dimension represents career networks and the different ways individuals can use their networks (Defillippi & Arthur 1994). Knowing how represents relevant career competencies, such as the effective skills needed to create and form a career and tacit and explicit knowledge needed to perform a certain job.

Jones and Defillippi (1996) have proposed extra categories, which are ‘know what’, which present opportunities, needs, and threats; ‘know where’, which comprises training and development; and ‘know when’, which consists of the timing of activities and choices. Such qualities are more suitable in a period where individuals steer their careers, selecting from various choices, and are not limited to one employer (Baruch 2004b). The above framework has been used in various studies, such as Eby, Butts, and Lockwood (2003).

Perspectives	Competencies		
	Reflective	Communicative	Behavioural
Boundaryless	<i>Know why</i> - Career insight - Openness to experience - Proactive personality	<i>Know whom</i> - Experience in mentoring relations - Extensiveness of networks	<i>Know how</i> - Career identity - Career-related skills
Protean	<i>Self-knowledge skills</i> - Self-assessment - Self-awareness - Modifying self-perception	<i>Interpersonal knowledge skills</i> - Assertiveness - Conflict management - Dialogue skill - Effective listening - Seeking out relations	<i>Environmental knowledge skills</i> - Adapting to changing environment - Exploration - Flexibility - Time and stress management

Table 3: Career competencies perspectives - Source: Akkermans et al. 2012

Table 3 is derived from Akkermans et al.’s (2012) summary of the literature reflecting on boundaryless and protean career perspectives, which are under review in this study. Akkermans et al. (2012) define career competencies as ‘knowledge, skills, and abilities central to career

development, which can be influenced and developed by the individuals' (Akkermans et al. 2012).

It can be concluded from the above table and Akkermans et al.'s (2012) research that the career competencies could be categorised as following and matching with career competencies survey questionnaires used in this study.

- 1- Reflective competencies focus on reflection on motivation, which is related to knowing why and reflection on qualities, which is related to self-knowledge skills
- 2- Communicative competencies focus on networking related to knowing whom and self-profiling, which are related to interpersonal knowledge skills
- 3- Behavioural competencies focus on knowing how, which is related to work exploration and environmental knowledge skills relate to career control.

There are various relationships between the proposed constructs highlighted in the literature. For example, self-awareness with environmental awareness should facilitate effective career management by empowering individuals to set reasonable career goals, develop proper and suitable career strategies, and make productive careers decisions (Singh & Greenhaus 2004).

Self-awareness supplies individuals with the control and direction needed for effective career management. Individuals with knowing why in their reflective competencies are defined by a broad understanding of their self-awareness (presented under self-knowledge skills and reflective competencies), and their capacity to understand the motivational power behind their actions. These individuals can handle their careers more efficiently and successfully because they can set practical career goals and develop plans to accomplish these goals. (Setting a career goal is a subconcept under the career motivation concept.) Thus, it is logical to anticipate that individuals with knowing why competencies are less likely to sense career insecurity because their strong self-awareness makes them find jobs more easily. Arthur et al. (1999) have supported this argument in their qualitative study, finding that individuals with clear aims and

plans in life could construct careers suitable for their self-concepts (Colakoglu 2011). Defillippi and Arthur (1994) have suggested that collective career competencies are incorporated in individuals' beliefs and identities (know why), networks of relationships and contacts (know whom), and skills and knowledge (know how), (Defillippi & Arthur 1994).

Reflective competencies

Know why

- Career insight
- Proactive personality
- Openness to experience

Know why

'Know why' respond to why question, as it belongs to career inspiration, personal meaning, and identification. Know why competency is identified as a person's motivational energy to understand him or herself, discover various options, and adjust to changeable work situations. Additionally, 'know why' competency permits employees to decouple their identity from their employers and keep open to new opportunities and vocational experience (Eby, Butts & Lockwood 2003). The 'knowing why' variable and its impact on young graduates' career success is investigated in this research. Career insight is a subvariable under know why. It concerns the degree to which an individual has practical career foresight, information on their own qualities and weaknesses, and explicit professional objectives. It reflects the excitement of vocational aspiration and is thoughtfully concerning objective clearness, social insight, future direction, and authenticity of desires (London 1983; Noe, Noe & Bachhuber 1990). Given these attributes, individuals who have strong career identity are relied upon to enact a career where

investments made in their organisation, career, industry, and social arena (e.g., companions, unrelated work activities) supplement their expert objectives (Greenhaus 2001).

The second subvariable of know why is a proactive personality. This alludes to a dispositional tendency toward proactive behaviour. Profoundly proactive individuals distinguish opportunities and make a move on them, exhibit initiative, and persevere in the face of setbacks. These attributes ought to encourage achievement in the boundaryless career because of the expanded necessity to adapt to continuing altering work conditions, assume individual liability for one's career, and construct individual networks.

The character of openness to experience is considered under the 'knowing why' competency. Individuals with this characteristic are likely to be creative, inquisitive, tolerant, and dynamic. They additionally search for new experiences and are eager to participate in new ideas. With less steady hiring and the need to continually be looking after building new ranges of abilities, it is predicted that openness to experience may be significant in anticipating success in the boundaryless career (Eby, Butts & Lockwood 2003).

Self-knowledge skills:

- Self-assessment skills
- Self-awareness skills
- Modifying self-perception

Self-knowledge skills are presented in the protean career under reflective competencies. To understand the competence of the modern career, individuals must develop new competencies associated with the control of self and career. The modern career has become a constant learning process. The individual needs to figure out how to advance self-knowledge and adaptability. These are known as 'metacompetencies', since they are the skills needed for figuring out how to learn (self-assessment). The requirement for adaptability is self-evident. It empowers the

individual to change their self-perception in reaction to environmental demands without waiting for formal preparation and improvement from the organisation. Nevertheless, without self-awareness, this adaptability could be a blind, reactive procedure, and the individual could face hazardous changes in manners that are not compatible with their values and objectives. Adaptability alone may create what Chris Argyris has called 'reactive to change', while adaptability, in addition to self-knowledge, advances generative change (Hall & Moss 1998).

Skills associated with individual self-management are significant for adapting adequate career management techniques, for example, taking part in realistic objective setting, changing adequate career goals, such as mentoring, going to workshops on related tasks, and development issues.

Self-knowledge skills emphasise individuals' development. Self-knowledge includes information about the individual's skills related to a person's self-management. Examples include oral presentation, active listening, time and stress management, self-awareness, and working more adequately with individuals from various backgrounds and cultures.

Productively obtaining these aptitudes ought to enable individuals to find out about themselves (self-awareness skills). Broad self-knowledge should be added to realistic goal setting. Individuals become mindful that to manage their careers, goal setting becomes both motivating and directional. Career strategies are developed to accomplish these goals. Effective career decisions occur when individuals obtain in-depth knowledge of themselves, which is called the self-awareness skill (Anakwe, Hall & Schor 2000). Improved self-knowledge advances the creation of career decisions. Anakwe, Hall, and Schor's (2000) findings have broadened career literature, demonstrating the necessity for self-knowledge and its significance in working

effectively in the modern career. Blustein (1997) and Anakwe, Hall, and Schor (2000) findings have likewise broadened studies that discover indicators of adequate career management, for example, practical objective setting (Locke et al. 1981) and use of career plans, such as mentorship and networking to improve the accomplishment of individual and organisational outcomes (Noe 1996).

Communicative competencies:

Know whom

- Experience in mentoring relations
- Extensiveness of networks

The second career competency is 'knowing whom'. This alludes to work-related networks and contacts (Defillippi & Arthur 1994), and interaction with others for the benefit of the company (e.g., vendors, clients) and individual connections, such as experts and social colleagues (Smith et al. 2001).

The significant advantage of 'knowing whom' is that it provides a tool for knowledge, the growth of credibility, and learning (Defillippi & Arthur 1994; Smith et al. 2001). 'Knowing who' additionally gives exposure to new connections and future employment opportunities (Arthur, 1994). The aftereffect of investing in such a career competency is the advancement of career networks, which give settings to occupation support and self-development (Smith et al. 2001).

The impact of the 'knowing whom' variable on young graduates' career success is investigated in this research. The first subvariable under 'knowing whom' is a mentoring relationship. Mentoring relationships are significant advancement experiences for individuals and important sources of learning. Tutors can likewise give access and clarity to apprentices both precisely,

by presenting them to notable key individuals inside and outside the organisation, and indirectly, by giving difficult tasks and projects, which encourage extra contact networking.

The other two indicators evaluate the extensiveness of networks inside and outside the organisation. Networks are viewed as fundamental components of success in a boundaryless career for a different reason. Through less employment stability among present employees, individuals should be strongly connected with their organisations as well as looking outside the organisation for help and formative assistance. Fast-changing technology implies that keeping up-to-date aptitudes is progressively significant, although difficult. Networking inside and outside the organisation can assist individuals with remaining steady in the face of new advancements and approaches. It has been forecast that inside and outer networking is significant since it gives various sources of help.

Interpersonal knowledge skills

- Assertiveness
- Conflict management
- Dialogue skills and effective learning
- Influencing others
- Seeking out relations

Interpersonal knowledge skills are presented by the protean career competencies perspective under communicative competencies. They include, for example, conflict management, assertiveness, and delegation, which refer to knowing how others may add to the individual's career (Akkermans et al. 2012).

The interpersonal knowledge skills are related to connecting and involving with others. Interpersonal knowledge in a work setting incorporates work allocation, encouraging others, assertiveness, conflict management, influencing others, and using power efficiently and successfully. As individuals gain competency in working adequately together, they likewise find out about themselves. They empathise and attempt to know why and how others act and behave as they do. Obtaining competence in dealing with individuals needs a systematic, focused, and fixed method which benefits from career management indicators, for example, realistic objective setting, utilising career plans, and taking part in career actions and choices. These indicators all stress that individual self-development and career management could be advanced and promoted through a network of connections. Obtaining and using interpersonal knowledge is especially valuable since the most important work items are achieved in teamwork.

Anakwe, Hall, and Schor's (2000) research outcomes have expanded on the findings describing interpersonal aptitudes as fundamental for career success. Having the option to take part in these career management exercises is significant now and may become more difficult as workplaces and connections become progressively complicated (Anakwe, Hall & Schor 2000).

Behavioural competencies

Know how

- Career identity
- Career-related skills.

The last construct in career competencies is the 'knowing how' concept, which alludes to job-related information collected over a period and contributing to both the organisation's and the individual's knowledge bases (Greenhaus 2001). 'Knowing how' is a little different from

traditional conversations on human capital (e.g., learning, training). It emphasises building up a wide and flexible skills base that is transferable across organisational boundaries. Additionally, there is a focus on occupational learning instead of job-related learning.

The improvement of skills is enhanced when individuals are familiarised and concerned with non-stop learning. The concept reflects a tendency to participate in skill-improving opportunities and involvement in proficiency activities, termed career identity (London 1993).

Career identity

In the contemporary situation, individuals need to take responsibility for their own employment. In view of adjustments in the workplace (expanded social and business-related uncertainty, reduced significance of explicit abilities, and developing emphasis on personality traits), assuming this responsibility requires building a career identity, and, based on that identity, deciding on a direction in life (Meijers 1998). Career identity is part of career motivation. It reflects how focal one's career is to one's identity. Career identity contains two subcategories: work involvement and desire for upward movement. Work involvement dimensions, which ought to be positively associated with career identity, contain occupation involvement, professional orientation, an obligation for supervisory work, and organisational identity. Individuals who are highly focused on career identity probably view career satisfaction as more significant than fulfilment in everyday matters. The desire for upward movement and promotion incorporates requirements for development, acknowledgement, dominance, and financial benefit. It includes the ability to postpone satisfaction and happiness, which ought to be negatively identified in the desire for upward movements and promotions (London 1993).

Career identity reflects the directional factor of career inspiration (Noe et al. 1990). For example, those who have greater career identity invest their time and energy in improving aptitudes and competencies, which should add to their total assets both inside and outside the organisation. This concept is uncommon and differs from 'knowing why' in that the emphasis is on professional improvement in terms of work-related abilities and expert advancement instead of mindfulness or a general eagerness to attempt new things. It directs researchers interested in developing new frameworks and augmenting existing ones to understand modern careers (Eby, Butts & Lockwood 2003).

Environmental knowledge skills

- Adopting to change in the environment
- Flexibility
- Time and stress management.

Environmental knowledge skills are presented by the protean career competencies under behavioural competencies. Environmental knowledge focuses on a complete understanding of the surrounding environment in which individuals perform. This extends and accelerates consciousness of the environment and promotes adaptability and flexibility in other contexts. Individuals are required to monitor and screen their environment frequently to know how to adapt and adjust to the fluctuating environment. Thus, gaining knowledge of the environment must further and maintain efficient career management. Career management is a dynamic method, and the modern career involves non-stop change. It has been proposed that improved awareness of the environment contributes to efficient career management. Broad data about the environment were vital for establishing realistic and suitable career goals (Greenhaus, Callanan & Kaplan 1995). Expanding awareness about the environment allows individuals to better

comprehend themselves, maintain realistic goal setting, inspire use of career strategies, and encourage professional decision-making.

Anakwe, Hall, and Schor's (2000) research findings have confirmed the relevance of environmental knowledge to effective career management and concurs with results on interpersonal knowledge. Such results have emphasised the need for understanding the context in which a job is carried out, which maintains efficient career management. These findings have broadened the literature that stresses a relational approach to career management. For example, the findings of Greenhaus, Callanan, and Kaplan (1995) noted that expanded awareness of self and environment are important for engaging in vocational management activities, genuine goal setting, applying career plans, and building realistic career decisions. The overall findings have expanded the concept of the protean career 'metaskills' by emphasising that identity and adaptability are specifically achievable with environmental knowledge (Greenhaus, Callanan & Kaplan 1995).

2.1.3 Career commitment

A career contains a sequence of different related jobs and is perceived by individuals over a period (Hall 1976; Solomon, Bishop & Dresser 1986). Career commitment is crucial for career advancement and development. Career commitment is also essential for the improvement of abilities because it assists individuals in persisting with skills development (Noordin, Williams & Zimmer 2002).

Research results on skilled individuals show that years of training, improvement, and practice were essential to achieve high levels of skill. Commitment to a particular career supported the development of a professional network. A professional network is important in the world of business and services (Kaplan & Mazique 1983) as a basis of knowledge and for enhancing an individual's exposure to organisational management (Noordin, Williams & Zimmer 2002).

Attention needs to be given to career commitment, not only due to the significance of careers to individuals, organisations, and community (Carson & Bedeian 1994), but due to individuals' changing loyalties, higher learning levels, and growths in unions, acquisitions, and terminations. All these factors can cause difficulty for individuals in relying on one employer to sustain a whole career. To manage such uncertainty, more highly educated individuals are more committed to their career than to a particular organisation. As stated by Colarelli and Bishop (1990), 'commitment to an internally defined career has become an important source of occupational meaning as organisations become more fluid and less able to guarantee employment security'.

Changing workplaces and the speed of careers in organisations have driven individuals to show greater commitment to their careers and less commitment to their organisations (Noordin, Williams & Zimmer 2002). Career commitment, organisational commitment, and career inspiration are additional factors for career success that have been previously studied (Ballout 2009; Day & Allen 2004; Kidd & Green 2006).

Organisational commitment recommends a commitment to an organisation and its goals. Individuals who are organisationally committed are passionate about and connected to their organisations (Allen & Meyer 1990). Career commitment, conversely, includes self-generated goals and obligations for an individual's career, which could lead to work in many, varied organisations (Randall 1987). Although the obligation for occupation usually alludes to commitment to a career, non-professional employees may also be committed to their careers (Hall 1976).

Earlier research has supported that individual differences and conditional characteristics affect career commitment. Career commitment can be associated with an individual's work commitment, which may make constructive outcomes related to an individual's career.

Those with a solid sense of career commitment and expanded degrees of career assumptions may make critical investments in their vocations (Aryee & Tan 1992). They may be keen to invest extra effort into accomplishing their career objectives, such as obtaining work-related knowledge and talents from certain training or developmental programmes (Aryee & Tan 1992) through which they can extend their range of advancement. Individuals who are dedicated to their careers are likely to determine high career objectives for themselves and invest energy to persist in following these objectives, even while encountering challenges and difficulties (Colarelli & Bishop 1990; Srikanth et al. 2012).

Career commitment has evolved to be an important source of ongoing work, meaning since organisations have tended to become flatter and less fit to offer sustainable work or careers (Aryee, Chay & Chew 1994; Ballout 2009; Colarelli & Bishop 1990; Noordin, Williams & Zimmer 2002). The commitment concept appears to change gradually over the course of a person's career. This has driven researchers to examine career commitment according to career stages (Aryee, Chay & Chew 1994; Reilly & Orsak 1991). Schein (1971) has described how the progressive character of career commitment could support employers in predicting and managing job disengagement, regardless of whether restrictions among the developmental stages of commitment are appropriately defined (Noordin, Williams & Zimmer 2002).

The conceptualisation of career commitment or occupational commitment has involved a range of categories (Meyer, Allen & Smith 1993). The first category focuses on the affective commitment to a person's career, depending on a strong interest to continue in the same career.

Such a person may decide to read and buy publications, such as journals and books related to their career field, or they may attend related seminars. The second category is deeply keen on a normative commitment with a feeling of responsibility to stay in the selected profession, while the third is continence commitment, which is concerned with the significant expenses related to leaving the occupation. Meyer, Allen, and Smith (1993) have explained that occupation, profession, and career expressions have been used interchangeably in the commitment literature (Srikanth et al. 2012).

Colarelli and Bishop (1990) have claimed that career commitment is logical and rational, although not empirically or observationally various from other kinds of occupational commitment. For instance, work commitment suggests that commitment consists of an immediate set of required work objectives, while career commitment may contain several consecutive jobs, including a long-term perspective and is associated with an individual's subjective career (Hall 1976; Noordin, Williams & Zimmer 2002).

Carson and Bedeian (1994) have claimed that operationalising career commitment is a considerable challenge because of its unclear boundary. They have argued that ambiguity appears to result, partly from an absence of an understanding of what forms a career. There is more than one concept for a career in the literature. The first conception portrays a career as a sequence of jobs held throughout a person's lifetime. The second conception portrays career as identification with an organisation in one's occupation (Hall 1976). The last conception portrays a career in terms of kind of employment. According to Hall (1971), career commitment is the conceptualisation of a career, while for Landau and London (1987) it comprises elements of career motivation. Carson and Bedeian (1994) have proposed, advanced, and assessed 12 items for measuring career commitment. Following Blau (1985), they describe a career as having the same explanation as a vocation, occupation, or profession. However, commitment

is described as an individual's motivation to work in a specific field (Hall 1971). They conceptualise career commitment as a multidimensional concept formed of three factors. The first factor is career planning, presented by deciding on an individual's developmental necessities and setting career objectives (Lydon & Zanna 1990). The second factor is career resilience presented through resisting career disturbance in the face of difficulties (Colarelli & Bishop 1990), while the third factor is career identity, present in forming a close emotional relationship with one's career (Blau 1985). The components of career commitment (career planning, career resilience, and career identity) are further discussed below.

Career planning

Career planning involves individuals deciding on their career objectives and how they need to advance to understand these objectives in their careers, which might, for instance, lead someone to change work to acquire particular experiences (Carson & Bedeian 1994). Career planning is defined as 'a continuous process of self-assessment and goal setting' (Kleinknecht & Hefferin 1982).

Career planning is an important component of an incorporated human resource system. The career-planning process is a progression of three successive components:

- 1- The attainment of career-related information concerning:
 - A. the individual's interest, abilities, and values
 - B. work-related matters, such as organisational opportunities
 - C. non-work-related matters, such as family and personal interest
- 2- The identification of the wanted or anticipated outcomes or objectives, such as to manage a unit or to have difficult work
- 3- The advancement of a strategy to achieve the ideal results or objectives.

It is imperative to perceive that, ‘concerns about work and a career do not exist in isolation, but are related to personal issues of self-development, the stages of one’s life ... one’s family, ‘ (Schein 1976). Greenhaus and Kopelman (1981) have claimed that we should think about an individual’s career by considering their participation in various life roles, such as their role as employee, life partner, parent, civic volunteer, and member in leisure and self-advancement activities (Bailyn & Schein 1976).

Employees’ contributions and involvement in various roles impact the career-planning process in two related ways. First, the attainment of career-related information must contain information on work and non-work roles. A more extensive database, including information on family leisure, public activities, and altering aspects of oneself, must contribute to the identification of career objectives and results that consider the work and non-work desires.

Second, it ought to be perceived that consistency with requests related to one specific role (the supervisor anticipates that a project should be finished over the course of the end of the week) may make it troublesome or difficult to conform with the claims of another role (such as the family when they want to take a short break at the end of the week). Involvement in a range of roles, each with its arrangement of requests and expectations, may lead a few groups to encounter job struggles (Greenhaus & Kopelman 1981)

Career development is a replication instead of a linear process. It expects individuals to comprehend their surroundings where they live and work, to evaluate their capabilities and boundaries and endorse that assessment, to express and build up their own career and personal vision, to advance a realistic future plan, and consequently to market themselves to accomplish their career objectives. Donner and Wheeler (2001) have proposed five phases of an individual’s career planning as follows:

- Scanning the environment
- Completing a self-assessment and reality check
- Creating a career vision
- Developing a strategic career plan
- Marketing yourself and showcasing

Scanning the environment

Scanning the environment can be defined as taking stock of the world where an individual resides. It includes understanding the present realities in the countries where they live, their healthcare system, work environment, and future patterns at the worldwide, public, and local levels, both related and unrelated to an individual's profession. This scanning process allows individuals to become more educated, assess how to see the world through contrasting viewpoints, and distinguish present and future career opportunities. Scanning is a non-stop activity which, along with self-assessment, shapes and structures the career-planning process.

Completing a self-assessment and reality check

A detailed self-assessment is a way to explore new and earlier unconsidered opportunities. Self-assessment allows and empowers individuals to recognise and distinguish their principles, experiences, knowledge, qualities, and boundaries, and to integrate them with an environmental scan to initiate a career vision and recognise directions to consider for achieving proposed future career plans.

Creating a career vision

Creating a career vision is decided after the individual determines a reasonably comprehensive vision about their values, faith, and talent, and has analysed those in the setting of the completed real-world scan. At this stage, individuals can think about their career opportunities. They can

consider where they see themselves progressing, explore if they enjoy their present occupation, assess if it is appropriate for their personal life and the need to advance in that role, or explore an interest in changing and continuing to different difficulties. The reasons for an individual's vision of their possible future are based on their scan and self-assessment. It is also centred on what is conceivable and sensible for them in the short and long term. Career vision is the connection between current individual identity and status and what they can become.

Developing a strategic career plan

A strategic career plan is a roadmap for action. As indicated by Barker (1992), vision without action is only a dream; action without vision is only a waste of time; but vision with action can change the globe. At this stage, the individual is prepared to determine the activities, timeline, and required resources to accomplish the planned goals and career vision. In this part, individuals are required to begin writing on a piece of paper the exact and particular strategies that they can use to be responsible for their future. This is where the twisting or iterative nature of the cycle is reinforced.

Marketing yourself and showcasing

Showcasing yourself includes the capacity to package your expert and individual characteristics, properties, and abilities and to educate others about what you have to bring to the table and why you are the best individual for the work that is required.

An extensive self-marketing strategy is a vehicle that individuals can use to transfer from the planning to the action stage of career development. It is about utilising all the individual's assets to introduce him or herself in the best positive manner. It is always important for individuals to remember that the master resource required for their future is themselves!

While the facts demonstrate that there is a reliance on individuals to plan their career and take responsibility for their futures, the outcomes do not depend on them alone. Educators, companies, and professional organisations should also consider career planning and advancement as a priority (Donner & Wheeler 2001).

Career planning and career development topics are gripping the interests of both researchers and practitioners. Some authors, such as Hall (1976); Jennings (1971); and Bolles (1972), have emphasised the necessity of career planning for individuals. Numerous public and private organisations are exploring various avenues for formal career-planning programmes (Walker 1978). The aims of these programmes are to expand the degree of an individual's career planning, which could support and guide them to a more successful career. Hall (1976) has claimed that an individual's efficiencies are connected and linked to organisational effectiveness and such career-planning activities can result in a more dedicated workforce. The greater part of the supporting proof for legitimising career planning originates from individual experience and case narratives (Gould 1979). The area of career planning is missing accurate, well-designed research studies (Super & Hall 1978). Corresponding to the nature of career exploration, career planning alludes to individuals outlining future career advancements and to their setting and seeking career objectives (Gould 1979; Greenhaus 1971). Since career objectives are a good indication of effort, and since modern careers are represented and portrayed by long-lasting planning, it is not astonishing that career planning is linked to more successful careers (Hall 2002; Super & Hall 1978). Career exploration and career planning are not once-in-a-lifetime activities but continuous activities that might be particularly pertinent during career transformations, such as work loss.

London (1983) has proposed that individual variances and situational attributes are significant indicators of career commitment. Individuals who are highly engaged with career aspiration

may have more noteworthy career satisfaction. For instance, career commitment was found to positively influence learning aspiration and learning transfer (Cheng & Ho 2001). Individuals with a learning objective invested in building up a plan for achieving high performance (Sujan, Weitz & Kumar 1994). Carson et al. (1999) have connected career commitment and organisational commitment to work-related results. They have found that individuals who scored highly on career commitment reported more career satisfaction than those who evaluated career commitment as a low priority. Day and Allen (2004) have discovered that career commitment relates positively to career satisfaction in their study on municipal employees (Ballout 2009).

Career resilience

Career resilience refers to a person's freedom and resourcefulness, when he or she chooses to leave a specific organisation if their career objectives are unfulfilled (Noordin, Williams & Zimmer 2002). Resilience is a complicated phenomenon that defines a person's ability to meet and overcome a difficult situation. It is also claimed in the literature that employee resilience could be better perceived and comprehended through organisational resilience (Naswall et al. 2013). Organisational resilience is described as 'a function of an organisation's overall situation awareness, management of keystone vulnerabilities, and adaptive capacity in a complex, dynamic, and interconnected environment' (McManus et al. 2008). Nevertheless, Naswall et al. (2015) have described employee resilience as an 'employee capability, facilitated and supported by the organisation, to utilise resources to continually adapt and flourish at work, even if/when faced with challenging circumstances' (p. 1). According to Wagnild and Young (1993), the previous literature on resilience has assumed that employee resilience is a fixed and stagnant behavioural factor. Opposing this view, Luthans (2002) has claimed that employee resilience is

a 'developable capacity'. In a psychological context, it is seen as the ability to react to internal and external pressures with a flexible approach (Klohne 1996).

Resilient individuals are known for their attitude of non-stop learning, adaptability to displeasing events, and career self-control. Such individuals support their employers in achieving a manageable long-term competitive advantage in the world economy (Waterman et al. 1994). Psychological resilience is described in the literature as a useful business-related trait (Luthans, Vogelgesang & Lester 2006). Career resilience as a positive business-related trait has also been disregarded in a study on contemporary careers (Lyons, Schweitzer & Ng 2015), because career outcomes such as career success and career satisfaction have dominated the interest of the career counselling field. Howard (2008) has clarified that the unfortunate effect of work pressure is buffered by resilience in demanding work settings. This resiliency may not be formed immediately, instead, a particular competency should take place to activate resilience. The literature contains inconsistent views about career resilience. Abu-Tineh (2011) has described career resilience as the capacity to recuperate from career obstacles and setbacks. Other scholars have defined career resilience as 'a process of development occurring over time, through person-environment interactions' (Mansfield et al. 2012).

London (1983) has described career resilience as 'a person's resistance to career disruption in a less than optimal environment' (p. 621). In contrast, career vulnerability, as described by London (1983), alludes to 'the extent of psychological fragility (e.g., becoming upset and finding it difficult to function) when confronted by less than optimal career conditions (e.g., barriers to career goals, uncertainty, poor relationships with co-workers)'. London (1983) has affirmed that career resilience is a multidimensional concept, which consists of three subareas presented by self-efficacy, risk-taking, and dependency. London (1983) has argued that the result of resilience is the ability to survive negative encounters linked to a career.

Certainly, London's (1983) input in expanding the conceptualisation of career resilience in his career motivation model has been a novel contribution to career management research. Nevertheless, Lyons et al. (2015) have debated whether London's (1983) career resilience conceptualisation is ambiguous and unclear because it does not distinguish career resilience from its antecedents and determinants, such as self-efficacy and additional associated career concepts, like the inspiration of accomplishment, career maturity, work change (Fourie & Van Vuuren 1998), and career flexibility (Lyons et al. 2015).

Subsequent work by Fourie and Van Vuuren (1998) and Fourie (2000) has suggested a better-developed career reliance model. They operationalised career resilience and suggested career resilience measurement model consisting of four elements that disregard the traditional sources of career success: 'self-reliance' and 'receptivity to change.'

In conclusion, career resilience in modern careers is described and viewed as an active and ever-changing phenomenon, as claimed by Abu-Tineh (2011), rather than a static dimension of personality. Abu-Tineh (2011) has argued that if resilience is perceived only as a personal trait, this might lead to a conclusion that some individuals just do not have the right trait to overcome adversity (Ahmad et al. 2019). This study clarifies the career resilience concept by measuring its impact on career success, which has never been studied before.

Career identity

Career identity is the degree to which individuals define themselves by the work that they do, rather than by the organisation they work for. For instance, doctors who identify with the work of healing more than they relate to and identify with specific hospitals or employers who may hire them (Noordin, Williams & Zimmer 2002).

Individuals need to take responsibility for their own employment in the current job climate. Thinking about variations in the workplace (expanded social and business-related uncertainty, reduced significance of explicit abilities, and developing emphasis on personality traits), assuming responsibility for one's own career means building a career identity and, based on that identity, deciding on a direction in life (Meijers 1998). Inconsistent views and definitions on career identity components and structure exist in the literature. The 'identity' concept created by Erikson is broadly recognised, and is as follows:

The wholeness to be achieved . . . I have called a sense of inner identity. The young person, to experience wholeness, must feel a progressive continuity between that which he has come to be during the long years of childhood and that which he promises to become in the anticipated future; between that which he conceives himself to be and that which he perceives others to see in him and to expect of him. Individually speaking, identity includes, but is more than, the sum of all the successive identifications of those earlier years when the child wanted to be, and often was forced to become, like the individuals he depended on. (Erikson 1968)

According to Erikson, identity is the ability to perceive oneself as a wholeness. Marcia (1966) has attempted to make the career identity concept more solid with the assistance of the idea of 'identity status'. As indicated by Marcia, identity is an 'I-structure', an internal, self-built, and dynamic organisation of endeavours, talents, beliefs, and individual experiences.

Identity can be defined as an 'I-structure' in which the individual builds themselves by discovering and encountering their surroundings, and by then picking particular principles and norms that decide their conduct. The 'I-structure' should be viewed as relatively coherent but, simultaneously, frequently changing the identifying, idealising, and social perspectives about oneself. These views about oneself do not come from nowhere. They are developed from the individual's interactions with their surroundings. A person does not only respond but also expects and idealises. The stated 'I-structure' does not contain numerous identities. Relying on the role needs made by a particular community and adults, young individuals are required to

develop an identity in specific areas while they are progressing to their maturity, such as discovering and selecting, according to Meijers (1998). It is reasonable to claim that career identity is a more or less independent variable as a part of the whole personality.

Meijers (1998) has claimed it is essential to be aware that the 'career identity' construct is unlike 'vocational identity', introduced earlier by Holland (1997). Holland (1997) has claimed that at the childhood and youth stages there is 'increasing differentiation of preferred activities, interests, competencies, and values' (Holland 1997, p. 16 e.v.). A personality style develops progressively from this diversity. Within this personality type, 'vocational identity' relates to 'the clarity of a person's vocational goals and self-perceptions' (Holland 1997). Holland did not clarify what variables impact the differentiation of favoured activities, interests, and so on. How the individual type appears and how a vocational identity develops within it remains unclear? Vondracek (1992) has determined the idea of 'vocational identity' is too simple for frequent use. It is unclear how vocational identity relates to 'ego identity' or 'self-concept'. Savickas has described vocational identity as 'an involving internal structure of self-concepts and occupational concepts' (quoted in Vondracek 1992). Meijers (1998) has concluded that such a definition is more confusing than revealing. He has wondered about the use of speaking of self-concepts along with vocational concepts when what we need to know is what they identify with each other and mean for one another. Perhaps a career identity is best regarded as a developing structure of self-concept in interaction with future career capacity as regarded by the individual in question. Even so, this description is open to the criticism advanced by Pryor (1985) and applied to Gottfredson's (1981) use of 'self-concept'. Pryor (1985) has reproached Gottfredson for disregarding the role played by individuals themselves in the advancement of self-ideas for identifying with work. The origination of 'a developing structure of self-concepts' ignores the dynamic aspect. It does not clarify how the structure advances. A suitable and

sufficient definition of career identity, according to Pryor (1985), must emphasise that the individual advances the structure of self-concepts.

A satisfactory definition should view a person as the subject of the relations he or she has with the world around them. Our consideration ought to be centred on the importance the individual provides for himself and the world around him. Career identity, or self-concept in relation to perceived career role, should not be likened to the experiences an individual goes through in their life. The assets of a career identity cause occasions in which career identity is involved. Career identity scholars are required to attend to it 'as a structure rather than as a concept', according to Vondracek (1992). This focus is conceivable if career identity is described as a structure or network of meanings in which the individual consciously connects their own inspiration, interests, and abilities with adequate career roles.

This construction is continually in motion due to learning processes evoked by genuine experiences (that are not restricted to work and working). Career identity is not the number of such encounters, but the integration of the experiences into significant or valuable structures (Meijers 1998). Career identity relates to career motivation and reflects how focal one's career is to one's identity. Career identity contains two subcategories: work involvement and desire for upward movement. Work involvement, which ought to be positively associated with career identity, contains occupation involvement, professional orientation, an obligation to supervisory work, and organisational identity. Individuals who are highly engaged with their career identity are likely to see career satisfaction as more significant than fulfilment from various everyday issues. The desire for promotion incorporates the requirements for development, acknowledgement, dominance, and financial benefit. It also comprises the ability to postpone satisfaction and happiness, which ought to be negatively identified with the desire for promotion (London 1993).

Career identity reflects the directional factor of career aspiration (Noe et al. 1990). For example, those who have greater career identity must invest their time and energy in improving aptitudes and competencies, which should add to their total assets both inside and outside the organisation. This concept is uncommon and different from 'knowing why' in that the emphasis is on professional improvement in work-related abilities and expert advancement instead of eagerness to attempt new things. Researchers who are interested in developing new frameworks and augmenting existing ones to better understand modern careers can be directed by the concept of career identity (Eby, Butts & Lockwood 2003).

Career identity is presented as a subvariable under career commitment, according to Carson and Bedeian's study (1994). It is also related to know how career competency because career identity reflects the tendency to engage in skill-improving opportunities and involvement in professional activities (London 1993). This tendency indicates the 'directional factor of career motivation' (Noe et al. 1990). Individuals who are highly engaged with career identity should invest time and energy in developing skills and competencies, which should extend their value inside and outside the organisation (Eby, Butts Lockwood 2003).

2.1.3 Career success

Career success continues to be an area of investigation in theory and practice. Career success is an evaluative idea that depends on an individual's perception related to the term itself (Judge et al. 1999; Judge et al. 1995; Srikanth & Israel 2012). Career success has been discussed in the literature from various perspectives. The word career was initially considered as a descriptive and evaluative term (Super 1980). Career success has been defined as the gathering and psychological outcomes that result from an individual's work execution (Callanan 2003). A person's career success is a set of desired outcomes, and these desires can be different between

the genders (Baruch 2004a). Ng et al. (2005) have posited two mobility viewpoints concerning career success: (i) contest mobility perspective (ii) sponsored mobility perspective.

Ballout (2008) has claimed that two expansive components clarify the phenomenon of career success: (i) individual level of experience and (ii) organisational level of experience. Individuals need to sense success for their career aspirations, values, and accomplishments (Gattiker & Larwood 1986). Heslin (2003) has indicated there are two approaches to assessing subjective career success: (i) self-referent and (ii) other-referent. In self-referent subjective success, an individual analyses their career comparatively with individual principles and aspirations. Career aspirations are significantly attached to subjective career success (Rasdi et al. 2009). Seibert and Kraimer (2001) have agreed with London and Stumpf (1982) that career success is defined as the positive psychological or job associated results or accomplishments accumulated from work experience (Ballout 2009; Nikandrou & Galanaki 2016).

Why one group of individuals is more successful than another is an important question both for employers and employees (Ballout 2009). Increasing unpredictability in the social and labour environments is reflected in altering careers that place increased onus on the individual to form his or her career. The present unstable environmental conditions, resulting from patterns of globalisation and mechanical complexity, have pressured organisations to attract and choose employees with transferable metaskills that encourage their versatility toward effective performance in any environment. Employees depend on new career techniques and behaviours that assist them in promoting their career success and adapt to the new reality of limited employment contracts (Ballout 2009; Nikandrou & Galanaki 2016).

The expanded intra and interorganisation mobility and diminished commitment to a single organisation stress the individual's perceptions of what career success might be. Arthur et al.

(2005) have emphasised that change in the environment heightens the importance of the subjective career (Nikandrou & Galanaki 2016; Zafar 2012). Modern careers are characterised by unpredictability because of the evolving environment. This has prompted an adaptation of relationships between employers and employees (Park 2010).

Careers have been defined as having two key aspects. First, they can be depicted as subjective impressions of an individual's feeling of their significance resulting from a career. Second, they can be portrayed as objective reflections of the observable roles, compensation, and status for measuring progress in society. Using the subjective norm for career success is one of the basic attributes of the modern career. Contemporary careers stress the significance of subjective criteria for determining career success (Heslin 2005)

Objective career success has been characterised as seniority and pay advancement. Subjective career success has been characterised as learning, balancing job and family, career actualisation, how much employees can acknowledge personal objectives and qualities in their career, quality of education received, job performed in the organisation, career reflection, and esteem accorded to one's career. These factors have provoked various assessment criteria.

Nikandrou and Galanaki (2016) and Ng, Eby, Sorensen, and Feldman (2005), in the previous metaanalysis, distinguished between objective and subjective career success using income and promotions against career satisfaction as indicators. Subjective success was defined as the individual's own point of view or awareness of success regarding accomplishment, future perception, appreciation, and satisfaction (Nabi 1999). Among subjective career measures, career satisfaction is the one most broadly used. In a 'boundaryless and protean career world', satisfaction with what has been achieved in his or her work life is more significant in defining success, instead of progressing in a job with substantial compensation (Nikandrou & Galanaki

2016). An individual's career success is a combination of desired outcomes. Such outcomes differ for each gender (Baruch 2004a). It is the supervisor's responsibility to support their employee's career when they have the potential to be outstanding (Abele et al. 2010). The two factors clarifying career success are the level of experience on the individual and organisational levels. Individuals need to sense success for their career ambitions, values, and accomplishments, which is why employers conduct satisfaction surveys (Gattiker & Larwood 1986).

Subjective career success

Gattiker and Larwood (1986) have claimed that, unlike objective success criteria, subjective measures distinguish significant career outcomes that are not promptly assessable from workforce records or by ratings. They have shown that subjective career success is more of an internal point of view that refers to a person's own disposition for development in a selected profession.

Subjective career success refers to an individual's assessment of their career progress, achievements, and expected outcomes, compared with their objectives and aspirations (Seibert et al. 2001). Past research has proposed that the term alludes to an individual's assessment of their career based on self-defined values, aspirations, and career phase (Gattiker & Larwood 1986). Judge et al. (1995) have defined career success as 'the psychological or work-related outcomes accumulated as a result of one's experience'.

Since subjective career success depends on the individual assessment of outcomes associated with one's career, it is not surprising that many successful individuals do not feel achievement despite having significant compensations or holding senior positions in organisations. The subjective results of career success, for example, career achievements or career mentoring, are

subsequently, comparatively more internally evaluated by an individual's own subjective decisions on career success (Aryee et al. 1994; Poon 2004).

Internal career success is regularly defined by the psychological success, which originates from the individual feeling pride related to the achievement of individual and professional objectives in lifelike accomplishment, inner peace, and family satisfaction (Hall 1996). This internal career success is decided by the individual instead of the organisation (Gattiker & Larwood 1986). There are no particular rules to assess career success since the standards differ with individuals and the effect of modern society in accentuating the individual career aspiration, objectives, and interests.

Subjective career success includes responses to both objective (for example, pay) and subjective (for example, satisfaction) features of one's career (Heslin 2005). Heslin has described how an individual advance in career self-reference and other-referent standards are different. For example, a person's response on receiving a salary increment after finding out about a similar increment for his or her peers, or when an individual considers his or her parent's attitude towards their career.

Subjective success is the fundamental goal of working life (Abele, Spurk & Volmer 2010). Accomplishments by a person in their profession can bring an overwhelming feeling of achievement and satisfaction (Akhtar 2010). Extrinsic career success is connected to mental ability (Judge, Klinger & Simon 2010). Coaching can predict advancements and turnover expectations (Singh, Ragins & Tharenou 2009). Zafar (2012) have indicated that students enrolled in master's degrees in business administration consider career success more as an external criterion of hierarchy and compensation (Zafar 2012).

It has been assumed that career competencies are related to career success, and a distinction is made between intrinsic and extrinsic career success. Intrinsic career success can be likened to subjective career success and relies on the individual's satisfaction with his or her career actualisation. In contrast, extrinsic career success is linked to external satisfaction (salary and working status), which is related to objective career success.

The following description outlines how career competencies are linked to intrinsic and extrinsic career success, according to Kuijpers, Schyns, and Scheerens's (2006) study.

Career-actualisation-ability: Recognising personal goals leads to an increase in extrinsic career success because realising the right career goal may be reflected in salary increment and a higher position by assuming that the motivational levels of the goals are sufficiently high.

Career reflection: Reflecting on certain competencies for a specific career lead to a genuine image of individual capabilities. Career consideration relates to career selection, which matches with current capabilities. Reflection outcomes present realistic expectations and greater extrinsic career success (Kuijpers, Schyns & Scheerens 2006).

Motivation reflection: Reflecting on the individual's interest and values, which support building realistic career choices. Motivation reflection is linked to exploring the competencies needed for the values of specific job opportunities. This behaviour probably results in external satisfaction, such as income and job title (Kuijpers, Schyns & Scheerens 2006).

Work exploration: The income and professional status of an individual are probably improved if that individual is eager to discover how to use their competencies to meet the organisation's requirements. The significance of matching individuals and an organisation's values are mentioned in research on person-organisation fit (Herriot 2002).

Career control: Godshalk and Sosik (2003) have claimed that learning-goal orientation presents the interest and desire of individuals to seek improvements and learning, which is positively connected to career satisfaction (Godshalk & Sosik 2003).

Networking: Forret and Dougherty (2004) have found that networking supports and benefits individuals in achieving internal and external career success (Forret & Dougherty 2004).

To understand to what extent career success affects career competencies, other factors of career success need to be considered. Contextual characteristics need to be highlighted from the literature, such as gender, position, age, and career ambition.

Gender: There is an inconsistency in career selection perspectives and preferences between men and women. Females feel more capable in certain occupations (Betz & Hackett 1981), which affects their career selection. Men and women have different perceptions of what determines their career success. For instance, networking activities are linked to career success for males but not for females, according to Forret and Dougherty (2004). There are differences between genders in perceiving and defining success. A positive connection is drawn between an individual's career aspiration and success from a male perspective (Dolan, Bejarano & Tzafirir 2011). This is not necessarily the case for women who might define success in a different way (Dann 1995). Subjective career is the main objective of lifestyle (Abele, Spurk & Volmer 2010). The success of individuals is expected to bring an overwhelming sense of not only accomplishment but also satisfaction.

Zafar (2012) has confirmed a positive connection between individual career desires and career success for men, but not for their female partners (Dolan, Bejarano & Tzafirir 2011). Individuals may vary in their assumptions about work and accomplishments and females may define success in different ways (Dann 1995).

Age: In some countries, such as the Netherlands, salary increases or decreases related to age. Older employees have higher positions compared with young employees because of their experience. Age might be considered a disadvantage for older workers in the case of a career change because they have more to lose, but it might be considered an advantage for younger employees because they have more to give. Age affects career success and likely career competencies.

Position: Position status and salary affect career success status because individuals working in higher positions are likely to receive further career opportunities compared with lower-level employees (Forret & Dougherty 2004).

Career ambition: Career ambition addresses the motivation to improve capabilities, be involved in a meaningful way, receive a good income, and have a work-life balance, which may affect career success and competencies.

Dynamics of the work environment: This factor presents the degree of changing activities in a current and past job. Since 2001, studies have reflected that the sum of job changes in the same organisation is linked to external not internal career success.

Career support: Career support can be received from a supervisor who is positively linked to career satisfaction and income. Marital status is also related to satisfaction and promotions. For instance, married individuals are more satisfied and likely to be promoted (Ng et al. 2005; Srikanth & Israel 2012).

2.1.4 The Fourth Industrial Revolution

Technological and economic changes have constituted a revolution over the past era, moving from mechanical manufacturing at the end of the 18th century to bulk production in the late

19th century, and then to individual PCs and the internet in the 1960s. These changes in the world of labour are described as the Fourth Industrial Revolution (Schwab 2016). In *The Second Machine Age*, Brynjolfsson and McAfee (2014) have argued that the main difference between the earlier industrial revolution and the current one is that technology is not aimed at replacing physical labour only but at replacing cognitive and human work at the same time (Schwab 2016). Before discussing the Fourth Industrial Revolution, it is useful to consider the evolving history of the previous industrial revolutions. The industrial revolution went through various stages transitioning from farming and an outdated society to developed industrial and technological industries. A steady replacement of the human workforce in physical activities occurred to encourage more creative and mental activities. Each stage of the industrial revolution has entered the literature as a First, Second, Third, and Fourth Industrial Revolution. Each revolution comprised various trends and characteristics related to different types of energy and resources use, which impacts on the world economy. The table below presents the main features and characteristics of the industrial revolutions (Prisecaru 2016).

Period	Energy resources	Main technical achievements	Main development industries
I. 1760 - 1990	Coal	Steam engine	Textile, Steel
II. 1900 - 1960	Oil, Electricity	Internal combustion engine	Metallurgy, Auto, Machine Building
III. 1960 - 2000	Nuclear Energy, Natural Gas	Computers, Robots	Auto, Chemistry
IV. 2000 -	Green Energies	Internet, 3D printer, Genetic, Engineering	High Tech Industries

Table 4: Industrial Revolutions (Prisecaru 2016)

First Industrial Revolution

The first developments in technology took place at the end of the 18th century. Before that time, certain systems, arts, and skills were passed on by craftspeople to apprentices. The first

industrial revolution began in the 1800s. The historian Arnold Toynbee (1889–1975) described what occurred in England between 1760 to 1830 and used this term.

The First Industrial Revolution saw the development of the steam engine, which drove the first mechanical impact on factories from 1760 to 1840 (Schwab 2016) and changed the basics of the manufacturing industry. The technological aspect of this period was focused on the mechanisation of fabric production, the development of the steel industry, and the significant impact of steam in the transportation industry.

Second Industrial Revolution

Between the late 1800s to 1920s (Taylor 1911), the elements of mass production were developed, and this period is known as the Second Industrial Revolution. Features from the Second Industrial Revolution continue today, especially in mass production. Other aspects of the Second Industrial Revolution include the use of new energy sources, scientific management, and demographic development in some cities, which transformed from being small towns to industrial districts. A notable increase in harbours also occurred. In that period, Henry Ford introduced cars, buses, and trucks. Electricity, oil, and gas were used more effectively. These new sources of power changed human labour, and individuals began to move to new workplaces and new education and skills were required. The working classes extended across England and all of Europe. Workers adopted new ideologies and united against employers to request better work conditions. Free education at the primary level was offered to compensate employees (Gaganakis 1999).

Third Industrial Revolution

The Third Industrial Revolution focused on the shift from fossil fuel to renewable energy, which moved to marginal cost caused by the technological revolution, such as the Internet of things, 3-D printers, automation, artificial intelligence, and cyber-physical systems (Jazdi 2014).

The Third Industrial Revolution began in the second half of the 20th century, in the 1960s, with the introduction of new technology, computers, and renewable energy resources, which enhanced communication and improved productivity (Schwab 2016). Advanced programming tools and robotics technology began to appear, leading to automation of manufacturing systems and operations. Such changes have had a developmental impact on digital skills, which affect policies on education, training, and human resources and require specific knowledge (Zinnbauer 2007).

Fourth Industrial Revolution

We are currently witnessing the Fourth Industrial Revolution, which is based on the digital and technological growth of the Third Industrial Revolution, where advanced information technology was incorporated into manufacturing systems, management, and administration. Billions of individuals around the world are connected to mobile phones, which provide exceptional storage capacity and access to knowledge. The Fourth Industrial Revolution involves technology integration through big data, the internet of things, 3D printing, robotics, automation, artificial intelligence, and many other advanced aspects (Schwab 2016).

Impact of the Fourth Industrial Revolution

The evolutionary theory presented by Darwin (1859) claimed that living organisms that survive are neither the strongest nor the smartest but are the individuals who respond more effectively to change. Change is the method of transforming individuals, behaviours, functions, and a systematic movement from one point to another in a planned manner. In all cases, responding effectively to change is vital for the development of an organisation, individuals, or even business (Deming 1982).

Many reasons can enforce change ranging from technological, economic, innovative, organisational, or demographical, and its effect can be positive, negative, or random (Dean & Sharfman 1993). Jack Ma (2018) has argued that technology brings excellent jobs and new careers, but also brings new problems. 'Scientific knowledge is creating opportunities and solutions, while at the same time fuelling disruptive waves of change in every sector. Unprecedented innovation in science and technology is raising fundamental questions about what it is to be human' (OECD 2018).

The Fourth Industrial Revolution has produced a significant impact in various directions affecting the standard of livings, income increments, lifestyle, ways of working, and communication. Individuals need to rethink their current competencies and mindsets to overcome and manage these changes. They need to develop the necessary skills for employability (Boaden 1997). The technology revolution is radically changing everything around us and the speed of change is accelerating very fast. Profit, nonprofit, private, and public organisations all face fast development in aspects impacting the economy, society, and technology. These changes have comprehensive effects and consequences on managing individuals at work and in planning and managing careers. Modern work places the spotlight on career changes (Baruch 2004b).

The Fourth Industrial Revolution has a major impact on many technological and industrial aspects, which affect businesses and force them to reshape their models and concepts to adapt to new challenges. New occupations, skills, and career planning are needed, which impacts on the sustainability of any future career (Prisecaru 2016).

Contradiction impact on jobs

While a career is built from the accumulation of jobs and experience, the impact on jobs and skills of the Fourth Industrial Revolution can be described as follows:

The Fourth Industrial Revolution improves labour efficiency and confirms low development due to low resources utilisation. Automation in the Fourth Industrial Revolution replaces many jobs, and artificial intelligence continues to do the same for a range of highly skilled jobs. Rapid advancing technology may produce unexpected new occupations. Digitalisation, robotics, and artificial intelligence could lead to the dehumanisation of human life, impacting on values, such as creativity, empathy, and ethics (Prisecaru 2016).

There are positive and negative impacts. It is claimed that new technology could lead to developing new employment and new careers and jobs. More redundancies are likely to occur in the labour market (Kamp 2018). Many occupations may be replaced by advanced technology, which will make this industrial revolution the first with a high impact on career and employment (Ras et al. 2017), although this impact began with the earlier industrial revolutions. It is predicted that the machine takes the human's place in many aspects of life, which will affect the social life, education, and require new considerations (Wilson et al. 2017). This analysis has been criticised, however, on the basis that jobs consist of many tasks that are not easy to automate. Automation might affect some tasks but is unlikely to remove whole occupations (Hirschi 2018).

There are contradictory views on the impacts of technology on jobs. One view sees technology replacing jobs and reducing employment. For instance, Frey and Osborne (2017) have projected that around 47% of U.S. employment is at risk of being automated. Automation, however, may not be able to handle tasks related to creativity and social intelligence. Another view considers that advanced technology can increase production and require more labour. For instance, Josiah

Tucker (1987) has argued that technology has a positive effect on the labour market, employment, and economy. He has suggested advanced technology can support better productivity, reduce costs, and improve economic efficiency, which leads to more employment supported by salaries increments (Tucker 1987). Machines could cause job losses for many of the population because they can replace labour in some production processes. This may lead to more productivity and encourage businesses to use more machines rather than human labour to maintain greater efficiency. Various studies have highlighted the impact of technology that could lead to potential growth in the economy, decrease employment and reduce wages, which might fall below subsistence, causing more unemployment and poverty.

This projection matches Malthus' theory and could lead to the demise of human workers because of the pressure to increase efficiency (Humphrey 2004). Some scholars have agreed on a continuous increase in machines replacing current labour. Schumpeter (1962) also shared the same conclusion in 1962, but from a different point of view. Schumpeter claims that machines are not the reason behind the replacement of labour and job loss, but rather the cause would be the implementation of innovation. Schumpeter's input, adopted from looking at technology from a cost-effectiveness perspective, has been used effectively by entrepreneurs. Similarly, Veblen has claimed that technology as part of innovation is tolerated due to society's needs and not capitalism's concerns. In parallel, Keynes provided support for the idea of technological unemployment as part of the crisis of capitalism (Gera & Singh 2019).

Ricardo, Marx, Schumpeter, and Keynes expressed their own perspectives on the issue. McCulloch has opposed Ricardo's opinion, challenging the idea. He has argued that even if technology takes over some jobs in a specific industry, it can lead to improved production through reduced prices, increased salaries, and increased production demand, which leads to

more investment in new sectors and creates more opportunities. A similar argument has been put forward by Wicksell, opposing Ricardo's replacement theory (Gera & Singh 2019).

Impact on skills

Many skills are required in the 21st century, and at different levels, starting from basic skills, such as numerical and simple digital skills, which are very important in individuals' lives and in their communities, and lead to secure employment opportunities (Unesco 2013). The second level comprises higher complex level skills, including transferable skills, entrepreneurship, problem-solving, innovation, and creativity. These skills can support the improvement of self-confidence, efficiency, and performance (Vorhaus et al. 2011).

Recent research has highlighted a high demand for digital skills, and found that around 50% of Europeans lack basic digital skills. (Zinnbauer 2007). Appropriate skills can contribute to managing the impact of the Fourth Industrial Revolution. Individuals can manage these changes adequately when they sense the importance of these changes. Labour skills need to be redefined to allow individuals to respond to the emotional, mental, and physical demands of the new labour market (Panagiotopoulos & Karanikola 2017). An important question is what the required skills are to support employees in their current jobs. According to the OECD survey on employability skills published in 2013, around one-third of employees are either under or overqualified for their current jobs. Such a skills gap, skills mismatch, and a labour shortage could affect employability and labour efficiency.

2.2 Impact of career competencies and career commitment on career success

The main objective of this research is to study the impact of career competencies and career commitment on subjective career success. The two tables below present an overview of the relevant literature. Table 5 summarises all articles testing the impact of career competencies on

subjective career success. Table 6 summarises all the articles studying the impact of career commitment on career success. Both tables also incorporate the researcher’s critical commentary.

Article and Year	Result	Researcher comments
Career competencies and career success: On the roles of employability activities and academic satisfaction during the school-to-work transition (Presti et al. 2022)	The study results in an indirect relation between career competencies and subjective career success through employability activities. The results indicate that career competencies are an important resource that graduates can mobilise during and after their school-to-work transition.	This is the most recent study testing the impact of career competencies on career success but the study does not specify which career competencies (reflective, communicative, or behavioural) significantly impact and lead to career success.
Career success in academia (Sherif, Nan & Brice 2020)	The study results show that faculty who ‘know why’, ‘know how’, and ‘know whom’ own socially valuable resources and are successful in progressing their careers. They establish high social status and use their connections to mobilise resources that promote their careers. Faculty who falls short of these competencies impose social closure on themselves and do not strive to exploit resources available through their contacts.	This is a qualitative study with faculty members. The study underlines the importance of possessing career competencies in advancing successful career without specify which career competencies (reflective, communicative, or behavioural) significantly impact on career success.
Career competencies and perceived work performance (Park 2020)	The study results show that the knowing why, knowing how, and knowing whom competencies are all affecting and influencing an individual’s perceived work performance. In particular, the study findings show that the impact of the knowing why and knowing whom competencies are greater than the impact of the knowing how competency. This study claims that the result is consistent with the findings of earlier studies showing the positive impact of the knowing why competency on subjective career success (Colakoglu 2011; Eby, Butts & Lockwood 2003).	This study is mainly testing the impact of the knowing why, knowing how, and knowing whom competencies on work performance, which is relatively related to career success because as Ballout (2009) has argued, self-efficacy leads to subjective career success, which is part of work performance. The researcher thought to share this result because it is one of the most recent relevant literature testing career competencies, and there is limited literature on this topic. The study results are consistent with Eby, Butts, & Lockwood, (2003) in terms of the greater effect of know why on subjective career success but inconsistent about the impact of know whom on subjective career success. Eby, Butts, & Lockwood’s (2003) results show that know whom has the least impact, while in this study it is ranked second. Career competencies are measured with the 21-item Career Competencies Questionnaire (Akkermans et al. 2013), which has also been used in this research to test the impact of career competencies on subjective career success
Building a sustainable start: The role of career competencies, career success, and career shocks in young professionals’ employability	The study shows that career competencies are a career resource that are positively related with achieving career success and employability. Thus, young employees who	These two studies do not specify which career competencies (reflective, communicative, or behavioural) lead to career success. Career competencies are

(Blokker et al. 2019).	develop their career competencies are probably better at creating the foundation for longstanding success and reported higher levels of career success.	measured with the 21-item Career Competencies Questionnaire (Akkermans et al. 2013), which has also been used in this research to test the impact of career competencies on subjective career success.
Crafting your career: How career competencies relate to career success via job crafting (Akkermans & Tims 2017)	Following Akkermans et al. (2013), the study results show that career competencies might act as a personal resource that can support employees to construct resilience and feel in charge. Thus, this study finds that these career competencies can create a motivational process by empowering young professionals to proactively craft their jobs, which can then be related with improved subjective career success.	
Development and validation of the Career Competencies Indicator (CCI) (Francis-Smythe et al. 2013)	Kong, Cheung & Song (2012b) study the relationship between career competencies and subjective career success. The study findings show that the three classes of knowing are positively correlated with subjective career success. The findings of this study likewise find that career competencies predict objective and subjective career success.	The result of this study indicates that individuals who engaged in career competency behaviours stated higher levels of subjective and objective career success. This study does not specify which career competencies (reflective, communicative, or behavioural) lead to career success but the researcher thought to share it in this literature review because of the limited number of studies focusing on the impact of career competencies on career success.
Global managers' career competencies (Cappellen & Janssens 2008)	The purpose of this research is to expand the comprehension of global managers, a new kind of international work, through analysing their career competencies. The results indicate that Knowing why competencies sought for in the position of global manager. Global managers consider knowing whom to obtain the position of global manager.	This study is qualitative and indicates the importance know whom for the career development of global managers. This study partially confirms the results of Eby, Butts, & Lockwood (2003) that know whom predicts career success.
Career competencies for career success (Kuijpers et al. 2006).	This research investigates the competencies employees are required to hold to manage their career development. The findings specify that, between other factors, career control and networking are strongly related to career success.	The career control factor belongs to behavioural competencies (know how in the boundaryless perspective) put forward in Akkermans et al. (2013). Scale available at Akkermans et al. (2013) page 250, and networking belong to communicative competencies (know whom in the boundaryless perspective). The results of this article contradict Eby et al.'s (2003) results that indicate the know why career competency is the highest predictor of career success and know whom is the lowest predictor of career success.
Predictors of success in the era of the boundaryless career (Eby, Butts & Lockwood 2003).	Eby, Butts, & Lockwood's (2003) study investigates the three career competency classes and the results show that all classes are important predictors of success in the boundaryless career. The study results support Arthur and other scholars (Arthur et al. 1999; Defillippi & Arthur 1994, 1996) in theorising that 'knowing why,' 'knowing whom,' and 'knowing how'	This is one of few studies testing the components of the boundaryless career competencies on young graduates. This study uses Greenhaus et al.'s (1990) five-items to test career success, which has also been used in this study. The results show that 'knowing why' occurs as the most significant set of predictors for career success while the 'knowing whom' career

	are all significant predictors of success in the boundaryless career and in comprehending career success. In two of the three investigations (predicting perceived career success and perceived internal marketability) 'knowing why' occurs as the most significant set of predictors. A desire to attempt new things, initiate an opportunity, and hold realistic objectives appear likely to pay career dividends. The 'knowing whom' career competency is classified as the least important set of predictors.	competency was the least important set of predictors for career success.
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Table 5: Impact of career competencies on career success studies

2.2.1 Impact of career commitment on career success

Table 6 presents studies in chronological order that test the impact of **career commitment** on career success.

Article and Year	Result	Researcher comments
The relationship between career commitment and career success among university staff: The mediating role of employability (Van der Heijden et al. 2022)	This study shows a partial relationship between career commitment and subjective career success through the mediating role of employability.	This is a recent study testing the significant impact of career commitment in career success in higher education.
Does work-life balance moderate the relationship between career commitment and career success? Evidence from an emerging Asian economy (Najam, Burki & Khalid 2020)	The study examined data collected from 360 middle-level professionals. The results show that career commitment has a positive and significant impact on the objective and subjective career success of employees.	After reviewing all the related literature about the impact of career commitment on career success, the researcher finds that these studies did not clarify which components of career commitment (career planning, career resilience, or career identity) are impacting on subjective career success.
Does career resilience promote subjective well-being? Mediating effects of career success and work stress (Han, Chaudhury & Sears 2019)	This is the only study tested one of the career commitment components on career success. The study results show that career resilience is positively connected with life satisfaction. Two indicators of career success (job satisfaction and salary) and work stress were found to mediate this relationship.	
Probing the interactive effects of career commitment and emotional intelligence on perceived objective/subjective career success (Sultana et al. 2016)	This study finding recommend that employees with developed career commitment are able to control their careers in desirable ways, sense more power over their careers, and therefore have subjective and objective successful	

	careers. This research finding gains support from previous findings in similar studies (e.g., Adio & Popoola 2010).	
Career commitment, subjective career success and career satisfaction in the context of the hazelnut processing industry in Giresun/Turkey (Karavardar 2014)	The research shows that career commitment predicts subjective career success through the mediation effect of career satisfaction. This study result is similar to Srikanth and Israel's study (2012).	
Career commitment and career success: The mediating role of career satisfaction (Srikanth et al. 2012)	Srikanth and Israel (2012) show that career commitment expects career success and career satisfaction because commitment leads individuals to desirable career results.	
Career commitment and career success: The moderating role of self-efficacy Ballout (2009)	Carson et al. (1999) connected career commitment and organisational commitment to work-related results. They explored whether individuals who scored highly on career commitment stated better job and career satisfaction than those scoring lower on career commitment. Similarly, Day and Allen (2004) found that career motivations that are comparatively linked to commitment are positively connected to career satisfaction in the case of municipal employees. Career commitment was found to expect objective career success in terms of salary level and subjective career success in terms of career satisfaction.	
Career commitment and career success: The moderating role of emotion perception Poon (2004)	The study shows that individuals who are committed to their careers should experience higher subjective career success than those who are less committed.	

Table 6: Impact of career commitment on career success

	Definition	Measurement
Career success	<p>Career success is defined differently, so there is no mode of achieving success. Judge et al. (1995) have introduced one of the most frequent career success definitions as 'the positive psychological or work-related outcomes or achievements one accumulates as a result of work experiences '(Nikandrou & Galanaki 2016). Career success is an evaluative idea that relies on an individual's perception of the term itself (Judge et al. 1999; Judge et al. 1995; Srikanth & Israel 2012).</p> <p>Ballout (2008) has claimed that two expansive factors clarify the phenomenon of career</p>	<p>Careers have been defined as having two key aspects. First, they can be depicted as subjective impressions of an individual's feeling of their significance resulting from a career. Second, they can be portrayed as objective reflections of the observable roles, compensation, and status for measuring societal progress. Heslin (2003) has indicated there are two approaches to assessing subjective career success: (i) self-referent and (ii) other referent. In self-referent subjective success, an individual analyses their career comparatively with individual principles and satisfaction. Career satisfaction is significantly attached to subjective career success (Rasdi et al., 2009).</p>

	<p>success: (i) individual level of experience and (ii) organisational level of experience. In summary, Individuals need to sense success for their career satisfaction, values, and achievements (Gattiker & Larwood 1986).</p>	<p>Using the subjective norm for career success is one of the essential attributes of the modern career. Contemporary careers stress the significance of subjective criteria for determining career success (Heslin 2005) which has been characterised as learning and balancing job and family.</p> <p>Career success is measured in the literature commonly by the career satisfaction scale presented by Greenhaus, J., Parasuraman, S. & Wormley, W. (1990). Effects of Race on Organisational Experiences, Job Performance Evaluations, and Career Outcomes. <i>Academy of Management Journal</i>, vol. 33 (1), pp. 86. (Cited 3782 as at 27 Aug 2022)</p>
<p>Career satisfaction</p>	<p>Subjective career success was defined as the individual's own point of view or awareness of success regarding achievements, future perception, appreciation, and career satisfaction (Nabi 1999).</p> <p>Among most subjective career measures, career satisfaction is the most broadly used. In a 'boundaryless and protean career world', satisfaction with what has been accomplished in his or her work life is more significant in defining career success, instead of job promotions and salary increments (Nikandrou & Galanaki 2016). Individuals need to sense success and satisfaction with their career ambitions, values, and achievements, which is why employers conduct satisfaction surveys (Gather & Larwood 1986).</p>	<p>There are many options, measurements, and standards to assess achievement in a career, such as life balance, career satisfaction, self-sufficiency, and autonomy, which offer inner satisfaction.</p> <p>Career satisfaction has entered career assessment values alongside the usual external measures, such as income and position. Nikandrou and Galanaki (2016) and Ng, Eby, Sorensen, and Feldman (2005), in the previous meta-analysis, differentiated between objective and subjective career success using income and promotions as a measurement of objective career success against career satisfaction as an indicator of subjective career success.</p> <p>Career satisfaction has been measured commonly in the literature through the subjective career success measurements scale presented by Greenhaus, J., Parasuraman, S. & Wormley, W. (1990).</p>
<p>Career resilience</p>	<p>Career resilience refers to a person's freedom and resourcefulness when they leave a specific organisation if their career objectives are unfulfilled (Noordin, Williams & Zimmer 2002).</p> <p>Resilience is a complicated phenomenon that defines a person's ability to meet and overcome a difficult situation. It is also claimed in the literature that employee resilience could be better perceived and understood through organisational resilience (Naswall et al., 2013). London (1983) has stated that career resilience is a multidimensional concept containing three subareas: self-efficacy, risk-taking, and dependency. London (1983) has argued that resilience results from the ability to survive negative encounters connected to a career.</p>	<p>Career resilience is considered one of the career commitment components and is measured in the literature commonly by Carson, K. & Bedeian, A. (1994) measurement scale.</p>

Table 7: Career success, career satisfaction and career resilience

To summarize the above table 7, career success is assessed in two aspects. The first and broadest one is subjectively, and the second one is by an objective aspect. Since this study considered subjective career success. Accordingly, career satisfaction is considered the most used assessment tool for subjective career success according to Greenhaus, J., Parasuraman, S. & Wormley, W. (1990) measurement scale. This scale has been used in different important studies such as Eby, Butts, and Lockwood's (2003) Predictors of success in the era of the boundaryless, and another study called Development and validation of the Career Competencies Indicator (CCI) (Francis-Smythe et al. 2013). They assessed subjective career success through career satisfaction. Therefore, career satisfaction is considered an assessment tool for subjective career success.

Career resilience is considered one of the career commitment components as per Carson, K. & Bedeian, A. (1994) broadly used measurement scale.

Career success is considered an outcome of career resilience as one of the career commitment components resulted in different studies. Carson et al. (1999) emphasized that career commitment influences career success by foregrounding the connection between career commitment and organizational commitment to work-related results. Individuals who scored higher on career commitment also experienced higher career satisfaction than others who scored less on career commitment. Similarly, Day and Allen's (2004) study has found that career commitment is positively related to career satisfaction in the case of municipal employees (Ballout 2009).

2.3 Theoretical underpinning

Introduction

Two new perspectives on careers have emerged in the organisational literature: the protean and boundaryless careers. The boundaryless career was introduced by Arthur and Rousseau (1996) and the protean career was presented by Hall (1996). These two perspectives provide insights into how individuals may approach their careers.

The following section presents the most significant information about boundaryless and protean careers.

2.3.1 Boundaryless career:

In response to the 'boundaryless organisation' topic of the 1993 Academy of Management conference, the concept of the boundaryless career was introduced to offer a new point of view on contemporary careers (Arthur 2008; Briscoe et al. 2006).

Defillippi and Arthur (1994) first used the term 'boundaryless career'. This new term changed the outlook on career systems. The modern economy, advanced technology, and social arena go beyond organisational and systems boundaries. Careers tend to be more open, more various, and less controlled and planned by organisations. Managing such a career requires a particular caliber of individuals, which contrasts significantly from those that were adequate in the past. Defillippi and Arthur (1994) have established the boundaryless career concept as a reaction to fluctuation in the direction of more permeable (organisational) boundaries.

The boundaryless career is defined as a series of work opportunities that go beyond the boundaries and limits of any single employment setting (Briscoe et al. 2006; Defillippi & Arthur 1994, p. 307). The boundaryless concept was later promoted by Arthur and Rousseau's (1996, p. 6) book. They present the following definition: 'one of independence from, rather than dependence on, traditional organisational career arrangements' involving 'opportunities that go

beyond any single employer' (Defillippi & Arthur 1996, p. 116). Arthur and Rousseau (1996) put forward six unique meanings while discussing boundaryless careers: (a) the stereotypical Silicon Valley career, in which individuals transfer across the boundaries of different employers; (b) those scholars or carpenters who draw authentication and marketability from outside their current employer; (c) those employees working in property management supported by external connections or information (d) those that break old-style organisational assumptions about work promotions and career advancement (e) those who decline current career opportunities for private reasons (f) those dependent on the understanding of the career actor, who might see a boundaryless future despite structural limitations (Sullivan & Baruch 2009).

To make the concept clearer, Sullivan and Arthur (2006) have proposed that a boundaryless career can be explained by different levels of physical and psychological career routes between consecutive successful employment situations. Sullivan and Arthur (2006) have suggested a 2 × 2 model with physical movement along the horizontal continuum and psychological movement along the vertical continuum. In contrast to earlier studies that categorised boundarylessness as an either/or proposition, this categorisation endorses the concept being viewed and assessed by the level of boundarylessness presented by the career actor, along with both physical and psychological scopes (Briscoe et al. 2006; Sullivan & Baruch 2009).

Traditionally, careers emerge within the setting of a single or limited number of jobs and organisations (i.e., the limited or organisational career)—under the old-style, paternalistic employer-employee agreement (e.g., Fugate, Kinicki & Ashforth 2004; Hall & Mirvis 1995).

As a result of the increased speed of change, the boundaries among jobs, organisations, and life roles (e.g., parent, leisure) are becoming unclear, and individuals need to arrange a greater number and variety of role transitions (Ashforth 2001). Individuals are experiencing largely

independent, boundaryless careers consisting of numerous positions with different organisations and even industries (Arthur 1994; Arthur & Rousseau 1996; Hall 2002; Leana & Rousseau 2000; Mirvis & Hall 1994). The concept of boundaryless careers describes emerging career patterns that are less dependent on old-style organisational career management.

Boundaryless individuals deal and manage their careers over organisational boundaries. They favour not remaining with a single organisation to follow career development opportunities and connections beyond the boundaries of a single organisation (Sullivan & Arthur 2006).

Boundaryless individuals with a boundaryless mindset cross and explore the changing work landscape by creating a career characterised by various degrees of physical and psychological movement (Sullivan & Arthur 2006, p. 9).

A boundaryless mindset alludes to an individual's mental capacity to be mobile. Individuals with a boundaryless mindset appreciate involvement in projects with different individuals in other organisations and are energised and excited about their involvement and engagement in new experiences and environments outside their company.

The boundaryless career attitude alludes to organisational preferences, such as an individual's physical mobility and a boundaryless mindset, such as an individual's psychological mobility. Organisational mobility preference is the behaviour of moving between various careers, jobs, and organisations. An individual with high organisational mobility preference chooses many different organisations and cross-organisational boundaries by considering employment in a different organisation (Briscoe, Hall & DeMuth 2006; Sullivan & Baruch 2009).

In the career literature, the boundaryless career attitude and the protean career attitude are connected yet theoretically distinct concepts (e.g., Abessolo et al. 2017; Briscoe et al. 2006; Porter, Woo & Tak 2015). The boundaryless career (Arthur 1994) concentrates on crossing

both objective and subjective capacities of career at various degrees of analysis, including hierarchical position, mobility, adaptability, work environment, and the opportunity structure while simultaneously de-emphasising dependence on organisational advancements and career paths (Kundi, Hollet-Haudebert & Peterson 2020).

2.3.2 Protean career

The protean career perspective presented by Hall (1976) established the development of an individual's experience. The concept of the protean career was first discussed over 30 years ago. A protean career was initially characterised as a process which the individual, not the organisation, manages (Sullivan & Baruch 2009). A protean career is not what occurs to the person in any one organization. The protean people own personal career choices and search for self-fulfilment are the unifying or consolidative foundations in his or her life. In brief, the protean career is formed more by the individual than by the organization and may be redirected from time to time to meet the desires of the person (Gubler, Arnold, and Coombs 2013).

Briscoe and Hall (2006, p. 8) have clarified the protean career concept by characterising its scopes as follows: The first dimension is **values-driven**, and it is related to individual's internal values, which act as the guidance and measure of individual's career success, and career decisions individuals make to meet their values and objectives resulting in feelings of psychological success, rather than a struggle to accomplish values and goals forced by organisations and society.

Arnold and Cohen (2008) argued that being "values-driven" does not have to mean valuing self-expression and autonomy, as has frequently been presented in the protean literature (e.g., Hall & Richter 1990). As an alternative, the term could mean valuing loyalty, conformity, service, security, or lifestyle (Arnold & Cohen 2008). Nevertheless, in support of Arnold and Cohen (2008), Gubler, Arnold, and Coombs (2013) contend that being "values-driven" does

not mean that personal values have to contradict organizational values as implied by Briscoe et al. (2006). Thus, the term is viewed here as following one's own inner guidance instead of someone else's, regardless of whether this is in line with or opposed to any organizational values (Gubler, Arnold, and Coombs 2013).

The second dimension is **self-directed** which presents individual career management covered by the capability to be flexible in performance, learning needs, and feeling accountable for managing their career and taking the lead in discovering career choices and making career decisions (Greenhaus et al. 2008).

In light of various combinations of these two dimensions, the researchers have proposed four key career classifications: 1) dependent on low value-driven, low self-direction, 2) rigid and presented by high values-driven, low self-direction, 3) reactive, presented by low value-driven, high self-direction, 4) transformational presented by high values-driven, high self-direction Sullivan and Baruch (2009).

The protean career attitude is defined as a feeling of personal agency, which makes individuals manage their own career, and leads to an increase in the feeling of success (De Vos & Soens 2008). Employees make themselves employable by following a protean career attitude, so they can understand their capabilities and set goals to achieve their career success (Briscoe & Hall 2006).

Individuals who hold protean career attitudes are determined upon using their own values (as opposed to organisational values, for instance) to direct their career ('values-driven') and play an independent part in managing their career behaviour ('self-directed'). A person who does not hold protean attitudes would be more likely to borrow external values rather than internally created ones. This is the opposite of the internally developed values, and this individual

probably seeks outside direction and help in behavioural career management as a contrast to being more active and independent. The majority of protean individuals may show greater mobility and learning orientation (Greenhaus et al. 2008).

Many studies have confirmed that protean career attitudes are not firmly identified with broad interorganisational mobility preferences and behaviour (Briscoe & DeMuth, 2003; Briscoe et al. 2006). Consistent with this, Briscoe and Hall (2006b) have suggested a classification of career types according to various degrees of protean (self-directed and values-driven) and boundaryless (physical and psychological mobility characteristics).

Along these lines, Inkson (2006) has seen that a protean career reflects a psychological career direction that constructs explicit career behaviours, though a boundaryless career generally includes boundary-crossing practices that are formed by emphasis on an 'internal' centre. The differences between attitude or orientation and behaviour are logical as long as a boundaryless career is characterised principally as physical boundary-crossing (Greenhaus et al. 2008).

In conclusion, the concept of a protean career, which was presented earlier by Hall (1976, 2002) focuses on accomplishing subjective career success through self-directed career conduct. While there is some overlap with the boundaryless career perception, the protean career focuses on the value career competencies added for the subjective career success, such as career satisfaction instead of their organisational values (Briscoe, Hall & Frautschy DeMuth 2006).

2.3.3 Boundaryless and protean relationships and overlaps

A review of the boundaryless and protean career literature demonstrates some overlap and connections between boundaryless and protean careers, particularly in the relationships between know how and interpersonal knowledge skills. The following discussion considers the studies that address the connections between boundaryless and protean careers.

Gubler, Arnold, and Coombs (2013) have claimed in their study that protean and boundaryless career concepts overlap significantly, but the protean career concept mainly emphasises an individual's motives to follow a specific career path, while the boundaryless career concept mainly focuses on different forms of mobility. While both models are considered important and influential (e.g., Sullivan & Baruch, 2009), the boundaryless career concept has received significantly greater coverage (e.g., Arnold & Cohen 2008; Greenhaus, Callanan, & DiRenzo 2008; Inkson et al. 2012; Sullivan 1999). Skromme, Granrose, and Baccili (2006), for instance, have not differentiated between the two concepts. As an alternative, they have proposed that both concepts are reflected in new, vague employer-employee relationships. Greenhaus et al. (2008) have recognised the lack of consensus in the meaning of the boundaryless career, claiming that it is hard to 'determine where boundarylessness ends and protean begins'. Other scholars have debated that both concepts are complementary (e.g., Inkson 2006) or are different but overlapping (Briscoe & Hall 2006) while others have proposed a combination of the protean orientation and boundaryless career into a wider model of careers (e.g., Peiperl & Baruch 1997). Based on these debates, three main integrative frameworks have been proposed to explain the connections between boundaryless and protean career concepts. First, Peiperl and Baruch (1997) have proposed the postcorporate career concept as a method of integrating ideas of both concepts. They recommend that postcorporate careerists are mainly self-directed, take liability for their career control, perceive a variety of career alternatives, and are eager to overcome various boundaries to meet their needs for intrinsic job satisfaction and financial compensation. The concept of the postcorporate career has been applied in a different research setting (Sullivan & Baruch 2009).

Second, Greenhaus et al. (2008) have presented the boundaryless perspective, which combines the major themes of the boundaryless and protean career literature. This framework contains

three main components. The first element is mobility patterns, which are unique from a traditional career since they are multidirectional (Baruch 2004b; e.g., among organisations, between employment forms, such as full-time or part-time employment). The second element is career competencies, which are manifested in individuals's beliefs and identities (knowing why), network or relationships (knowing whom) and knowledge and skills (knowing how) (Defillippi & Arthur 1996). The third element is the protean orientation (such as self-directed career management and values-driven attitudes; Briscoe & Hall 2006). This model defines antecedents, such as economic aspects, organisational conditions, and individual characteristics.

Third, Briscoe and Hall (2006) have merged protean orientation factors with boundaryless careers, resulting in 16 different career profiles. Each profile depends on two protean dimensions (person-directed, career control, and values-driven attitudes) and two boundaryless career dimensions (psychological and physical mobility), and each profile is defined as being high or low in every one of these four dimensions. For instance, Briscoe and Hall have described the effective citizen profile as containing low physical mobility but high mental mobility, just as high self-directed career management and principles motivated attitudes. In contrast, the fortress profile is described as containing a high principal motivating attitude but low self-directed career management just as low physical and mental mobility (Sullivan & Baruch 2009).

Greenhaus et al. (2008) have argued that while boundaryless and protean careers are infrequently linked together (Dowd & Kaplan 2005; Hall et al. 1997), it is more likely that they are 'overlapping but distinct' concepts (Briscoe & Hall 2006b; Inkson 2006). However, the distinctions between the two concepts are slightly indefinable and rely on how widely one defines a boundaryless career.

Greenhaus et al. (2008) have indicated confusion over the boundaryless career (Arthur & Rousseau 1996) and the protean career (Hall 2002; Hall & Mirvis 1995; Hall & Moss 1998) and that both have been compared to a traditional organisational career. If both are supposed to be the opposite of the organisational career, then Greenhaus et al. (2008) have wondered how they are different from one another (Greenhaus et al. 2008).

Akkermans et al. (2012) have also highlighted that the concept of the protean career has some overlap with the boundaryless career perspective. Defillippi and Arthur (1994) have indicated that a lack of social networks (know whom) may prevent boundaryless career mobility by stopping individuals outside one's current employment setting from identifying or advocating the value of one's know how to prospective employers (Defillippi & Arthur 1994; Greenhaus et al. 2008).

Greenhaus et al. (2008) have claimed that the difference appears to be hazier when boundaryless careers are seen as including psychological mobility (Sullivan & Arthur 2006) or all career phenomena that resist and challenge traditional old-style organisational career arrangements (Arthur & Rousseau 1996).

Hall and his co-authors have explained the protean career (Briscoe & Hall 2006b), created scales to evaluate protean career attitudes (Briscoe et al. 2006), and investigated the consequences of protean careers for individuals and organisations (Hall & Mirvis 1995; Hall & Moss 1998). These developing concepts are timely and are garnering publicity and fame, but they also continue to be somewhat vague (Greenhaus et al. 2008).

Greenhaus et al. (2008) have claimed that there is less agreement among scholars about the meaning and measurement of a boundaryless career. The likenesses and contrasts between a boundaryless career and a protean career bring up significant inquiries regarding the meaning

of both concepts. In spite of claims about the popularity of the boundaryless and protean careers, it is not yet clear if the boundaryless and a protean career take the place of or will replace traditional organisational careers.

This study contributes to the clarifications of boundaryless and protean career through testing the impact of both career competency concepts and perspectives on subjective career success, which contributes to understanding each concept and their influence and impact on subjective career success. As shown in Table 5 (p. 77), only two studies have carried out testing the impact of career competency components on career success. One study is applied at managerial level and the other was with young graduates, supporting the researcher's claim that this topic is under-researched and requires further investigation to contribute to boundaryless and protean career impact and their practical implications.

2.3.4 Career construction theory

Career construction theory assumes that a career expresses reflection on the course of an individual's career behaviour, not career behaviour itself. This reflection can concentrate on real occasions, such as one's occupations (objective career) or on their significance (subjective career). From this viewpoint, a subjective career is a reflexive project that transforms individuals from actors of their career to subjects in their own career stories. It conveys one's 'own story' by stressing a feeling of aim that coherently clarifies the coherence and change in oneself across time. This formulation is similar to McAdams's (1993) conception of identity.

Career construction theory explains the **interpretive** and interpersonal processes through which individuals build themselves, force direction on their professional conduct, and make the importance of their career. It is proposed for use in a multicultural society and the world economy. Career construction theory addresses how individuals construct their careers through personal constructivism and social constructionism.

Career construction theory conceptualises capable individuals as (a) being anxious about their future as a worker, (b) expanding individual power over their future career, (c) showing interest in investigating conceivable selves and future situations, and (d) strengthening the certainty to seek their aspirations. Career adaptability thus increases along with the four components of concern, control, curiosity, and confidence. The theory highlights the features of two metacompetencies, **adaptability and identity**, in adapting to professional advancement assignments, occupational transitions, and work traumas.

Cognitive competencies shape the adjusting practices that produce vocational development and construct careers. Attitudes and dispositions that favour investigation and openness lead to encounters that increase competence in both self-knowledge and occupational information. Individuals who have investigated the world beyond their neighbourhoods have more knowledge about their capacities, interests, and values and the necessity of routines and rewards for various occupations.

Career construction theory conceptualises career development as an activity-oriented cycle, during which individuals construct a career and plan their life. The theory indicates that individuals effectively apply **career resources** to satisfy and encounter the needs forced by powerful workplaces and to explore logical chances and limitations. As indicated by this process, successful career development is an ongoing process of transformation resulting from individual environment combinations, such as career adaptability. The setting where career development happens gives the boundary conditions that outline how individuals build their careers (Blokker et al. 2019).

Given the requirement for individuals to effectively build their careers, while simultaneously reacting to changes and difficulties evoked by the environment, it is imperative to obtain career

resources (Savickas & Porfeli 2012). Career competencies and career identity have been identified as a beneficial career resource for accomplishing early career success (e.g., Hall 2004; Blokker et al. 2019; Hirschi 2012).

For example, by creating career competencies, youthful professionals make sense of their characteristics and inspirations and can form strategies to efficiently achieve their career objectives during changes to working life (Akkermans et al. 2013). Thus, these career resources help youthful experts to more efficiently navigate the contemporary world of work and improve their job readiness (e.g., Bridgstock 2009; Forrier & Sels 2003).

Earlier studies addressed career commitment (e.g., Najam, Burki & Khalid 2020) and career competencies that are beneficial for young employee's career development (e.g., Eby et al. 2003) since this competency makes them abler to apply adaptive behaviours (Parker, Khapova & Arthur 2009), add value to their employers (Fleisher, Khapova & Jansen 2014) and be successful (Colakoglu 2011; Eby et al. 2003).

Youthful employees master career competencies and career identity that are career resources they can use to make early career successes (e.g., Hirschi 2012; Arthur, Khapova & Wilderom 2005; Bridgstock 2009). Career success is defined as the achievement of desirable business-related results after some time (Arthur et al. 2005). Many studies consistent with CCT have highlighted that individuals with well-developed career competencies accomplish more subjective career success (e.g., Colakoglu 2011; De Vos, De Hauw & Van der Heijden 2011; Eby et al. 2003).

Based on the above, and in line with career constriction theory, this study explores the various effects and impacts of career competencies and career commitment on career success from a subjective perspective.

This research contributes to CCT by testing the impact of career commitment and boundaryless and protean career competency components on career success. Only a few competencies are mentioned in CCT, such as cognitive, comprehension, and problem-solving (Savickas 2005). However, career commitment and career competency components have not been tested and would add value to this area, especially the topic of career resources leading to job readiness (e.g., Bridgstock 2009; Forrier & Sels 2003), and career competencies considered as one of the career resources. Career competencies and career commitment represented by career identity contribute to CCT by extending the career resources required to construct a successful career.

CHAPTER 3

DEVELOPMENT OF CONCEPTUAL MODEL

3.1 Constructs and definitions

This chapter discusses the development of the conceptual model for this research. This first section considers the concepts of career, the Fourth Industrial Revolution, career competencies, career commitment, and career success. Subsequent sections address hypotheses development, the research questions, and the conceptual framework for this research.

3.1.1 Career

Within the dynamic job market, career frameworks have seen significant changes in recent years. In earlier studies, career was defined from a broader context. Hughes (1937) defined career as ‘the moving perspective in which persons orient themselves with reference to the social order, and of the typical sequences and concatenation of office’ (Baruch 2004b).

The word career from Super’s perception is an illustrative and evaluative term (Zafar 2012). Career has also been defined as ‘individual’s work-related and other relevant experiences, both inside and outside of the organisations that form a unique pattern over the individual’s lifespan’ (Harney & Monks 2014).

Sullivan and Baruch (2009) claim that understanding career definition is understanding the career development aspect between employees, employers, jobs, economics, and even specific locations. It is also ‘the interpretation of the individual, including his/her perceptions of career events—career alternatives and outcomes’. A further contemporary definition views career as ‘a process of development of the employee along a path of experience and jobs in one or more organisations’ (Baruch & Rosenstein 1992).

Career is viewed as a continuation of jobs and training (Kuijpers, Schyns & Scheerens 2006), which is attained by accumulated job experience and competencies.

3.1.2 The Fourth Industrial Revolution

Accelerating digitisation and automation of work, recognised as the Fourth Industrial Revolution (Schwab 2016), is having a significant effect on individuals' career experiences (Hirschi 2018). Present alterations in the world of work are often depicted as the Fourth Industrial Revolution, or Industry 4.0 (Schwab 2016), which comprises key advances and technologies, such as genetics, artificial intelligence, cloud computing, nanotechnology, biotechnology, and 3-D printing, among others (Hirschi 2018). The Fourth Industrial Revolution is the most significant social and economic tendency in the world, which is altering the nature of work, commerce, and society (Hirschi 2018).

This revolution is recognised by pervasive computerisation, utilisation of big data, and extensive replacement of human resources by robotics (Starr-Glass 2019) as a combination of technologies that shape the links among physical, electronic, and biological scopes. The World Economic Forum has stated that the Fourth Industrial Revolution began in the 21st century and is radically changing shape in various aspects, such as mobile internet, stronger sensors, artificial intelligence, and engine learning (Schwab 2016). The Fourth Industrial Revolution is known for its radical change based on technological drivers.

Nevertheless, there is no agreed definition of the Fourth Industrial Revolution because it contains many aspects such as smart factories, advanced technological systems, programmes in procurement and distribution, and new systems in products and services development that meet human needs, customisations, and corporate social responsibility (Lasi et al. 2014).

After reviewing many definitions, the Fourth Industrial Revolution can be described as the fundamental transformation that happens when technology affects various industries (Lee et al. 2018). The Fourth Industrial Revolution is the flat expansion and devolvement of information technology and integration between technology and all industries (Yun, Yang & Park 2016).

3.1.3 Career competencies

Individuals need to enhance their career competencies to succeed in today's labour market, meet challenges, retain jobs, and have a successful career in the current unstable labour market (Defillippi & Arthur, 1994; Eby et al. 2003). Career competencies have become increasingly important because of their vital need in the job market, which supports individual career management and gaining and retaining jobs (Van Der Heijden 2006). Career competencies have been defined as 'knowledge, skills, and abilities central to career development, which can be influenced and developed by the individuals' (Akkermans et al. 2012). Career competencies comprise three areas: reflective, communicative, and behavioural career competencies. Reflective career competencies allude to individual consciousness of one's inspiration and qualities, which include reflecting on principles, inspirations, capabilities, and weaknesses with respect to one's career. Communicative career competencies allude to being capable of effectively communicating to enhance individual chances of career accomplishment and success, which incorporates constructing and extending a network for career-related knowledge, capacities, capabilities and skills related to the job market by self-profiling. Behavioural career competencies allude to having the option to shape one's career by effectively investigating the surroundings regarding work and career openings and to proactively plan and accomplish career targets.

The boundaryless career literature has also emphasised that lifetime employment has been replaced by employability goals and the individual's need to obtain different competencies to

navigate a successful boundaryless career (Colakoglu 2011). Career competencies have been identified according to the boundaryless career perspective by three knowing dimensions (knowing why, knowing how, and knowing whom), which can be accumulated throughout an individual's career to cope with the complexity of today's career environment (Defillippi & Arthur 1994). The idea of the protean career was presented mainly by Mirvis and Hall (1994) and Hall (1996). In spite of the overlay with the boundaryless career viewpoint, the protean career standpoint stresses further and extra value for career competencies in subjective career success (e.g., career satisfaction), instead of their organisational value (Akkermans et al. 2012; Briscoe & Hall 2006; Briscoe, Hall & DeMuth 2006).

3.1.4 Career commitment

The significance of careers to individuals, organisations, and society has led to an expansion of the role of individuals' keenness, dedication, and commitment to their careers. Switching employee dedication and advanced education degrees have developed this interest with growth in consolidations, acquisitions, and cutbacks. Consequently, many individuals cannot rely on one employer to sustain their entire career (Carson & Bedeian 1994).

Commitment is categorised as a commitment to the whole career or job, such as work involvement as defined by Lodahl and Kejner (1965) or to one's employer, such as organisational identification as defined by Hall, Schneider, and Nygren (1970). These types of commitment are regularly connected but theoretically separated and may frequently have various causes and results. As Marshall and Wijting (1982) have argued, career commitment emphasises an individual's overall commitment to work throughout all phases of life (Blau 1985).

Careers have been studied widely for a long time. Behavioural researchers have commonly concentrated on career subjects such as career selection, career development, and career

mobility. Career commitment has been recognised according to these matters. Hall (1971) defines career commitment as ‘the strength of one’s motivation to work in a chosen career role’.

While Blau (1988) defines career commitment as ‘one’s attitude toward one’s vocation, including a profession’ (Carson & Bedeian 1994). According to Colarelli and Bishop (1990), career commitment is characterised by the development of personal career objectives and the individual connection to identification and contribution to those objectives (Noordin, Williams & Zimmer 2002).

Career commitment is described by a strong sense of identity, influence, improvement, and dynamic organisation in single career objectives. It is a commitment to one’s profession objectives. In contrast to organisational objectives, these are self-produced. Commitment in one’s vocation can lead to working in different organisations. In other words, a person might be committed to his or her career, or just to his or her organisation, or committed to both or neither of them (Srikanth et al. 2012).

3.1.5 Career success

According to Arthur et al. (1989), a career is an ‘evolving sequence of a person’s work experiences over time’. The accumulative and gathered positive work experience and emotional outcomes are defined as career success (Seibert & Kraimer 2001). Scholars have frequently considered career success in one of two aspects. The first aspect contains variables that evaluate objective or extrinsic career success, as outlined by Gutteridge (1973). Such objective career success is evaluated and measured objectively by aspects, such as salary level, number of promotions, and the managerial role earned in a single career (Judge et al. 1995). The second aspect contains variables that subjectively evaluate intrinsic career success, which contains individuals’ subjective judgements about their career achievements, such as career satisfaction (Gu & Su 2016). Since today’s job market changes have reduced the opportunities for senior

positions, objective career success contains vertical and horizontal promotions (Gerli, Bonesso & Pizzi 2015). Therefore, career success is defined as any increase in level or significant increase in job responsibilities or job scope (Seibert, Kraimer & Liden 2001).

Judge et al. (1995) have introduced one of the most frequent career success definitions as ‘the positive psychological or work-related outcomes or achievements one accumulates as a result of work experiences’ (Nikandrou & Galanaki 2016).

3.2 Hypothesis development

Recent career theories have included the social cognitive model of career self-management, career construction theory CCT (Savickas & Porfeli 2012), protean and boundaryless career by Arthur (2014) and Hall (2004). The main issue to address is which career behaviours, resources, attitudes, and possible career competencies are required by individuals to succeed in their career and the new economy. There is a need for this research to study which career competencies and career commitment are vital for career success in the new economy (Hirschi 2018).

Guan et al. (2019) have claimed that according to an evidence-based review on previous studies covering the relationships between career boundarylessness and career success released between 1994 to 2018, it has been found that boundaryless careers have a different impact on many indicators of career success, and these impacts depend on the operationalisation of career boundarylessness, the motives, career competencies, adaptive capabilities and career capitals held by individuals. Boundaryless career competencies affect career success and, in this study, the boundaryless career competencies variables are tested to discover which variables have a significant impact on career success.

Individuals are required to establish success from their careers, and this can happen by earning or creating an experience through the use of their competencies (Forrier & Sels 2003). To

successfully manage the threats and risks in career transitions, individuals need to adopt practical strategies, for example, looking after motivations, making future arrangements, and building new social networks. These strategies have been underlined in many studies, such as O'Mahony and Bechky (2006) and Zikic, Bonache, and Cerdin (2010). To support the effects of these proactive adapting practices, individuals need important relevant career competencies, adaptive abilities, and career resources, as examined in a range of theories, such as the competency model claimed by the boundaryless career in Defillippi and Arthur's work (1994) and the intelligent career theory presented by Arthur et al. (1995).

Very few studies have asserted the impact of career competencies on subjective career success, while career success is one of the most important topics and it is the top trending topic in the literature during recent years, as argued by Akkermans and Kubasch (2017), in addition to career competencies and employability.

Only two studies (Eby, Butts & Lockwood 2003; Kong, Cheung & Song 2012b) have investigated the impact of career competencies (reflective, communicative, and behavioural competencies) as subconstructs on subjective career success, for example, Park's (2020) study has tested career competencies on an individual's perceived work performance. The study demonstrates that the knowing why, knowing whom, and knowing how competencies are all affecting an individual's perceived work performance. Park's (2020) study findings show that the impact of the knowing why and knowing whom competencies are greater than the impact of the knowing how competency. This study claims that the result is consistent with the findings of earlier studies that present a positive impact of the knowing why competency on subjective career success (Colakoglu, 2011; Eby, Butts, & Lockwood, 2003). This study tested career competencies on an individual's perceived work performance, not career success. It is added here, nonetheless, because, according to Ballout (2009), self-efficacy leads to subjective career

success, which is part of work performance, and because of the limited number of studies available. Blokker et al.'s (2019) study has showed that career competencies are one of the career resources positively related to achieving career success and employability. Young employees who develop and enhance their career competencies are probably better at laying a foundation for longstanding success and report a higher level of career success. Akkermans and Tims's (2017) study demonstrates that career competencies might act as a personal resource that can support employees to build resilience and a sense of being in charge. This study claims that career competencies can build a motivational process by empowering and allowing young professionals to proactively craft their jobs, which can afterward be related to improved subjective career success. Kong, Cheung, and Song (2012b) have investigated the relationships between career competencies and subjective career success. Their findings conclude that the three classes of knowing (knowing why, knowing whom, and knowing how) are positively correlated with subjective career success. The findings of this study likewise found career competencies predict objective and subjective career success at the same time. A study undertaken by Cappellen and Janssens (2008) on global managers' career development has evidenced that managers consider knowing why to be the key career competency in their career development. Research has been conducted with 1,579 employees in 16 Dutch companies to study the relationship between their career competencies and career success. Certain career competencies, such as career control (represented by behavioural competencies and networking represented under communicative competencies) are strongly related and connected with career success (Kuijpers, Schyns & Scheerens 2006).

Eby, Butts, and Lockwood's (2003) study has investigated the three career competency classes and assessed all classes as important predictors of success in the boundaryless career. The result of a study conducted with 458 alumni of Southeastern University in the United States found

that various competencies like know why, know whom, know how are related to career success (Zafar 2012). The study results support Arthur and other scholars (Arthur et al. 1999; Defillippi & Arthur 1994, 1996) who have theorise that ‘knowing why,’ ‘knowing whom,’ and ‘knowing how’ are significant predictors of success in the boundaryless career and in comprehending career success. In two of the three investigations (predicting perceived career success and perceived internal marketability) ‘knowing why’ occurred as the most significant set of predictors. A desire to attempt new things, initiate an opportunity, and have realistic objectives appears likely to pay career dividends. In addition, the ‘knowing whom’ career competency was classified as the least important set of predictors.

It is worth studying which career competency constructs and subconstructs lead to significant career success in the Fourth Industrial Revolution. Since boundaryless, protean, and CCT were all initially developed over 20 years ago, it is worth exploring their application to the contemporary labour market, especially today’s changing labour market during the Fourth Industrial Revolution and the COVID-19 pandemic.

The researcher is, therefore, proposing the following hypotheses:

H1: Boundaryless career competencies lead to career success

- H1.a: Know why impacts on career success
- H1.b: Know whom impacts on career success
- H1.c: Know how impacts on career success.

Arnold et al. (2008) called for an important future investigation into career competencies and their measurements. It is claimed that protean and boundaryless careers have the potential to contribute to theoretical frameworks, especially in a debatable area related to different ways of constructing career success (Arnold et al. 2008). The protean career model introduced by Hall (1976, 2004) focuses on accomplishing subjective career success through self-directed career conduct (Anakwe, Hall & Schor 2000). The protean career presents adaptability and self-

awareness as significant psychological assets for individuals to self-direct their careers (Guan et al. 2019). This career approach focuses on the value of career competencies added for subjective career success, such as career satisfaction instead of organisational values (Briscoe, Hall & Frautschy DeMuth 2006). This is the first study ever investigating the impact of protean career competencies on young graduates' subjective career success in the UAE, GCC, and Middle East regions. The research found very few studies investigating the impact of protean career on subjective career success. For example, De Vos and Soens's (2008) study has shown that individuals with a protean career orientation experience better career success through the enhancement of employability activities, such as knowledge gaining or social networking. De Vos et al.'s (2011) research with highly educated specialists demonstrated that career competency development is positively linked with perceived employability. Presti et al. (2022) have also underlined higher levels of subjective career success. Valcour and Ladge (2008) have asserted that the combination of conventional and protean career viewpoints supports women's career success. Consistent with De Vos and Soens's (2008) study, Enache et al. (2011) have examined the relationships between boundaryless and protean career attitudes and psychological career success. They have found that protean career attitudes are demonstrated by individuals' self-direction in handling and directing their career development, which is positively connected with psychological career success. Volmer and Spurk (2011) have emphasised that the protean career attitude components are associated with career success. A recent study conducted by Kundi et al. (2020) has shown that protean career attitudes positively expect job crafting behaviour, which leads to better career commitment and improvement in career satisfaction. It is worth studying the protean career competency components to better comprehend how they lead young graduates to career success in the Fourth Industrial

Revolution and during the COVID-19 pandemic since protean career theory was initially developed over 20 years ago.

The researcher is proposing that protean career competencies lead career success and, in this study, the protean career competencies variables are tested to understand which variables have a significant impact on career success.

H2: Protean career competencies lead to career success

H2. a: Self-knowledge skills impact career success

H2. b: Interpersonal knowledge skills impact career success

H2. c: Environmental knowledge skills impact career success

The significance of careers to individuals, organisations, and society has prompted increased consideration of career commitment, changing workers' loyalties, and advanced education levels. With an expansion of mergers, acquisitions, and layoffs, many individuals cannot rely only on one organisation to sustain a whole career.

To adapt to this uncertainty, better-educated employees have become progressively dedicated to their careers (Carson & Bedeian 1994). As Colarelli and Bishop (1990) have clarified, commitment to an internally defined career has become an essential source of occupational meaning as organisations become more fluid and less able to guarantee employment security (Colarelli & Bishop 1990).

Career commitment refers to an individual's interest in staying in the same career role. Meyer et al. (1993) have stressed that commitment to a certain career is conceptualised as a psychological connection between individuals and their career that depends on an emotional response to that occupation (Lee, Carswell & Allen 2000). Blau (1993) has defined career commitment as 'one's attitude towards one's profession or vocation'. Blau has developed a broadly used measure of career commitment and presented it as different from work attitudes, for example, job engagement, and organisation commitment (Blau, Paul & St. John 1993).

Career identity

Career identity is one of the main components of career commitment according to Carson and Bedeian study's (1994). It is also related to know how career competency because the career identity concept reflects the tendency to engage in skill-improving opportunities and involvement in professional activities (London 1993). This indicates the 'directional factor of career motivation' (Noe et al. 1990). Those highly engaged with career identity should invest time and energy in developing skills and competencies, which should extend their values inside and outside the organisation (Eby, Butts & Lockwood 2003) and lead to subjective career success.

Career resilience

Career resilience is an individual's resistance to career disturbance in an unideal environment. To better comprehend the significance of career resilience, a conception of its inverse, career vulnerability, would be useful.

There is a degree of psychological fragility (e.g., getting annoyed and thinking that it's hard to perform) when faced with unideal career conditions (e.g., obstacles to career objectives, doubt, poor organisation with colleagues). High on career resilience (low on career vulnerability) does not imply that the individual has a lack of sympathy for such environmental conditions. Instead, the individual has the option to adapt more efficiently and successfully with a negative work circumstance.

Career resilience contains three subdomains according to London (1983). One is self-efficacy, which contains the components of self-esteem, autonomy need, adaptability, internal control,

accomplishment need, initiative, innovativeness need, internal work principles, and improvement orientation.

The second subdomain of career resilience is risk-taking, including hazard-taking propensity, fear of failure, safety need, and resilience to uncertainty and vagueness. The third subdomain is dependency. This contains career reliance, a requirement for predominant approval, and a demand for peer endorsement and authorisation. It incorporates competitiveness, which ought to be negatively linked with the other dependency dimensions. Individuals are likely to be more resilient the higher they are on the self-efficiency, productive, hazard-taking aspect, and the lower they are on the reliance dimensions.

Those low on career resilience are probably going to be encouraged to avoid hazards, rely on others, seek structure, and prevent conditions where organisational outcomes rely on their actions and conduct. Those high on career resilience are likely to do the reverse by taking risks, not relying on others, making their own structure, and thriving with conditions in which results are dependent upon their behaviour and actions (London 1983).

Career planning

Greenhaus and Kopelman (1981) have discussed how career planning has some keys and consecutive parts, dependent on linked and connected information: (1) The individual's interests, values, competencies, (2) workplace opportunities, and (3) work-family leisure interests. The individual may have their own objectives and techniques to accomplish their ideal career results. Generally, career planning refers to individuals shaping future careers to their settings and seeking career goals. It is significant to note that career planning is a continuous process that is evaluated and performed over one's lifetime (Greenhaus & Kopelman 1981). Previous career-planning research carried out by Gould (1979) has indicated that workers with

more significant career-planning levels had increasingly productive careers (Brougham & Haar 2017).

Various researchers have stressed the necessity of individual career planning. Many public and private organisations are exploring various avenues regarding formal career-planning programmes. These programmes aim to raise the limit and level of individual's career planning, which could lead to a more productive career. It has been claimed that an employee's career adequacy is connected to organisational effectiveness and that career-planning activities can initiate an increasingly dedicated workforce. A large portion of the supporting proof and indications for justifying career planning has originated from individual experience, case records, and histories. Super and Hall (1978) have claimed that the field is missing carefully structured research studies (Super & Hall 1978) that could give a premise to applying or dismissing the intuitively appealing cases for career-planning programmes (Gould 1979).

Ng et al.'s (2005) metaanalysis has presented a comprehensive analysis about the predictors of objective and subjective career success. Ng et al.'s (2005) research results have highlighted the significance of human capital, organisational sponsorship, sociodemographic and stable individual variances in comprehending career success. The research suggests the need for studying various predictors and moderators to enhance understanding of the complex phenomenon of career success (Ng et al. 2005). This is one of the aims of this researcher is to study the impact of various variables on career success and one of these is career commitment.

A range of studies have underscored that career commitment predicts objective career success, such as income level, and subjective career success, such as career satisfaction. For example, a recent study conducted by Najam, Burki, and Khalid (2020) has examined data collected from 360 middle-level professionals. The study results show that career commitment has a positive

and significant impact on the objective and subjective career success of employees. Ballout (2009) has argued that subjective and objective career success are exclusively predicted for employees with average to high self-efficacy, but not for those with low self-efficacy. Various studies have claimed there is a relationship among career commitment, career satisfaction, and career success. For instance, Poon (2004) has stated that individuals who are committed to their careers should experience greater subjective career success. Individuals who are committed to their careers should encounter strong subjective career success, in contrast to those who are less committed. The same result has been confirmed by Kidd and Green (2006) that both career commitment and organisational commitment are among the causes of career success. Concurring with Kidd and Green (2006), Carson et al. (1999) have linked career commitment and organisational commitment to work-related outcomes. They considered individuals who engaged highly with career commitment and attained better job and career satisfaction than those who recorded low on career commitment. Day and Allen (2004) have found that career motivation, which is relatively linked to career commitment, is positively connected to career satisfaction in the case of municipal employees. Sultana et al.'s (2016) study findings endorse that employees with advanced career commitment are able to manage their careers in desirable ways, sense more power over their careers, and have subjective and objective successful careers. This research finding gains support from previous findings in other studies (e.g., Adio & Popoola 2010). Finally, Karavardar's (2014) study has found that career commitment expects subjective career success through a mediation impact of career satisfaction. This research result matches Srikanth and Israel's finding (2012) that career commitment predicts career success and career satisfaction because commitment leads individuals to desirable career outcomes.

In conclusion, career commitment predicts both objective career success in terms of salary level and subjective career success in terms of career satisfaction. According to the above, it is worth

studying which of the career commitments constructs significantly impacts on career success in the Fourth Industrial Revolution. There is no existing study in the literature investigating the impact of career commitment components on subjective career success. This is especially the case in today's changing labour market during the Fourth Industrial Revolution and the COVID-19 pandemic.

The following hypotheses are proposed:

H3: Career commitment leads to career success

H3. a: Career planning impact career success

H3. b: Career resilience impact career success

H3.c: Career identity impact career success

3.3 Research questions

- To what extent do career competencies impact upon the career success of young graduates in the Fourth Industrial Revolution?
- To what extent does career commitment impact upon career success in the Fourth Industrial Revolution?
- How do young graduates build successful careers during the Fourth Industrial Revolution?

3.4 Conceptual framework

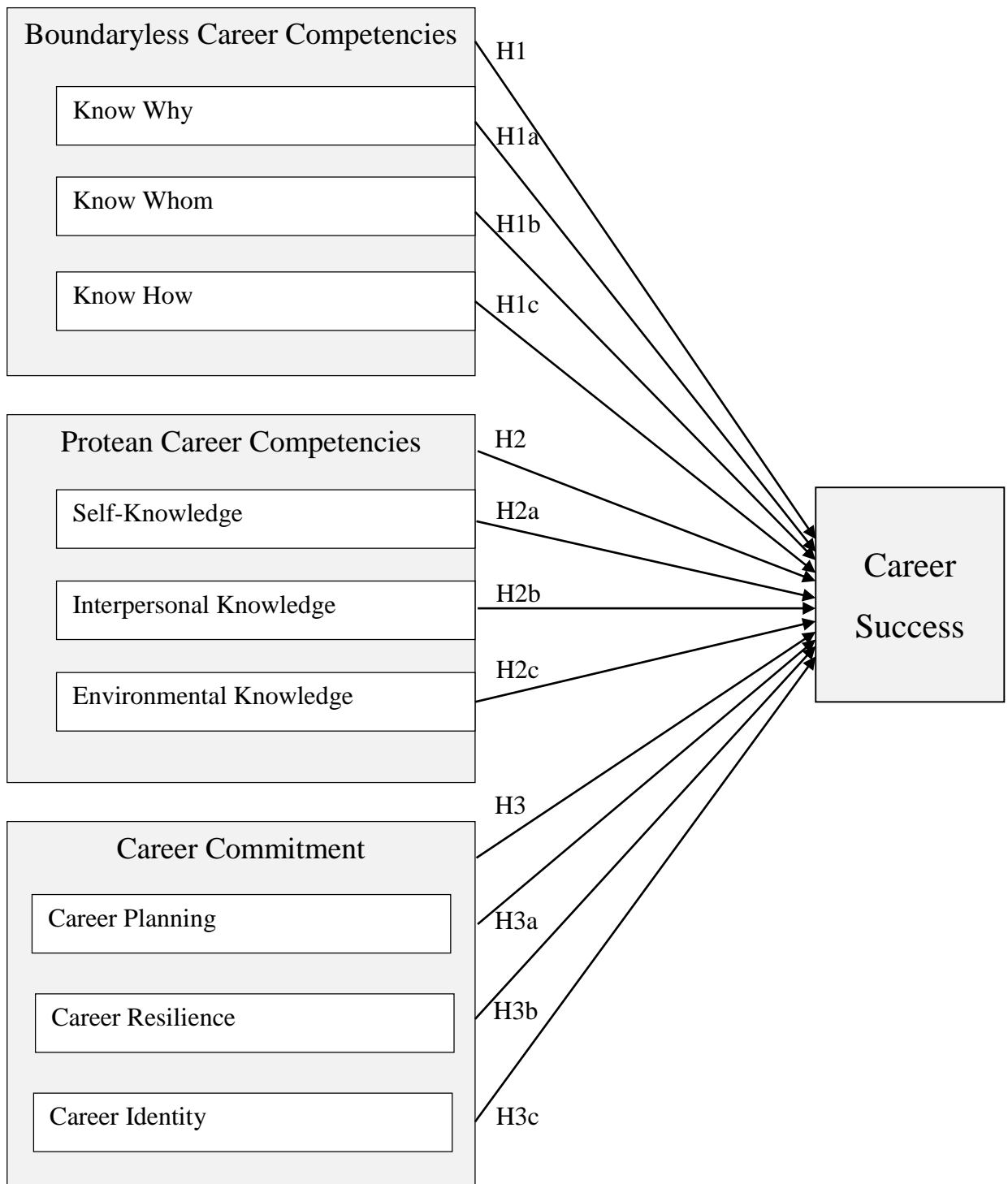


Figure 1. Conceptual model

CHAPTER 4

RESEARCH METHODOLOGY

4.1 Introduction

This chapter introduces the main research methodologies and tests the suggested hypotheses to answer the proposed research questions and meet the research objectives.

The first part of this chapter presents the research philosophy, then the second part details the research approach, research strategy, time horizon, and technique. The ethical considerations declaration is provided at the end of the chapter.

4.2. Research methodology

Saunders, Lewis, and Thornhill (2016) have summarised research methodology in a research onion figure, which is used in this chapter as a guide to selecting the appropriate method. Certain approaches from each layer have been selected and discussed in this chapter. The reasons for selecting specific methods and approaches have been set out.

4.3. Research philosophy

Adopted Philosophy	Explanation
Objectivist ontology	Saunders et al. (2016) explain ontology as a concept about the nature of truth. Such a concept can be linked to the researcher's hypothesis on the universal works method. While objectivism considers the individual's belief in the presence of social entities in reality and those entities that are external and independent of individuals.
Positivist epistemology	Positivist epistemology is considered mainly when the researcher deals with observable and measurable data, which helps in having a statistical analysis of certain phenomena.
Deductive	In the deductive approach, the researcher tries to deduct a hypothesis which has been proposed according to prior theoretical knowledge and afterwards tests these proposed hypotheses.

Table 8: Research philosophy

Deciding on the philosophy helped in knowledge development, research strategy, data collection method, and analysis techniques. This section underlines which approach was adopted.

Before deciding on the ontological approach for this study, the main concern was to differentiate between real, determinate, constant, noticeable, and measurable. Ontology is an objective approach, external to social players, and contains more than one reality created from insights and the acts of social players (Bryman & Bell 2007).

This research inquires into how young graduates build their career success, which is considered something real and objective. Additionally, young graduates' career success as a dependent variable is a measurable variable. Saunders et al. (2016) have explained ontology as a concept about the nature of truth. Such concepts can be linked to the researcher's hypothesis on the method of universal works.

The ontological approach is used because, according to the *Oxford Living Dictionary*, ontology is defined as 'a set of concepts and categories in a subject area or domain that shows their properties and the relations between them' (Jing et al. 2018). In this research, the impact of career competencies and career commitment on young graduates' career success is explained by studying the relationships among the proposed variables.

Two sides of ontology have been realised: objectivism and subjectivism. Objectivism considered the individuals' belief in the presence of social entities in reality and those entities that are external and independent of individuals, which is convenient for this research because the research participants do not interfere in the research result. Subjectivism **oppositely** presents that social phenomenon are comprehended through the insights and meaning of individuals

(Bryman & Bell 2015). Subjectivism is an inconvenient approach for this study because the researcher is not seeking a few participants' interpretations of the tested variables.

In the case of this research, studying the impact of career competencies and career commitment on subjective career success is considered a real thing, as the issue of the generalisation of research findings is one of the main concerns for many studies. Objectivist ontology is adopted in this study because it supports the generalisation of the research.

Ontology is a part of philosophy concerned with the belief that we commit to and accept and trust that something is logical or real, or the very nature or essence of the social phenomenon we are exploring (Scotland 2012). It is the philosophical examination of the idea of presence or reality, of being or turning out to be, just as the essential classifications of things that exist and their relations. This approach is required in this research to study the relationships between the variables and explain the impact caused by the independent variables on the dependent variable.

Tashakkori and Teddlie's (1998) have argued that scholars should not deal or consider the study of philosophy as a part of two contradictory sides or concepts, such as ontology as opposed to epistemology, qualitative as opposed to quantitative, or interpretivism as opposed to positivism. Instead, the study's philosophy should be considered as a philosophy continuum.

Epistemological has its aetiology in Greek, where the word *episteme* implies knowledge and information. Put simply, in research, epistemology is used to depict how we come to know something, how we know truth or reality.

The epistemological presumption, present how actuality can be known in the part of research (knowledge), is connected with the degree to which knowledge in a certain field of study is acceptable (Saunders et al. 2016) and it concerns the basis of knowledge, particularly regarding its boundaries and rationality.

Positivist epistemology is adopted because it deals specifically with observable and measurable data, which helps in a statistical analysis of certain phenomena. Positivist epistemology is convenient for this study because what constitutes acceptable knowledge is measurable facts. Since this study is quantitative, the researcher measured the constructs and subconstructs of career competencies and career commitment on young graduates' career success, which produced measurable facts and data.

Epistemology is also concerned with the nature of data and structures, and how they are gained, and how they are conveyed to other individuals. It centres on the idea of human information and perception that can be gained to have the option to enlarge, widen, and extend understanding in the targeted field of study. Schwandt (1997) defines it as the study of the nature of knowledge and justification.

Axiology alludes to the moral issues that should be viewed when planning a research proposal. It considers the philosophical approach to making decisions on value or the correct choices (Finnis 1980). Ethical consideration is maintained in this research by considering confidentiality with all the participants fairly, without any biases.

Axiology includes characterising, assessing, and comprehending ideas of right and wrong linked to the study. It considers what esteem can be attributed to the various parts of certain research, the participants, the data, and the audience receiving the consequences of the research. Set forth plainly, it tends to the inquiry: What is the idea of morals or moral conduct? In answer to this inquiry, it is critical to consider respect for human estimations of everybody associated with or partaking in the research project.

4.3.1 Positivism

As mentioned above, the researcher adopted the **positivist epistemology** approach. The **positivist** approach was selected because it helps to have a rational explanation by creating connections between the variables, which is presented in this research as the impact of career commitment and career competencies on young graduates' career success. Therefore, positivism is the ideal approach for this study design since it focuses on validating the assurance of hypotheses that are proposed according to the research questions and allowing the researcher to conduct this study objectively without interfering in the data collection since the data collected used questionnaires sent through an online survey website.

Philosophical approaches consist of three approaches, according to Neville, Miller, and Fritzon (2007). **Positivistic** philosophy distinguishes measures and assesses any phenomena, and provides rational clarification. Such clarification creates links and connections among the proposed variables. In this study, for instance, the researcher considered various variables, which are career competencies, career commitment, and career success. This philosophical method supported checking the projected hypotheses beside the collected measurable data, which is convenient for a quantitative study. The positivistic philosophy can be generalised, which supported the contribution to current knowledge.

Regarding data collection and analysis, the convenient methodology used in this study was taken from the theory of positivism because it is mainly linked to highly structured methodologies, according to Bryman and Bell (2015). Additionally, this study collected data relying on quantitative methods because the main aim of this study is to explain the impact of independent variables on the dependent variable instead of exploring the reason behind study's variable.

Interpretivist philosophy was considered an inconvenient approach for this study because it tends toward an inductive qualitative approach by holding in-depth interviews to understand and explore the reasons behind certain phenomena. Such an approach was not the main aim of this study, which aims to explain the impact of career competencies and career commitment on young graduates' career success.

Interpretivism developed in the mid-twentieth century in different countries in Europe, such as Germany, France, and sometimes among English philosophers, and was shaped by different strands, most specifically, hermeneutics, phenomenology, and symbolic interactionism.

Interpretivist mainly gives an advantage in understanding a participant's attitude to subjective reality. This method has a drawback because it relies mostly on a small sample to permit in-person data collection, which subsequently affects the data validity. Additionally, using the interpretive approach supports understanding and studying the cause of the phenomena. Interpretivism emphasises that individuals are unlike physical phenomena because they make implications and create meanings. Interpretivist investigates these meanings to generate new, deeper understandings of organisational realities. Interpretivism concentrates on individuals' lived experiences, social artefacts and pursuits to incorporate the participants and their information into the study, which is inconvenient in this research since the researcher aimed to test the impact between the proposed variables on a large number of participants rather than a few participants' lived experiences.

Opposing positivist research, the interpretive approach does not follow solid fundamental methods and holds more individual and flexible research methods (Carson et al. 2001), which are more exposed to produce sense in social interaction (Black 2006). The interpretive study aims to understand human conduct by explaining their behaviours.

Thus, the goal of the interpretivist study is to understand human conduct by clarifying behaviour rather than guessing the reasons and consequences concerning generalisation (Hudson & Ozanne 1988).

Interpretivism is more convenient for research that adopts a qualitative method. An interpretive approach is inappropriate for this study since the research method is quantitative and does not rely on a limited number of participants and their interpretation of the discussed phenomena.

The quantitative research method has been selected as the main research method of the study to investigate the impact of career competencies and career commitment on young graduates' career success. The research questions and research problem have been identified in the literature, and the research method has been selected. The quantitative method was used in most of the studies related to career commitment, career competencies, and career success, such as Park (2020); Blokker et al. (2019); Akkermans and Tims (2017); Kong, Cheung and Song (2012b); Kuijpers et al. (2006); Eby, Butts, and Lockwood (2003); Najam, Burki, and Khalid (2020); Sultana et al. (2016); Karavardar (2014); Srikanth et al. (2012); Ballout (2009); and Poon (2004).

4.3.2 Deductive approach

There are two popular approaches for conducting business research: inductive or deductive. In the deductive approach, the researcher tries to deduct a hypothesis that has been created according to prior theoretical knowledge and, afterwards, tests these hypotheses. In the inductive approach, the theory is the main outcome of the study by proposing generalisations from the study observation (Bryman & Bell 2015). In this study, the deductive approach has been adopted.

According to Saunders et al. (2016), the logic behind the deductive approach is that when the premises are true, the conclusion must also be true, and this is the case in this study because all the proposed hypotheses are true, emphasised in various studies reflecting relationships between the proposed variables. The conclusion is also true. In terms of generalisation, the deductive approach generalises from general to specific. For instance, many studies have claimed that career commitment and career competencies predict career success, but very few of them have described to what extent career competencies and career commitment impact on career success, which is the main aim of this study.

Generalisation moves from the general to specific to understand the impact of career competencies and career commitment on young graduates' career success. The collected data were mainly used for evaluation and assesses the proposed hypothesis. It aims to contribute to existing theories, such as boundaryless, protean, and CCT.

The deductive approach matches the quantitative research method used. The main difference between the quantitative and qualitative methods is associated with the differences between the deduction and induction of data (Gibbs 2002). To coherently answer the study questions, the analyst should fuse factual tests and various modelling strategies. Access to information from a high number of participants is necessary to gain a factually accurate outcome. The deductive approach used a survey questionnaire as an instrument to understand the statistical relationship among the proposed variables. The deductive approach began from the general to the specific (Saunders, Lewis & Thornhill 2016), and developed the hypotheses from the current theory. Theories on career boundaryless and protean theory are employed rather than creating a new theory. The hypotheses were allowed or rejected.

According to Saunders et al. (2016), the logic behind the inductive approach is the known premise used to generate an untested conclusion. The purpose of data collection is to explore the phenomena, which is not the aim of this study because the main objective of this research is to explain the impact of career competencies and career commitment on young graduates' career success instead of exploring it. Furthermore, inductive tends to focus on generating and building new theory. Nevertheless, the main goal of this research is not to generate or build new theory but to contribute to boundaryless, protean, and CCT theories. The inductive approach is inconvenient for this study.

4.4 Research strategy

Saunders et al. (2016) define research strategy as a plan of how the researcher intends to answer the research questions. It is also a methodological connection between the adopted philosophy and the methods followed to gather and analyse data. Saunders et al. (2016) have claimed there are different research strategies, such as experiment, survey, archival research, case study, ethnography, action research, grounded theory, and narrative inquiry. The survey is one of the most popular strategies in management and business studies (Hussey & Hussey 1997) and is associated with the deductive method (Saunders, Lewis & Thornhill 2007). The researcher used the survey strategy in this study. Using a survey was a suitable strategy to understand the link and impact of career competencies and career commitment on young graduates' career success as indicated in various relevant studies discussing career competencies, career commitment, and career success, such as Blokker et al. (2019); Eby et al. (2003); Akkermans et al. (2013); De Vos and Soens (2008); Akkermans and Tims (2016); and Greenhaus, Parasuraman, Wormley (1990). Surveys also allowed the researcher to track if the questionnaire had been completed or not by the participants.

In this study, the research objectives and the research questions were the main reason for selecting the quantitative method because the aim of this study was to test the impact of career commitment and competencies on young graduates' career success. A qualitative method, such as the interview method, was not selected because this approach would create a significant amount of data not suitable or sufficient for supporting the generalisation of the results. Data analysis relies heavily on interpretation, which increases the possibility of bias.

In summary, the quantitative approach was selected due to the following factors:

- The quantitative deductive approach helps in having less bias and subjectivity
- The study hypotheses were assessed quantitatively, which permitted generalisation
- It was important to have data to test the impacts and relationships among variables.

The research steps are shown in Figure 2.

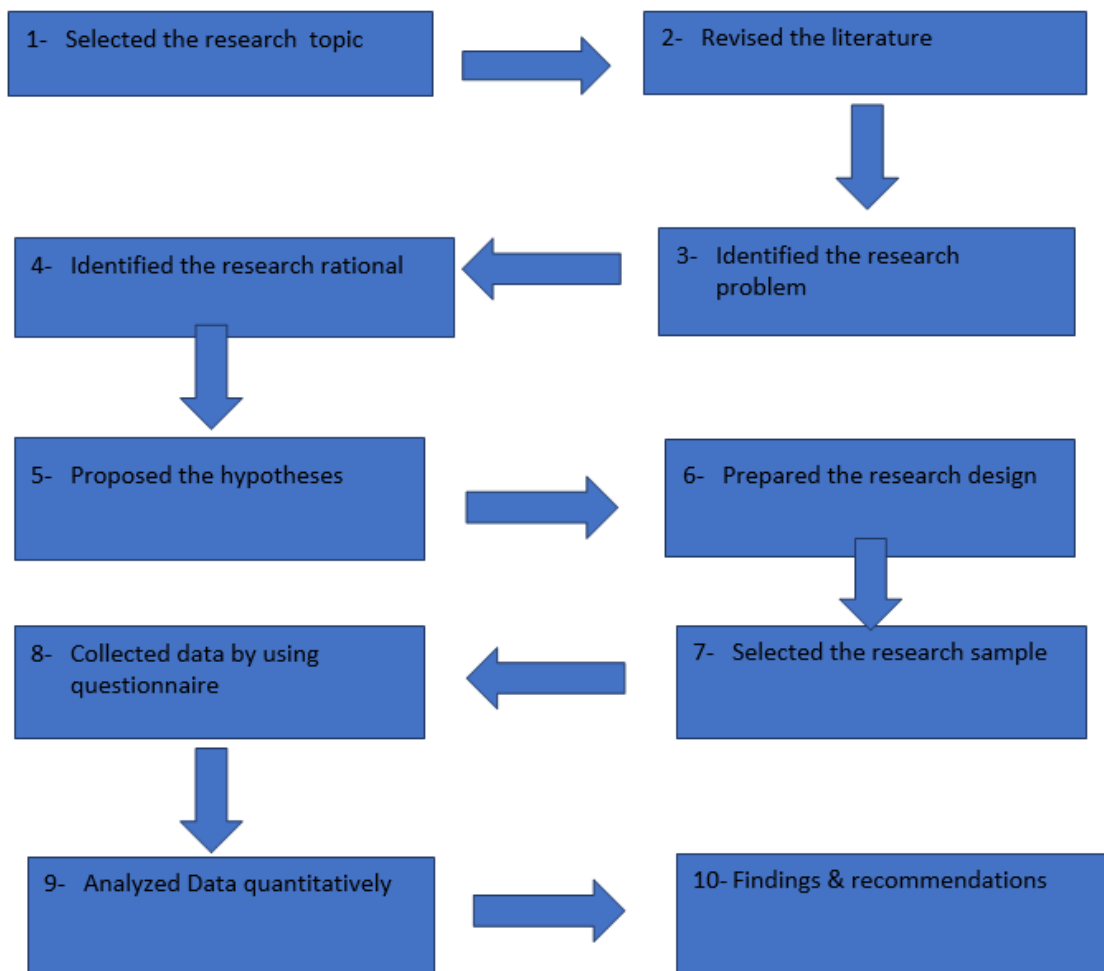


Figure 2: Research steps

As demonstrated above in figure 2, the research plan began with selecting the research topic and, then, starting the review of related literature on career competencies, career commitment, and career success. The research problem and rational were identified, which is a gap in the literature in studying the impact of career competencies and career commitment on subjective career success and the changes occurring in individuals' new careers. The hypotheses were proposed according to the research limitations and future directions stated in various studies, which supported the adopted quantitative methodology approach in this research.

4.5 Research design

- Questionnaire design and development
- Measurement scale
- Time horizon (cross-sectional)
- Data collection and analysis
- Pilot study.

4.5.1 Questionnaire design and development

Researchers usually rely on data that can be gathered from one of two resources sources: the first one might be primary, which means new raw data, or the collected data might be secondary data produced by previous research (Sapsford & Jupp 2006). The researcher collected primary data in this study to investigate the impact of career competencies and career commitment on young graduates' career success.

A questionnaire was created, conducted in the UAE, and the data were collected from 428 young graduates, focusing on their point of view about career commitment and career competencies. The questionnaire was sent by email to all the participants as a link created on the Smart Survey website. The questionnaire was distributed online because it was more efficient and covered more locations. To gain a better response, the researcher promoted the questionnaire through various means, such as email, telephone, online survey, to ensure that the survey was completed within the planned timeline. This strategy was pursued so the participants had a choice to complete the survey in the agreed timeline.

The questionnaire was divided into four parts, displayed in appendix 4.5.1, covering the following variables:

- Boundaryless career competencies presented by the following subvariables:

- Know why
- Know whom
- Know how.
- Protean career competencies presented by the following subvariables:
 - Self-knowledge skills
 - Interpersonal knowledge skills
 - Environmental knowledge skills.
- Career commitment presented by the following subvariables:
 - Career planning
 - Career resilience
 - Career identity.
- Career success.

Before the participants filled out the questionnaire, they were required to read the ethical form and accept it in order to participate in the study. The ethical form contains an introduction to the researcher, the objective of the study, and confirms that the collected data are handled confidentially. Furthermore, the ethical form included the contact details of the researcher and the assigned director of studies.

The questionnaire sections were measured using seven-point Likert-type scales. Participants were asked to rate each question accordingly. The selection required one of the following options: Strongly Disagree, Moderately Disagree, Slightly Disagree, Neither Agree nor Disagree, Slightly Agree, Moderately Agree, Strongly Agree. A sample is presented in the

below Table. The seven points Likert-type scale was easy for participants to answer. The researcher referred to it in the questionnaire's introduction as rating scales instead of Likert scale since many respondents might not understand the meaning of the Likert scale. It can be translated to numerical data, which has been utilised in quantitative analysis.

The table below shows how the questionnaire scoring system appeared in the survey.

Please tick the most appropriate answer from the options below:

To what extent do you Agree with the statements below							
	1	2	3	4	5	6	7
Survey Questions	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Questionnaire scoring system table

4.5.2 Measurement scale

Table 9 presents the dependent and independent variables, the questionnaire items, the total number of citations for the articles used in selecting the measurement scale, and Cronbach's alpha for each variable. Young graduates' career success is the dependent variable, and it is measured by five items presented in the table below. Its Cronbach's alpha = 0.88, while the career commitment is considered an independent variable. Career commitment was measured through three subvariables presented by career planning, career resilience, and career identity with a Cronbach's alpha of .79, .79, and .85, respectively. The boundaryless career competencies and protean career competencies were considered as independent variables. The boundaryless career competencies consisted of three subvariables, which were know why, know whom, and know how, with a Cronbach's alpha of .77, .76, and .77, respectively.

The protean career competencies consisted of three subvariables, presented by self-knowledge skills, interpersonal knowledge skills, and environmental knowledge skills, with a Cronbach's alpha of .82, .77, and .81, respectively.

Construct name	No. of items (Total Items 38)	Citations (as at 17/4/22) Cronbach's alpha	Source
Young graduates' career success	1- I am satisfied with the success I have achieved in my career 2- I am satisfied with the progress I have made toward meeting my overall career goals 3- I am satisfied with the progress I have made toward meeting my goals for income 4- I am satisfied with the progress I have made toward meeting my goals for advancement 5- I am satisfied with the progress I have made toward meeting my goals for the development of new skills	Cited 3676 Cronbach's alpha $\alpha = 0.88$	Greenhaus, J., Parasuraman, S. & Wormley, W. (1990). Effects of Race on Organizational Experiences, Job Performance Evaluations, and Career Outcomes. <i>Academy of Management Journal</i> , vol. 33 (1), pp. 64-86. The scale items can be found on pages 73 & 86.
Career Commitment	<p>Career planning</p> 1- I do not have a strategy for achieving my goals in this line of work/career field. 2- I have created a plan for my development in this line of work/career field. 3- I do not identify specific goals for my development in this line of work/career 4- I do not often think about my personal development in this line of work/career field. <p>Career resilience</p> 1- The costs associated with my line of work/career field sometimes seem too great. 2- Given the problems I encounter in this line of work/career field; I sometimes wonder if I get enough out of it.	Cited 824 Cronbach's alpha $\alpha = .79$ Cronbach's alpha $\alpha = .85$	Carson, K. & Bedeian, A. (1994). Career Commitment: Construction of a Measure and Examination of Its Psychometric Properties. <i>Journal of Vocational Behaviour</i> , vol. 44 (3), pp. 237-262 The scale items can be found on pages 251-252.

	<p>3- Given the problems in this line of work/career field, I sometimes wonder the personal burden is worth it.</p> <p>4- The discomforts associated with my line of work/career field sometimes seem too great.”</p> <p>Career identity</p> <p>1- My line of work/career field is an important part of who I am.</p> <p>2- This line of work/career field has a great deal of personal meaning to me.</p> <p>3- I do <i>not</i> feel “emotionally attached” to this line of work/career field.</p> <p>4- I strongly identify with my chosen line of work/career field.</p>	<p>Cronbach’s alpha $\alpha = .79$</p>	
Boundaryless career competency	<p>Know why</p> <p>1- I know what I like in my work</p> <p>2- I know what is important to me in my career</p> <p>3- I can clearly see what my passion are in my work</p> <p>Know whom</p> <p>1- I know a lot of people within my work who can help me with my career</p> <p>2- I know a lot of people outside of my work who can help me with my career</p> <p>3- I know how to ask for advice from people in my network</p> <p>4- I am able to approach the right persons to help me with my career</p> <p>Know how</p> <p>1- I know how to find out what my options are for becoming further educated</p> <p>2- I know how to search for developments in my area of work</p>	<p>250</p> <p>Cronbach’s alpha $\alpha = .77$</p> <p>Cronbach’s alpha $\alpha = .76$</p> <p>Cronbach’s alpha $\alpha = .77$</p>	<p>Akkermans, J., Brenninkmeijer, V., Huibers, M., & Blonk, R.W. (2013). Competencies for the contemporary career: Development and preliminary validation of the Career Competencies Questionnaire. <i>Journal of Career Development, 40</i>(3), 245-267.</p> <p>The scale items can be found on page 257.</p>

	3- I am able to explore my possibilities on the labor market		
Protean Career competency	<p>Self-knowledge skills</p> <p>1- I know my strengths in my work</p> <p>2- I am familiar with my shortcomings in my work</p> <p>3- I am aware of my talents in my work</p> <p>4- I know which skills I possess</p> <p>Interpersonal knowledge skills</p> <p>1- I can clearly show others what my strengths are in my work</p> <p>2- I am able to show others what I want to achieve in my career</p> <p>3- I can show the people around me what is important to me in my work</p> <p>Environmental knowledge skills</p> <p>1- I can make clear career plans</p> <p>2- I know what I want to have achieved in my career a year from now</p> <p>3- I can create a layout for what I want to achieve in my career</p> <p>4- I am able to set goals for myself that I want to achieve in my career.</p>	<p>250</p> <p>Cronbach's alpha $\alpha = .82$</p> <p>Cronbach's alpha $\alpha = .77$</p> <p>Cronbach's alpha $\alpha = .81$</p>	<p>Akkermans, J., Brenninkmeijer, V., Huibers, M., & Blonk, R.W. (2013). Competencies for the contemporary career: Development and preliminary validation of the Career Competencies Questionnaire. <i>Journal of Career Development</i>, 40(3), 245-267.</p> <p>The scale items can be found on page 257.</p>

Table 9: Research measurement scales

Perspectives	Competencies		
	Reflective	Communicative	Behavioural
Boundaryless	<i>Know why</i> - Career insight - Openness to experience - Proactive personality	<i>Know whom</i> - Experience in mentoring relations - Extensiveness of networks	<i>Know how</i> - Career identity - Career-related skills
Protean	<i>Self-knowledge skills</i> - Self-assessment - Self-awareness - Modifying self-perception	<i>Interpersonal knowledge skills</i> - Assertiveness - Conflict management - Dialogue skill - Effective listening - Seeking out relations	<i>Environmental knowledge skills</i> - Adapting to changing environment - Exploration - Flexibility - Time and stress management

Figure 3: Career competencies adopted from Akkermans et al. (2012)

Main construct	Items
Reflection on motivation	I know what I like in my work
	I know what is important to me in my career
	I can clearly see what my passions are in my work
Reflection on quality	I know my strengths in my work
	I am familiar with my shortcomings in my work
	I am aware of my talents in my work
	I know which skills I possess
Networking	I know a lot of people within my work who can help me with my career
	I know a lot of people outside my work who can help me with my career
	I know how to ask for advice from people in my network
	I am able to approach the right persons to help me with my career
Self-profiling	I can clearly show others what my strengths are in my work
	I am able to show others what I want to achieve in my career
	I can show the people around me what is important to me in my work
Work exploration	I know how to find out what my options are for becoming further educated
	I know how to search for developments in my area of work
	I am able to explore my possibilities on the labour market
Career control	I can make clear career plan
	I know what I want to have achieved in my career a year from now
	I can create a layout for what I want to achieve in my career
	I am able to set goals for myself that I want to achieve in my career

Table 10: Research measurement scale (Akkermans et al. 2012, page 257),

The conclusion below is summarised from Akkermans, Brenninkmeijer, Huibers, and Blonk (2013, pp. 248–251) Competencies for the contemporary career: Development and preliminary

validation of the Career Competencies Questionnaire, *Journal of Career Development*, 40(3), 245–267. Table 10 shows how boundaryless and protean career competencies in the above Figure 3 on this page are presented in the survey items in Table 9 in page 127.

Reflective competencies	
Boundaryless know why career competencies	Reflection on motivation items:
	1- I know what I like in my work 2- I know what is important to me in my career 3- I can clearly see what my passion are in my work
Protean self-knowledge skills	Reflection on qualities items:
	1- I know my strengths in my work 2- I am familiar with my shortcomings in my work 3- I am aware of my talents in my work 4- I know which skills I possess
Communicative competencies	
Boundaryless know whom career competencies	Networking items:
	1- I know a lot of people within my work who can help me with my career 2- I know a lot of people outside of my work who can help me with my career 3- I know how to ask for advice from people in my network 4- I am able to approach the right persons to help me with my career
Protean interpersonal knowledge skills	Self-profiling items:
	1- I can clearly show others what my strengths are in my work 2- I am able to show others what I want to achieve in my career 3- I can show the people around me what is important to me in my work
Behavioural competencies	
Boundaryless know how career competencies	Work exploration items:
	1- I know how to find out what my options are for becoming further educated

	<p>2- I know how to search for developments in my area of work</p> <p>3- I am able to explore my possibilities on the labor market</p>
Protean environmental knowledge skills	Career control items:
	<p>1- I can make clear career plans</p> <p>2- I know what I want to have achieved in my career a year from now</p> <p>3- I can create a layout for what I want to achieve in my career</p> <p>4- I am able to set goals for myself that I want to achieve in my career</p>

Table 7: Career competencies items

1- Reflective competencies shown in Figure 3 present the followings items from Table 11:

- Reflection on motivation items in Table 11 presenting boundaryless know why career competencies in Figure 3
- Reflection on qualities items in Table 11 presenting protean self-knowledge skills in Figure 3

2- Communicative competencies shown in Figure 3 present the followings items from Table 11

- Networking items in Table 11 presenting boundaryless know whom career competencies in Figure 3
- Self-profiling items in Table 11 presenting protean interpersonal knowledge skills in Figure 3.

3- Behavioural competencies shown in figure 3 present the following items from Table 11:

- Work exploration items in Table 11 presenting boundaryless know how career competencies in Figure 3

- Career control items in Table 11 presenting protean environmental knowledge skills in Figure 3.

(Table 11) concluding the above summary for better visualisation:

4.5.3 Time horizon

When considering the time horizon while designing the research, there are several options to consider, which have been highlighted by Saunders et al. (2016), such as taking the research in a ‘snapshot’ taken in a specific time or considering the research more similar to a diary or a sequence of snapshots and a representation of occasions over a certain period. Usually, this could be decided depending on the research question—the ‘snapshot’ time horizon is called cross-sectional, while the ‘diary’ perspective is called longitudinal.

The cross-sectional time horizon was selected since the study was carried out in a short period by testing the impact of career commitment and career competencies on young graduates’ career success. The longitudinal approach is inconvenient for this study because it takes a longer period, and the participants were not guaranteed to participate in the second period of the study. The researcher planned to test the impact of the variables on a specific time, not in the long period. Most of the studies undertaken in the area of career competencies, career commitment, and career success, such as Blokker et al. (2019); Eby et al. (2003); Akkermans et al. (2013); De Vos and Soens (2008); Akkermans and Tims (2016); and Greenhaus, Parasuraman, and Wormley (1990) have considered a cross-sectional approach. This research study considered the same direction because this research aimed to study the impact of career competencies and career commitment on young graduates’ career success. Therefore, the longitudinal time horizon was not selected because the researcher did not test how career competencies or career commitment are constructed.

4.5.4 Data collection and analysis

Data collection can be carried out through various techniques to answer the research questions. During the process of data collection, the researcher considered various aspects, such as the time required, the efforts spent, the quality of the collected data, and the response rate of the participants.

Instruments frequently used for data collection include focus groups, observation, and one-to-one interviews, which are used mainly in qualitative studies. The survey questionnaire is one of the main instruments used in quantitative studies. The literature related to career competencies, career success, and career commitment are mainly focused on confirmation, which is a deductive approach.

The purpose of data collection is to study and discover a phenomenon, recognise themes and patterns, and create a conceptual framework, according to Saunders et al. (2016). The researcher adopted a deductive approach by proposing hypotheses and assessing them according to the analysed data.

To guarantee that the study would be of high quality, the study's reliability, validity, and replication needed to be evaluated. The researcher adopted a cross-sectional survey that allowed the collection of data on various aspects at a specific time, helping to study the links between the variables (Bryman & Bell 2015, p. 62). The researcher used a self-completion survey because it is considered the most practicable tool to reach a large number of participants with less expense. The self-completion questionnaire also supported having less bias and subjectivity and guaranteed the anonymity of the study members. The disadvantages of using this method were that the researcher could not note if the participants were taking care while completing the survey. The researcher was unable to gain any further opinions from the participants after they completed the survey.

The researcher used social media, such as LinkedIn and Facebook, to connect with many alumni in various universities in the UAE to send them the survey link through the Smart Survey website.

The researcher worked in the career and alumni departments of different universities in the UAE, such as Abu Dhabi University, Higher Colleges of Technology, and Khalifa University. Holding such positions enabled solid connections with fresh graduates and alumni from these universities, which support a high response rate, especially since the researcher is one of Abu Dhabi University Alumni.

After sending the survey to different LinkedIn groups for alumni and graduates, the fresh graduate was reached through an extensive search on LinkedIn and Facebook. The researcher reached them through different follow-up messages on LinkedIn.

The response rate was unsatisfactory in the beginning. Accordingly, the researcher spent around three months during the lockdown of the COVID -19 pandemic doing follow-up calls and emails daily to encourage the targeted participants to complete the survey by highlighting the importance of this study to the community and UAE.

Reaching UAE nationals was also very difficult. Accordingly, the researcher requested an official letter from the British University in Dubai highlighting that the purpose of data collection is for academic research purposes to complete the academic study. This letter helped me a lot in contacting different government sectors such as Abu Dhabi municipality, Tasheel services related to the Ministry of labor, and other government companies to seek their support by asking their fresh Emirati graduates to participate in this study. After different attempts and follow-up calls and emails. Tasheel services under the Ministry of labor agreed to share the

survey link with their employees, which supported having UAE national's participants in this study.

The next step was extracting the data. The researcher contacted the targeted participants by email and phone as final reminder to remind them to fill out the survey to avoid potential delay from their side.

The researcher sent the survey to participants by the end of October 2020. After the data were collected, the researcher reviewed and cleared it to ensure that it matched the research purpose (Saunders, Lewis & Thornhill 2016). The researcher used SPSS and AMOS software to analyse the data collected from the questionnaire. The researcher ran various analysis reports on the collected data as follows to evaluate the proposed hypotheses, which were introduced in Chapter 3.

- The researcher conducted preliminary data analysis using IBM SPSS software to test the unengaged response and missing values, where negatively worded items had been reversed.
- Data distribution was carried out to check the normality and symmetry of data distribution (skewness and kurtosis), data linearity, and homoscedasticity assessment.
- Cook's distance test was carried out to review the data for any outliers that might impact data linearity (univariate – multivariate).
- Multicollinearity assessment was carried out using tolerance and VIF values.
- Demographic data presented various facts about this study, such as the number of participants, geographic distribution, age, gender, qualification level, and employment level.
- Exploratory factor analysis and variance percentage checked the correlations among the factors and variables (Hair et al. 2014).

- Reliability analysis was checked by Cronbach's alpha test with varieties from 0 to 1, with values of .60 to .70 deemed the lower limit of acceptability (Hair et al. 2014).
- Common method bias was checked by Harman's single factor test, and the common latent factor test indicated that common method bias did not exist in this study.
- Confirmatory factor analysis was checked by AMOS software to check the measurement model.
- Construct validity was carried out to confirm the convenient testing of constructs and measurement scales (Gallagher, Ting & Palmer 2008; Hair et al. 2014). Various kinds of validity tests, such as convergent validity (AVE), face validity, nomological validity, and discriminant validity, were checked.
- Multiple linear regression analysis was conducted to test the hypotheses and test to which extent career competencies and career commitment constructs impact on subjective career success. Multiple regression analysis is theorised as a statistical method applied to examine the relationship between a dependent variable and several independent variables (Hair et al. 2014). The researcher adopted this approach because it helps in meeting the main aim of this study.

The researcher presents various tables and graphs in Chapter 5, reflecting the analysis results to have better visualise and to know which hypotheses should be accepted or rejected to clarify the impact and implications among the independent and dependent variables. This study carried out this analysis to validate the hypotheses and draw conclusions.

4.5.5 Population, research sample, and demographics

The researcher targeted young graduates from all over the emirates of the UAE. This study was a random sample. The researcher sent the survey to participants in different emirates. The participants ranged from postgraduate students in various public and private universities to

young employees from different sectors, ranging from 22 to 30 years old. Young graduates have been defined as young professionals by Blokker et al. (2019) as graduates who are between 21 and 35 years old. Akkermans et al. (2012); Akkermans et al. (2013), and Akkermans and Tims (2016) ranged the age of young graduates between 16 and 30 years old. To be consistent with the latest literature, participants who were above 30 years old, unemployed, or self-employed during the time of this research were excluded from this study. The researcher considered young graduates to be the employed participants who were aged between 22 and 30 because students in the UAE complete their compulsory school education at the age of 18 years (Godwin 2006). They then spend around four years completing their bachelor's programme, so their age is around 22 years old at the time of graduation.

The survey was carried out in a convenient language for all young graduates to encourage a high number of responses. The survey was conducted in English since it is the commonly used language in the UAE. The researcher selected the Smart Survey website to administer the questionnaire to avoid the risk of mistakes while completing the questionnaire.

The researcher selected the mandatory option on the Smart Survey website to guarantee that all participants completed the survey questions. All participants were aware that the responses were confidential and would not be disclosed to third parties since the main goal of this research was purely academic. Moreover, the questionnaire contained a cover letter that indicated the purpose of the study, research title, researcher name, and the contact details of the director of studies. Regarding the demographics, the researcher allocated the first part of the survey to collect general information about the participants, such as occupational level, age, gender, nationality.

Sample size

Many studies published on topics related to career success, career commitment, and career competencies have used the questionnaire as the main data gathering instrument. The researcher considered the average number of completed questionnaires in the recent, highly cited research, such as Eby et al. (2003) who used a questionnaire to collect data from 458 alumni from a large southeastern university; De Vos and Soens (2008) collected data from a survey conducted among a sample of 289 employees. The average number of participants was around 400.

Since it was not guaranteed to have a 100% response rate from the targeted sample, the researcher considered a larger sample to ensure sufficient accurate responses and results for the targeted sample. It is highly recommended to have a larger sample size because it reduces the generalisation error of the targeted population and since some participants agreed to participate in the study but do not complete the questionnaire until the deadline, or they do not complete the questionnaire carefully, which affects the accuracy of results.

Researchers usually work to a 95% level of confidence with a 5% margin of error. For instance, in this research, the targeted sample was 400, so the researcher needed to ensure that at least 380 of the participants would represent the characteristics of the target population and would provide an accurate result (Saunders et al. 2016, pp. 279-280).

4.5.6 Pretesting

Pilot studies are also termed feasibility studies, and they can be considered pretesting or trying out a specific research instrument, such as a questionnaire or interview schedule.

Most frequently, research papers only refer to a single component of the pilot study, such as 'pretesting' or 'pilot testing' of a questionnaire (De Vaus 1993). Such studies mention that the questionnaire is examined for validity and reliability (van Teijlingen & Hundley 2002).

Pretesting one of the pilot study's components. The researcher incorporated pretesting because it is an essential phase in building a successful questionnaire survey (Clifford 2016).

Pilot studies are considered a vital element of good research design. Conducting a pilot study does not assure success in the main research, but it raises its likelihood.

Various studies have emphasised the importance of a pilot study in accomplishing significant results. One of the benefits of doing a pilot study is that it provides prior indicators about where the main study could fail, where the main study instructions might not be followed, or if the planned methods or instruments are unsuitable or too complex. In other words, according to De Vaus (1993) 'Do not take the risk. Pilot test first' (van Teijlingen & Hundley 2002). Pretesting could lead in some cases to a development in the study design and useful advice on how to have a clearer or better understandable questionnaire.

Pilot studies can be applied to quantitative or qualitative methods. The social scientists involved in predominantly quantitative research are likely to debate that: 'an essential feature of a pilot study is that the data were not used to test a hypothesis or included with data from the actual study when the results are reported' (Peat et al. 2013).

Many pilot studies are likely to be under-discussed and under-reported (Prescott & Soeken 1989) because it is rare to have a full report of pilot studies in the literature (Lindquist 1991; Muoio et al. 1995; van Teijlingen et al. 2001). When reported, pilot studies often support the selected research method or tool. Commonly, research papers specifically refer to one element of the pilot study, such as the 'pretesting' or 'pilot testing' of a study questionnaire (Van Teijlingen & Hundley 2002).

The researcher conducted pretesting on the proposed questionnaire. The pretesting aimed to ensure that the questionnaire was straightforward and easy to understand (Clifford 2016). The

participants' feedback on the questionnaire supported the questionnaire's confirmation and modifications.

The researcher considered and checked the given feedback (Rashid & Waheed 2012) to enhance the unclear questions because pretesting projected the single way to assess at an earlier stage whether the questionnaire could potentially cause an issue for the respondents or not (Presser et al. 2004).

The researcher undertook the following for the pretest procedure.

- 1- Searched, identified, and selected the participants
- 2- Invited the confirmed participants to complete the questionnaire
- 3- Interviewed the participants and recorded their feedback
- 4- Applied the required amendments on the questionnaire.

The questionnaire was pretested on 10 participants drawn from the target population. The researcher started by targeting young graduates through social media sites, such as LinkedIn, and Facebook, for those who were less than 30 years old and working in the UAE. The researcher sent messages to around 60 young graduates, introducing himself and explaining the study's objectives and the importance of their feedback and participation in the survey's accuracy (i.e., validity and reliability). Nine young graduates and one academic expert agreed to participate in the pretesting phase. The researcher contacted the young graduates through a Zoom meeting and explained more details about the purpose of their participation and how it was crucial to evaluate and give feedback on the clarity of all the questionnaire's parts.

The researcher introduced the research topic to the identified participants and explained the purpose of the study, the objective of their participation, the importance of the pretesting phase,

and the significance of their contribution, which would support the quality of the survey questionnaire.

The participants were aware they were required to evaluate the following:

- The survey introduction/instruction clearance
- The overall questionnaire language clarity
- The questionnaire length (if it is very long)
- Advise if there are repeated questions
- Identify ambiguities and difficult questions.

The researcher planned to administer the questionnaire in the pretesting phase exactly in the same way as it would be administered in the main study. After the pretesting participants had confirmed their understanding of the purpose of participation, the researcher sent them the survey link by email to their personal emails, and they were asked to fill out the survey and take notes about the above evaluation points. They also agreed to meet individually through Zoom on the second day except the feedback from the academic expert, which was provided by email.

Once the participants completed the survey, the researcher agreed to meet with everyone individually through Zoom instead of face-to-face because of the COVID-19 pandemic precaution restrictions. On the second day, the researcher met with all the participants online through Zoom, except two, who apologised and postponed their interview for the day after to be carried out by telephone. The academic expert provided input by email.

The researcher started the interviews by thanking the participants for their participation and asking them to provide the comments they had recorded on each part of the questionnaire. The interview took around 20 minutes on average, and the researcher received valuable feedback on all parts of the questionnaire. The researcher recorded the comments in a notebook, including

each participant's name, title, profession, meeting date and time, to be reported in the pretesting section as follows.

The participants provided the following feedback:

Introduction:

In the introduction, the researcher received important feedback to make the introduction clearer for the participants. Instead of stating that the questionnaire would take 10 minutes to be completed, the suggested phrase was, 'The questionnaire consists of 45 short questions, each answered with a rating scale, which should take no longer than 8–10 minutes to complete'.

The researcher considered the suggested phrase in the introduction since it clarifies the participants' instructions.

Demography:

In the age section, the age options were:

22–24 years' old

25–27 years' old

Above 27 years old.

The feedback advised making the last age options more specific. The researcher added a 28–30 years old option to match the targeted age range, so the new age options were:

22–24 years' old

25–27 years' old

28–30 years old.

In the years of experience section, the researcher categorised the years of experience initially as follows:

1–2 years

3–4 years

5–6 years.

The feedback received from the participants was to add more options for the young graduates' years of experience. Since the targeted age group for young graduates in the literature was initially 22–30 years old, which is equal to eight years in total, the researcher added one more option to the choices, which was 7–8 years, so the confirmed years of experience options were:

1–2 years

3–4 years

5–6 years

7–8 years.

Questions:

The researcher received good feedback about the overall questionnaire with a few comments on specific questions, as follows:

Question number 10: The researcher received a few remarks from the participants and the academic professor to make the questions easier and more understandable. The researcher considered the question 'I know well what my passion at work' instead of 'I can clearly see what my passion are in my work'.

Question number 15: The researcher received various comments about the clarity of the question, so the replaced question was '(I know how to find different options for furthering my education instead of the original question, 'I know how to find out what my choices are for becoming more educated'.

Question number 17: The researcher received some notes about the meaning of two words (explore and possibilities). The researcher simplified the question and changed it to ‘I have the ability to find out my career options and opportunities in the labor market’ instead of ‘I am able to explore my possibilities on the labor market’.

Question number 19: The researcher received many comments about the meaning of ‘shortcomings’. The researcher replaced the word ‘shortcomings’ with the word ‘weaknesses’, so the question was ‘I know my weaknesses in my current job’, instead of the original question ‘I am familiar with my shortcomings in my work’.

Question number 21: The researcher received feedback on the meaning and clarity of the word ‘possess’. The researcher replaced the word ‘possess’ with ‘have’, so the new question was ‘I know which skills I have’ instead of ‘I know which skills I possess’.

Question number 26: The initial question was ‘I know what I want to have achieved in my career a year from now’. The researcher received some reflections that the question is long and unclear. The researcher applied the participant’s feedback by making the question clearer: ‘I know what I want to achieve in my career during the next year’.

Question number 27: The researcher received some comments on the clarity of the word ‘layout’. The new version of the question was ‘I can create a plan to achieve my career goals’ instead of the original ‘I can create a layout for what I want to achieve in my career’.

Question number 32: The researcher received some notes on the word ‘identify’. The researcher replaced the main question, ‘I strongly identify with my chosen line of work/career field’, with ‘My chosen line of work/career is a part of who I am’.

Question number 37: The researcher received a comment on the clarity of the word ‘cost’ that it tended to give an indicator about financial cost. The proposed question replaced the word ‘cost’ with ‘efforts’. The question became ‘The efforts associated to my line of work/career field sometimes seem too great’, instead of the original question ‘The costs associated with my line of work/career field sometimes seem too great’.

4.6 Instrument validity and reliability

The researcher conducted a validity and reliability test in this study to support the effectiveness of the used measurements.

Reliability refers to duplication and consistency. The researcher used previous research measurement scales to ensure the reliability and consistency of the study. This is carried out by utilising highly cited previous research measurement scales. Reliability focuses on the robustness of the questionnaire, and especially if it has similar results at different times and occasions. There are various methods for assessing internal consistency, which is presented by Cronbach’s alpha coefficient of the questionnaire’s scale, if the scale has been utilised in previous studies. Cronbach’s alpha was mainly used to assess the regularity of responses for a certain set of questions presented on a scale (Saunders et al. 2016). Each specific variable presented by an alpha coefficient ranged in value between 0 and 1. A value of .7 or above is reliable, and the question considered as measuring the same required information. The researcher adopted a questionnaire with high and acceptable Cronbach alpha (Cronbach alpha of all the subvariables are mentioned in Table 9 on p. 129. Saunders et al. (2016) recommended

adopting a questionnaire instead of creating a new one because adopting a questionnaire is more efficient.

Validity alludes to the suitability of the measures used, the accuracy of the analysis of the outcome, and the generalisability of the result. There are three aspects of validity. The first aspect is measurement validity linked to different types of validity intended to evaluate the intention. These contain different types of validity, such as face-to-face validity, construct validity, content validity, and predictive validity. The second aspect of validity is related to internal validity, and the third aspect refers to external validity. Usually, the questionnaire's validity refers to different aspects of validity, such as content validity, criterion-related validity, and construct validity (Saunders et al. 2016).

Construct validity alludes to the degree to which a set of questions (as scale items) measures the presence of the constructs it is intended to measure. For instance, in this research, career competencies are presented by boundaryless and protean career competencies, and each of these competencies has different subvariables. For example, in boundaryless, there is know why, know whom, and know how. Each of these competencies is presented by a certain set of questions. So, the researcher tested the loading of the questions' items of each subvariable under its respective category after the data collection to confirm the construct validity of the used questions.

Content validity refers mainly to sufficient coverage of the research questions through the questionnaire questions. The researcher covered this in the pretesting stage by asking 10 participants to complete the survey and then seeking their feedback to evaluate each question. The participants evaluated the questions in different categories: first, if the question was

necessary; second, if the question was useful but not necessary; and third, if the question was not necessary at all.

Criterion-related validity is sometimes known as predictive validity. Predictive validity is concerned with the capacity of the questions to produce accurate predictions. In this research, the researcher checked the predictive validity of the questions since each group of questions presented a specific hypothesis. The researcher accepted or rejected the hypotheses after analysing the collected data, which identified the questions' predictive validity.

The researcher considered internal validity in this research because internal validity requires a study that contains questions that can be presented statistically and connected with analytical results. Since this study measured the questionnaire's results quantitatively, internal validity was significant. Internal validity is based on the study showing relationships between two variables. Therefore, the researcher planned to confirm this study's internal validity by demonstrating the statistical relationships and correlations between the studied variables.

External validity is mainly concerned with the generalisation of the research results in other related settings or groups. The researcher took extra care when choosing the targeted sample to ensure that it represented that population. Young graduates between 22 and 30 years old with different nationalities and from different emirates in the UAE were selected to support the generalisation of this study. The researcher compared this research result with previous and recent studies that investigated career competencies and career commitment impacts on subjective career success, which supported the study's generalisation and its external validity.

4.7 Ethics

This section contains the concerns connected to the ethical considerations and the process of maintaining and securing the participant's confidentiality. The objective of this research was to

gather data about how young graduates build their successful careers during the Fourth Industrial Revolution by using career competencies and career commitment. The strategy of this research was to send the participants the questionnaire online through a link. The participants did not participate in any experimental activity that could cause any harmful effects on their health. The researcher dealt with all the participants fairly and respectfully without any discrimination. The participants were asked to sign the ethical consent form before their participation.

The consent form contained a summary explanation of the research, its purpose, participants' flexibility or not to continue the study, and the effect of their participation, which defended the researcher from any future claims from the participants after the data collection stage.

4.8 Limitation of the research design

The measurement scales for dependent and independent variables are quite old. For instance, the career success scale presented by Greenhaus, Parasuraman, and Wormley (1990) has been used for a long time with no development or improvements. The same is true for the career commitment measurement scale presented by Carson and Bedeian (1994). This reflects a gap in the literature in not having more modern development measurements for these variables. The impact of career commitment and career competencies on career success were studied in this research, but the phenomena itself was not studied. How career competencies or career commitment were constructed could be a potential future study and could add value in understanding the relationships between the variables. The data collected from different emirates support the study generalisation, but the study generalisation could be enhanced if different age categories were covered.

4.9 Summary

This chapter outlines and justifies the selected research approach, the adopted measurement scale, data collection, selected sample, demographics, and the final questionnaire. The study's validity, credibility, and ethical commitment have been addressed.

The researcher adopted quantitative, explanatory, deductive, cross-sectional research methods to explain how young graduates in the UAE construct their successful careers in the Fourth Industrial Revolution by testing the impact of career commitment and career competencies on young graduates' career success.

CHAPTER 5

DATA ANALYSIS

5.1 Introduction

This chapter presents the data analysis and consists of three sections. The first section covers the preliminary data analysis to test the missing data, any potential outliers, and the applied techniques for fixing them. The second section is related to the model assessment carried out through exploratory factor analysis (EFA) and component factor analysis (CFA). The third section covers the hypotheses testing through multiple regression analysis.

LinkedIn, and Facebook were used to send the survey to participants. The survey was distributed to 600 participants and 428 participants completed it. The response rate was, therefore, around 71.3%.

In the next step, some tests were performed, such as data normality, linearity, homoscedasticity, and lastly, multicollinearity was measured to make the data ready for other analyses and tests. All these tests were essential for checking data readiness for further analysis. The demographic data presented to give better insights and vision about the data specifications, covering different aspects, such as age, education level, career level, experience, emirates, and nationality.

Following this, the researcher runs the EFA to measure the factor analysis, figures, and models to present the EFA results. Extra tests were conducted to measure reliability, common method bias, and correlation.

The second part of this chapter presents the CFA in order to prepare the data for testing multiple regression and assess the proposed hypothesis.

The researcher reversed the scores in the data files for the reverse-worded questions. The reverse-coded items in the survey were as follows:

- I do *not* have a strategy for achieving my goals in this line of work/career field. (Under career-planning items)
- I do *not* identify specific goals for my development in this line of work/career field. (Under career-planning items)
- I do *not* often think about my personal development in this line of work/career field. (Under career-planning items)
- I do *not* feel 'emotionally attached' to this line of work/career field. (Under career Identity items)

5.2 Preliminary Data analysis

The researcher did not find any missing values because all the questions were mandatory. Thus, no missing values existed.

5.2.1 Unengaged responses

In the literature, the unengaged responses considered as careless or inaccurate responses happen for different reasons, such as the survey's length, respondent's mood, and various social concerns (Meade & Craig 2012).

To inspect the unengaged responses, various data checking methods were applied to reduce any potential unengaged responses. The existence of unengaged responses reduces the quality of the collected data and affects the generalisability of the study findings (DeSimone, Harms & DeSimone 2015). Unengaged responses reduce the accuracy of the survey items and cause incorrect correlation among variables due to hypothesis testing type II error (Meade & Craig 2012, p. 437).

The first approach to assess the existence of unengaged responses was to inspect the average duration for completing the surveys, according to the literature (Huang et al. 2012; DeSimone, Harms & DeSimone 2015). It is irregular for any study participants to complete a survey in two

to three seconds. So, in this research, the average for completing the survey was found to be between six to 10 minutes.

The standard deviation of the study items was tested to remove long strings. Long strings designate repeated similar answers for the majority of the survey questions. Such action from respondents was assessed as unengaged responses (DeSimone, Harms & DeSimone 2015). The standard deviation test was used to identify unengaged responses. To assess unengaged responses based on standard deviation, the standard deviation value is equal to zero indicates no variance so far. In other words, zero means no long string exists in the dataset. In this research, the researcher checked the standard deviation, and no unengaged responses were found (none above .5).

5.2.2 Outliers (univariate – multivariate)

Checking outliers is very important, and it is crucial for checking data quality. It is not recommended to have outliers in the collected data because they affect the normal data distribution, which affects the overall data analysis and study results (Hair et al. 2014; Vijendra & Shivani 2014).

There are three kinds of outlier tests examined in research studies, presented as univariate, multivariate, and bivariate outliers. Additional strategies can be adopted to inspect outliers. The first strategy is the graphical presentation of the outliers by a histogram or a box plot, while the second strategy is to check the Z scores and run a Mahalanobis test (Field 2013, p. 97).

The bivariate test uses scatterplots to check the relationships among dependent and independent variables. There are some disadvantages with this technique, caused by the need to use a large number of scatterplots to distinguish outliers. The bivariate outliers have some restrictions on testing a large number of variables. Researchers tend to use various techniques called univariate

and multivariate outliers to recognise outliers (Hair et al. 2014). In this study, the researcher tested the univariate and multivariate outliers.

5.2.2.1 Univariate outliers

The univariate outlier is usually observed by looking at very high values in every item separately. Finding the univariate outliers happens by finding the high values when computing the standardised Z scores.

Hair et al. (2014) have suggested that the outliers considered in a sample of 80 cases or fewer, when a standard score of 2.5 or higher occurred, while in a bigger sample, the outliers were considered when cases occurred with standard scores equal to four or less (Hair et al. 2014).

In this research, the univariate outlier technique was applied to recognise the highest values in every item. Univariate outliers were inspected by computing and excluding the standardised Z scores of the responses, which were higher than 4 (the threshold), since the collected data exceeded 80 responses. The researcher tested outliers using the boxplot technique. Accordingly, 21 outliers were excluded from the data. Based on that, the number of retained questionnaires was 407 out of 428. The excluded outliers helped enhance the validity of the analysis and enhanced the dataset distribution for normality.

5.2.2.2 Multivariate outlier

Regardless of the univariate outlier efficiency technique in detecting outliers, utilising multivariate outlier technique is more accurate and efficient because it depends on evaluating response patterns among the entire dataset to recognise potential outliers (Meade & Craig 2012, p. 440).

This multivariate outlier recognises the outliers for the independent variables in regression and factor analysis by applying the Mahalanobis distance method. This technique recognises

outliers by applying an accurate technique where a compression is used among the participants' survey responses (DeSimone, Harms & DeSimone 2015 p. 176). Hair et al. (2014, p. 65) have asserted that Mahalanobis distance value must not exceed 2.5 in small data sets and 4 in a large dataset. A disadvantage of this strategy is that it does not successfully identify the variables that lead to high Mahalanobis values. Nevertheless, this strategy is widely used to recognise outliers since it is the most popular method in statistical analysis.

Mahalanobis distance values were checked using SPSS, and the resulting scores were matched to ensure that the variables were above the cut-off ($P < .001$). Based on that, the Mahalanobis test showed no issues. To summarise, the original dataset included 428. A total of 21 cases were removed, so 407 cases were retained.

5.2.2.3 Assessing data normality

Normality is linked to the data distribution of each variable, and the degree that the data distribution is near to normal distribution. Evaluating data normality is a very important step before proceeding with other multivariate data analysis processes because non-normal distributions of data affect the accuracy results of the statistical tests (Hair et al. 2014).

There are various methods to evaluate the data distribution normality. One of the techniques is to evaluate the normality utilising the Z value of two aspects called skewness and kurtosis.

The skewness technique is indicated for comparing the regularity of the data distribution to the usual and standard distribution of data from the balance aspect. A positive skewed distribution occurs when the tail of the curve is directed to the right side, on the other hand, the distribution is negatively skewed in case the tail is directed to the left side. Kurtosis is connected with the form of the curve regarding its level of 'flatness' or 'peakedness of the data allocations' (Hair et al. 2014, p. 69).

The data distributions are considered normal according to skewness and kurtosis if their values range from -2 to +2 for skewness and -7 to +7 for kurtosis (Byrne 2010). There are more statistical tests for evaluating normality, such as Kolmogorov-Smirnov and Shapiro-Wilks test, as noted by Hair et al. (2014). These tests, however, are not significant compared to the visualised data on the histogram.

It is possible to have minor deviations in the data distribution without any impact on the data value. The researcher depended on the graphical illustration for presenting the data normality and used a normal probability plot and SPSS in extracting the skewness and kurtosis Z value. The normal distribution of data happens when it is taking a diagonal shape. The normal data distribution has a lower impact in a large sample size of around 266 cases, according to Hair et al. (2014).

5.2.2.4 Normality Test (Skewness and kurtosis table)

The total values of skewness and kurtosis for know why are -1.706 and 3.427, respectively; 0.981 and 0.747, for know whom respectively; -0.93 and 0.922, respectively, for know how; 1.595 and 4.417, respectively, for self-knowledge; -1.138 and 1.552, respectively, for interpersonal knowledge; -0.899 and 0.492, respectively, for environmental knowledge; -0.447 and -0.547, respectively, for career planning; 0.66 and -0.143, respectively, for career resilience and ; -1.049 and 0.598, respectively, for career identity. The values of skewness and kurtosis are -0.677 and -0.04, respectively, for career success.

The researcher observed that all the values of skewness and kurtosis fall under the normal range -2 to +2 for skewness and -7 to +7 for kurtosis. Normality assumptions for skewness and kurtosis have been achieved (Byrne 2010).

Both Table 12 and Figure 4 indicate that this study normality does not have any issues because the data arrangements in the Q-Q plot fall close to the diagonal line, along with few irregularities, and the shapes of the histograms are close to the bell shape. The data allocations are considered acceptable.

		KNOW WHY	KNOW WHOM	KNOW HOW	SELFKNOWLEDGE	INTRPERSONAL KNOWLEDGE	ENVIRONMENTAL KNOWLEDGE	CAREER_IDENTITY	CAREER_PLANNING_ALL	CAREER_RESILIENCE	SUCCESS
N	Valid	407	407	407	407	407	407	407	407	407	407
	Missing	0	0	0	0	0	0	0	0	0	0
Skewness		-1.706	-0.981	-0.93	-1.595	-1.138	-0.899	-1.049	-0.447	-0.66	-0.677
Std. Error of Skewness		0.121	0.121	0.121	0.121	0.121	0.121	0.121	0.121	0.121	0.121
Kurtosis		3.427	0.747	0.922	4.417	1.552	0.492	0.598	-0.547	-0.143	-0.04
Std. Error of Kurtosis		0.241	0.241	0.241	0.241	0.241	0.241	0.241	0.241	0.241	0.241

Table 8: Skewness and kurtosis statistics

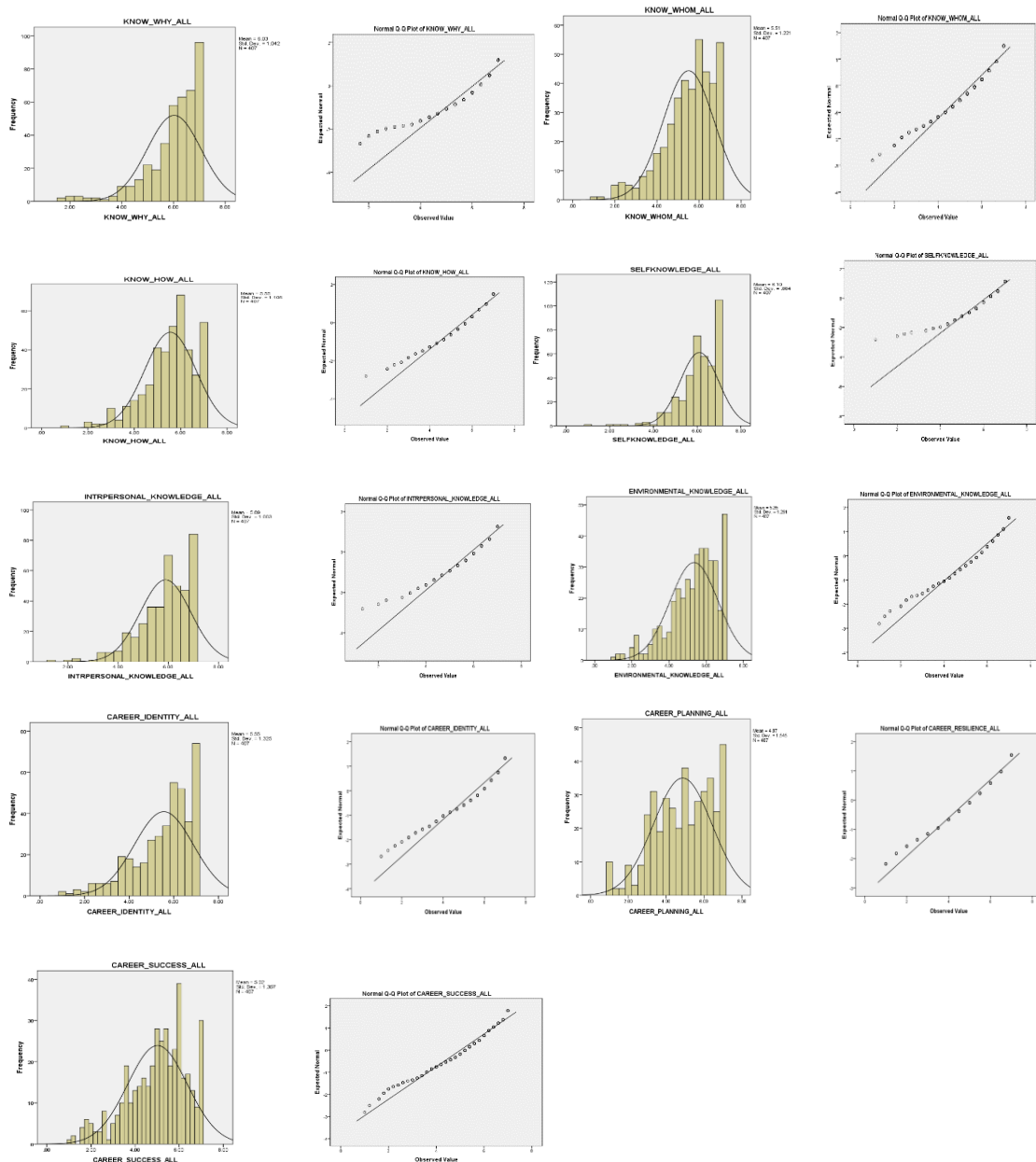


Figure 4: Data distribution scores and normal Q-Q plots of the study variables

5.2.3 Assessing data linearity and homoscedasticity

Before conducting the multivariate analyses, such as CFA, it is very important to test the linearity and homoscedasticity of the data. Homoscedasticity supposes that the dependent variable explains equivalent variance volume to the independent variables. Heteroscedasticity appears if the variance is not constant among the variables. Researchers prefer homoscedasticity over heteroscedasticity, as the dependent variable's variance must be dispersed among the

independent variable (Hair et al. 2014). Usually, homoscedasticity is checked graphically by a scatterplot of the standardised expected values additional to the standardised residuals by the Z scores of the expected figures and faults. Figure 5 shows that the data pass the homoscedasticity requirements. The scatterplot angle is near the diagonal without curves and the residuals are nearly spread without major concentration. Both linearity and homoscedasticity necessity were achieved. The researcher also ran Cook's distance test to test for any additional outliers or cases impacting the quality of the data and linearity. Cook's distance test evaluates the general effect of one case on the total model (Field 2013). The result of the test indicated that overall the cases were lower than the cut-off of one as indicated in the literature (Cook & Weisberg 1982) and according to Table 13. In conclusion, these research data were without any linearity and homoscedasticity issues.

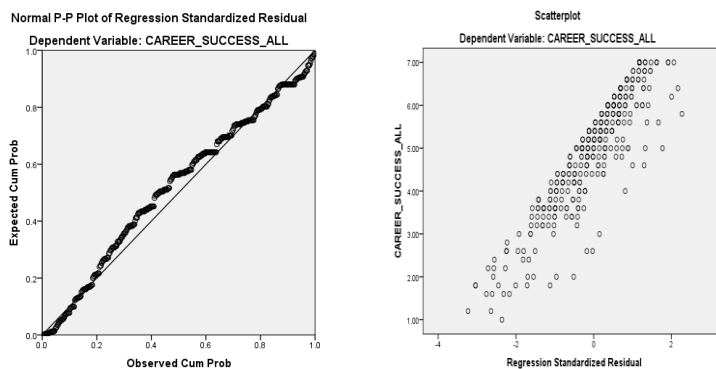


Figure 5: Linearity and homoscedasticity

Residuals Statistics ^a					
	Minimum	Maximum	Mean	Std. Deviatio	N
Predicted Value	2.6363	5.5503	5.0187	0.56909	407
Std. Predicted Value	-4.186	0.934	0	1	407
Standard Error of Predicted Value	0.061	0.263	0.081	0.031	407
Adjusted Predicted Value	2.6381	5.5676	5.018	0.57121	407
Residual	-3.98603	2.79942	0	1.23189	407
Std. Residual	-3.232	2.27	0	0.999	407
Stud. Residual	-3.236	2.309	0	1.002	407
Deleted Residual	-3.9967	2.89624	0.00069	1.23878	407
Stud. Deleted Residual	-3.275	2.321	-0.001	1.005	407
Mahal. Distance	0.001	17.524	0.998	2.315	407
Cook's Distance	0	0.092	0.003	0.007	407
Centered Leverage Value	0	0.043	0.002	0.006	407

a. Dependent Variable: CAREER_SUCCESS_ALL

Table 9: Cook's distance test

5.2.4 Assessing multicollinearity

Multicollinearity in the dataset checks the level and extent a variable can be demonstrated by other variables (Hair et al. 2014). It tests the correlation level among two or more constructs. The greater collinearity that occurs, the greater the potential model-connected issues appear, as excellent correlation causes extra *b* coefficient standard faults and issues connected to model equations. A correlation among both independent and dependent variables is acceptable, while having correlation among independent variables could negatively impact the overall model specification (Daoud 2017).

Field (2013) has stated that multicollinearity problems among predictors could negatively impact the variance quality. In this research, SPSS has been used to check multicollinearity by using linear regression analysis to test collinearity problems. The researcher tested and stated VIF values and undertook tolerance value tests. The acceptable thresholds highlighted in the literature should be less than 1, and the VIF values must be less than 4 (Daoud 2017).

The researcher did not find any multicollinearity issues since the tolerance scores are between 0.46 and 0.87. The threshold, according to the literature, is to have values less than 1. The VIF scores are between 1.13 and 2.15, that is below 4, which is the threshold for VIF. The results are shown in Table 14

Coefficients ^a			
Model		Collinearity Statistics	
		Tolerance	VIF
	(Constant)		
	KNOW_WHY_ALL	0.522	1.916
	KNOW_WHOM_ALL	0.547	1.828
	KNOW_HOW_ALL	0.51	1.962
1	SELFKNOWLEDGE_ALL	0.627	1.595
	INTRPERSONAL_KNOWLEDGE_ALL	0.465	2.151
	ENVIRONMENTAL_KNOWLEDGE_ALL	0.483	2.071
	CAREER_IDENTITY_ALL	0.633	1.579
	CAREER_PLANNING_ALL	0.851	1.175
	CAREER_RESILIENCE_ALL	0.879	1.137

a. Dependent Variable: CAREER_SUCCESS_ALL

Table 10: Tolerance and VIF values

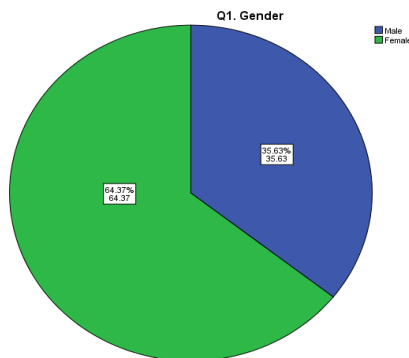
5.2.5 Demographic data

The survey was distributed to 600 participants and 428 participants completed it. Thus, the response rate was around 71.3%. The researcher removed 21 cases identified as outliers after applying the boxplot technique. Removing outliers improves the validity of the analysis and improves the dataset distribution in relation to normality. Therefore, the number of cases after the preliminary data analysis was 407.

The study sample contained both genders. There were 145 male participants, representing 35.6% of the participants. There were 262 female participants, representing 64.4% of the participants. The female participants were almost double the males in this research, as shown below in Table 15 and Graph 1. The survey was administered online and distributed through emails, LinkedIn, and Facebook.

Q1. Gender				
	Frequency	Percent	Valid Percent	Cumulative Percent
Male	145	35.6	35.6	35.6
Valid Female	262	64.4	64.4	100.0
Total	407	100.0	100.0	

Table 11: Gender distribution



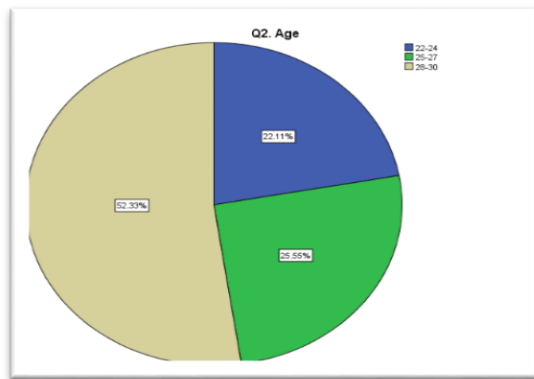
Graph 1: Gender distribution

The ages ranged between 22 and 30 years since the study was targeting young graduates. Ninety participants were in the 22–24 age range, or 22.1% of the participants. A total of 104

participants were in the age range 25–27, 25.6% of the participants. And 213 participants were in the age range 28–30, representing 52% of the participants. Table 16 and Graph 2 below present the age range distribution of this study sample.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	22-24	90	22.1	22.1
	25-27	104	25.6	47.7
	28-30	213	52.3	100.0
Total	407	100.0	100.0	

Table 12: Age range



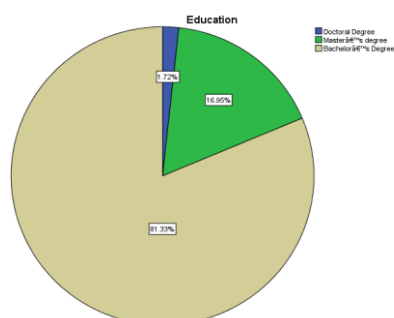
Graph 2: Age percentage

The study sample contained participants holding various qualifications ranging from bachelor’s to master’s degrees and doctorates. The number of participants holding bachelor’s degrees was 331 or 81% of the participants. This result reflected that most of the recent graduates were holding bachelor’s degrees. The number of participants holding a master’s degree was 69 or 17% of the participants. The number of participants holding doctoral degrees was seven or 1.7% of the participants. Table 17 and Graph 3 present the education level of this study sample.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Doctoral Degree	7	1.7	1.7	1.7

Master's degree	69	17.0	17.0	18.7
Bachelor's Degree	331	81.3	81.3	100.0
Total	407	100.0	100.0	

Table 13: Education levels

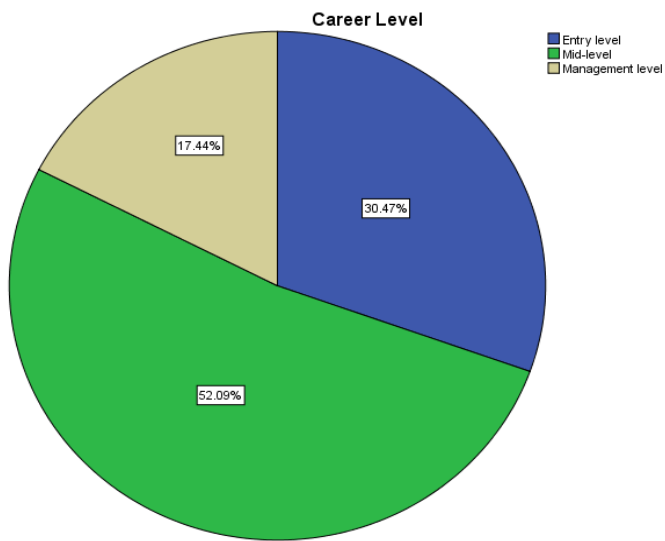


Graph 3: Education levels

In terms of career level, the study sample contains various career levels, ranging from entry level, mid-level, and management level. Since this study is about young graduates, it was expected that the majority of the participants would be from the entry- and mid-levels, which accounts for 82.6% of the participants. The number of participants from the entry level was 124 participants, representing 30.5% of the participants, while the number of participants from the mid-level was 212, representing 52.1% of the participants. The number of participants from the management level was 71 participants, representing 17.4% of the participants. Table 18 and Graph 4 below present the career levels of this study sample.

Career Level				
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	124	30.5	30.5	30.5
	212	52.1	52.1	82.6
	71	17.4	17.4	100.0
Total	407	100.0	100.0	

Table 14: Career level

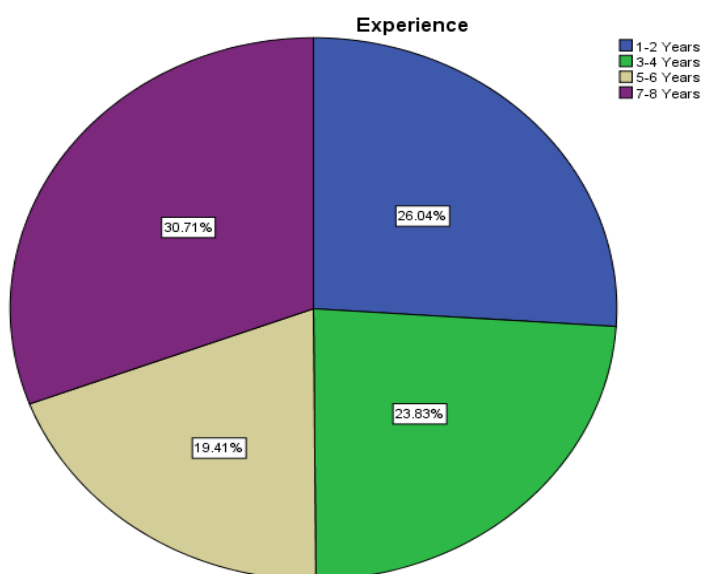


Graph 4: Career level

Regarding experience level, around 50% of the participants had experience of less than 4 years. The number of participants who had 1–2 years of experience was 106, representing 26% of the participants. The number of participants who had 3–4 years of experience was 97, representing 23.8% of the participants. The number of participants who had 5–6 years of experience was 79, representing 19.4% of the participants. The number of participants who had 7–8 years of experience was 125, representing 30.7% of the participants. Table 19 and Graph 5 present the experience levels of this study sample.

Experience				
	Frequency	Percent	Valid Percent	Cumulative Percent
1-2 Years	106	26.0	26.0	26.0
3-4 Years	97	23.8	23.8	49.9
Valid 5-6 Years	79	19.4	19.4	69.3
7-8 Years	125	30.7	30.7	100.0
Total	407	100.0	100.0	

Table 15: Experience level

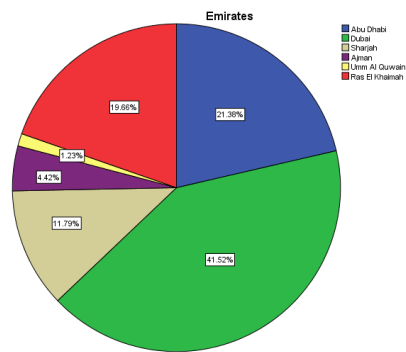


Graph 5: Experience level

The study sample contained participants from different emirates. The majority were from Dubai and Abu Dhabi, representing around 63% of the participants. The number of participants who lived in Abu Dhabi was 87, representing 21.4% of the participants. The number of participants who lived in Dubai was 169, representing 41.5% of the participants. The number of participants who lived in Sharjah was 48, representing 11.8% of the participants. The emirates of Ajman and Umm Al Quwain had the lowest number of participants, with a total of 23 or 5.6% of the participants. The number of participants who lived in Ras Al Khaimah was 80, representing 19.7% of the participants. Table 20 and Graph 6 present the participants' locations for this study sample.

Emirates				
	Frequency	Percent	Valid Percent	Cumulative Percent
Abu Dhabi	87	21.4	21.4	21.4
Dubai	169	41.5	41.5	62.9
Sharjah	48	11.8	11.8	74.7
Ajman	18	4.4	4.4	79.1
Valid Umm Al Quwain	5	1.2	1.2	80.3
Ras El Khaimah	80	19.7	19.7	100.0
Total	407	100.0	100.0	

Table 20: Emirates

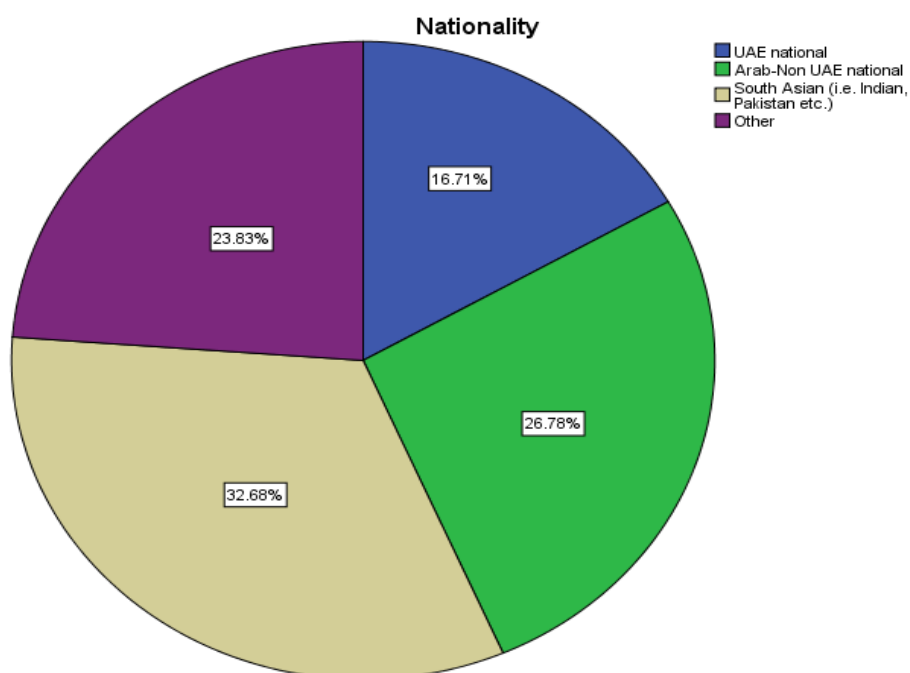


Graph 6: Emirates

This research covered almost all the main nationalities living in the UAE. The number of UAE national participants was 68 or 16.7% of the participants. The number of Arab non-UAE national participants was 109 or 26.8% of the participants. The number of South Asian (i.e., Indian, Pakistan, etc.) participants was 133, representing 32.7% of the participants. The number of other nationality participants was 97, representing 23.8% of the participants. Table 21 and Graph 7 present the nationalities of this study sample.

Q7. Nationality				
	Frequency	Percent	Valid Percent	Cumulative Percent
UAE national	68	16.7	16.7	16.7
Arab-Non-UAE national	109	26.8	26.8	43.5
Valid South Asian (i.e., Indian, Pakistan etc.)	133	32.7	32.7	76.2
Other	97	23.8	23.8	100.0
Total	407	100.0	100.0	

Table 16: Nationality



Graph 7: Nationality

5.3 Exploratory Factor Analysis

The main reason for conducting the EFA was to check the general form of the variables that shape the model prior to checking and assessing it with AMOS IBM software. The EFA helps researchers check the general correlations among all the variables and factors in the research (Hair et al. 2014). In this research, the researcher began by testing 38 items to conduct the EFA, attaining data reduction, additional to maintaining factors that reflect the research variables. Data reduction is carried out by reviewing the factor's loading and removing the factors with small loading because weak factor loading conveys little contribution to the main and primer

factor. All greater factor loading was saved to be used in additional analysis, such as CFA and multiple regression.

While conducting the EFA test, it is important to be careful about the amount of variables in the research compared to the sample volume. As claimed by Hair et al. (2014), the sample size should be more than 100 cases to be able to run the EFA analysis. The number of variables must be smaller than the total sample size. This research meets the requirement of a sample size of 428 and 10 variables. The second step was to evaluate the factor analysis hypothesis.

5.3.1 Assumptions in factor analysis

Since this research was initiated on a solid theoretical background and a comprehensive literature review, the researcher grounded the EFA model on a solid theoretical foundation utilising SPSS to perform the factor analysis and grounding evaluation of the model on various aspects. These aspects contain the significance level of Bartlett’s assessment of sphericity ($P > .05$) in addition to the Kaiser-Meyer-Olkin (KMO) assessment of sampling sufficiency. Hair et al. (2014) have stated that if the KMO value is greater than the threshold of 0.50 and the KMO significance level is less than .05 then the level of correlation among variables is accepted and the model fit is valid. Table 22 illustrates that the KMO test value was .844, and the Bartlett’s test of sphericity was significant because of the $P < 0.01$. These values confirmed the previously outlined theoretical background and allowed the researcher to continue with the following stages of examining the model.

KMO and Bartlett’s Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.844	
Bartlett’s Test of Sphericity	Approx. Chi-Square	3194.819
	df	595
	Sig.	.000

Table 17: KMO and Bartlett’s test

5.3.2 Factor models, numbers, and rotation methods

There are two methods of factor extraction outlined in the literature (Field 2013; Hair et al. 2014). The first is common factor analysis, and the second is component factor analysis. The normal factor analysis technique attains the common variance and gathers it into factors. However, regardless of common factor analysis being considered the second greatest widely utilised technique by researchers, its drawback is that it disregards the distinctive variance of variables. On the other hand, the principal component method is the most broadly used technique by researchers because it captures the extreme variance of every factor independently. This technique is the broadest method utilised by researchers to complete data reduction (Bryant & Yarnold 1995; Field 2013; Hair et al. 2014). Subsequently, the researcher used the principal component analysis technique, since the goal is to achieve data reduction in this research.

After choosing the factor extraction technique, the next step is to choose the amount of retained factors. Stating the amount of considered factors is mainly grounded in the earlier literature and theoretical background. The factors with a value of one or above should be retained. The sum of the retained factors must explain above 60% of the model variance (Hair et al. 2014).

The following step carried out by the researcher is to choose the factor rotation techniques. The rotation technique is applied in order to simplify the rows and columns of the factor matrix along with each row for explaining a single variable (Hair et al. 2014). Researchers apply two broadly used rotation approaches. The first option is the orthogonal rotation technique, which contains quartimax, varimax, and equimax.

The orthogonal mainly emphasises on simplifying the rows and is the greatest broadly adopted technique in the literature.

The QUARTIMAX is a kind of orthogonal factor rotation technique concentrating on simplifying the columns of a factor matrix. Commonly considered less effective than the VARIMAX rotation. While VARIMAX considered the most widely used orthogonal factor rotation approaches, concentrating on simplifying the columns in a factor matrix. Generally considered superior to other orthogonal factor rotation methods in attaining a simplified factor structure. Lastly, EQUIMAX is also one of the orthogonal factor rotation approaches that is a ‘compromise ‘between the VARIMAX and QUARTIMAX approaches, but is not broadly used.

The second rotation technique is the oblique rotation method. This method creates simplified rows also and provides information about the degree to which the factors are actually correlated with each other.

The researcher used the orthogonal rotational approach (VARIMAX) in this research as shown in Table 23 because it is more broadly used, while the oblique methods are not as widespread. The **orthogonal** rotations (VARIMAX) are used more regularly because the analytical process for performing oblique rotations is not as well developed and is still subject to some controversy (Hair et al. 2014).

5.3.3 Exploratory factor analysis findings

The researcher utilised SPSS IBM software to run the EFA model, for the principal component analysis method, Varimax factor analysis rotation method was selected. The researcher removed the factors that have a loading lower than $\pm .50$.

The first EFA model one (Appendix 5.1) has 10 components with some low and cross-loading between factors. There are some items that have some cross-loading: boundaryless know why 2, know whom 1, know how 1, know how 2, self-knowledge skills 1, self-knowledge skills 3, interpersonal knowledge 2, interpersonal knowledge 3, environmental knowledge 1, and career

identity 3. Some item has low loading, such as self-knowledge skills 3 and career identity 3. The researcher tested the model several times after removing some cross-loadings and low loading items, each time the model got improved. The removed items are, interpersonal knowledge skills 1, career planning 1 recode, career planning 2, and career resilience 1. After removing the items, below is the final model presented in Table 23 without low loading items or any cross-loadings, so all the items were loaded in separate components.

Rotated Component Matrix ^a										
	Component									
	1	2	3	4	5	6	7	8	9	10
Boundaryless_Know_Why1						0.780				
Boundaryless_Know_Why2						0.676				
Boundaryless_Know_Why3						0.683				
Boundaryless_Know_whom1					0.555					
Boundaryless_Know_whom2					0.692					
Boundaryless_Know_whom3					0.668					
Boundaryless_Know_whom4					0.621					
Boundaryless_Know_how1							0.710			
Boundaryless_Know_how2							0.622			
Boundaryless_Know_how3							0.714			
Protean_Selfknowledge1			0.743							
Protean_Selfknowledge2			0.691							
Protean_Selfknowledge3			0.766							
Protean_Selfknowledge4			0.669							
Protean_Interpersonal_knowledge2										0.639
Protean_Interpersonal_knowledge3										0.606
Protean_Environmental_knowledge1		0.762								
Protean_Environmental_knowledge2		0.736								
Protean_Environmental_knowledge3		0.733								
Protean_Environmental_knowledge4		0.668								
Career_Commitment_Career_identity1				0.704						
Career_Commitment_Career_identity2				0.814						
Career_Commitment_Career identity3 recode				0.618						
Career_Commitment_Career identity4				0.721						
Career_Commitment_Career planning3_recode									0.698	
Career_Commitment career_planning4 recode									0.807	
Career_Commitment_Career_resilience2								0.808		
Career_Commitment_Career_resilience3								0.873		
Career_Commitment_Career_resilience4								0.514		

Career_success1	0.760									
Career_success2	0.743									
Career_success3	0.773									
Career_success4	0.751									
Career_success5	0.580									
Extraction Method: Principal Component Analysis.										
Rotation Method: Varimax with Kaiser Normalisation. ^a										
a. Rotation converged in 7 iterations.										

Table 18: EFA pattern matrix

Constructs	Component Number	Number of Items	Factor loading	Eigen Value	%of Variance	%of cumulative Variance	Cronbach's alpha score
Know Why	6	3	0.780 - 0.676 - 0.683	1.49	4.269	53.254	0.784
Know Whom	5	4	0.555 - 0.692 - 0.668 - 0.621	1.66	4.738	48.984	0.7555
Know How	7	3	0.710 - 0.622 - 0.714	1.33	3.79	57.044	0.743
Self-knowledge skills	3	4	0.743 - 0.691 - 0.766 - 0.669	1.84	5.25	39.108	0.741
Interpersonal knowledge skills	10	2	0.639 - 0.606	1	2.859	66.452	0.759
Environmental knowledge skills	2	4	0.762 - 0.736 - 0.733 - 0.668	2.98	2.978	33.858	0.865
Career planning	9	2	0.698 - 0.807	1.09	3.124	63.593	0.727
Career resilience	8	3	0.808 - 0.873 - 0.514	1.2	3.425	60.469	0.771
Career identity	4	4	0.704 - 0.814 - 0.618 - 0.721	1.84	5.138	44.246	0.731
Career success	1	5	0.760 - 0.743 - 0.773 - 0.751 - 0.580	8.87	25.349	25.349	0.871

Table 19: Components' variance extracted and eigenvalues

Table 24 presents all the constructs along with their number of items, factor loading, eigenvalues, explained variance percentage, Cumulative variance explained, and lastly the Cronbach's alpha score for each construct.

Component	Total Variance Explained								
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.872	25.349	25.349	8.872	25.349	25.349	3.263	9.322	9.322
2	2.978	8.508	33.858	2.978	8.508	33.858	2.984	8.526	17.848
3	1.838	5.25	39.108	1.838	5.25	39.108	2.797	7.992	25.84
4	1.798	5.138	44.246	1.798	5.138	44.246	2.772	7.921	33.761
5	1.658	4.738	48.984	1.658	4.738	48.984	2.459	7.025	40.786
6	1.494	4.269	53.254	1.494	4.269	53.254	2.154	6.155	46.941
7	1.327	3.79	57.044	1.327	3.79	57.044	1.947	5.562	52.503
8	1.199	3.425	60.469	1.199	3.425	60.469	1.901	5.432	57.935
9	1.093	3.124	63.593	1.093	3.124	63.593	1.523	4.351	62.286
10	1.001	2.859	66.452	1.001	2.859	66.452	1.458	4.166	66.452
11	0.923	2.638	69.139						
12	0.856	2.446	71.585						
13	0.742	2.119	73.704						
14	0.726	2.073	75.777						
15	0.667	1.905	77.681						
16	0.647	1.849	79.53						
17	0.631	1.803	81.334						
18	0.59	1.686	83.02						
19	0.554	1.583	84.603						
20	0.523	1.494	86.097						
21	0.489	1.398	87.496						
22	0.473	1.351	88.846						
23	0.435	1.241	90.088						
24	0.417	1.191	91.279						
25	0.382	1.092	93.495						
26	0.346	0.99	94.485						
27	0.332	0.947	95.433						
28	0.303	0.866	96.298						
29	0.266	0.761	97.059						
30	0.252	0.721	97.779						
31	0.235	0.672	98.451						
32	0.214	0.611	99.062						
33	0.18	0.513	99.576						
34	0.165	0.472	100						

Extraction Method: Principal Component Analysis.

Table 20: Principal component analysis

The ten components explained 66.45% of the variance and met the eigenvalue standard (all components eigenvalue more than 1). The scree plot (Figure 6) explains the horizontal curve after Component 10.

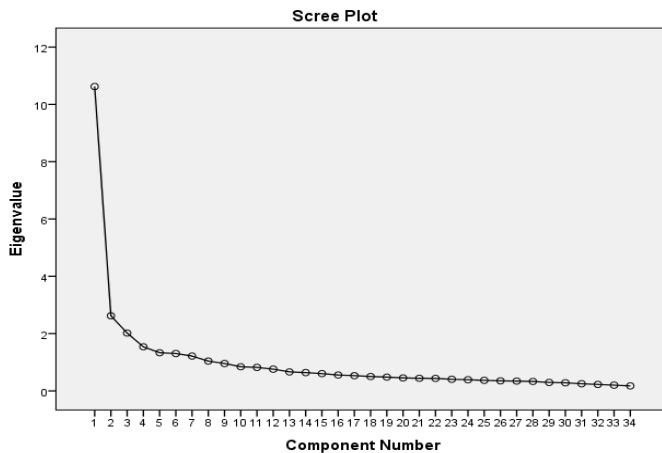


Figure 6: Exploratory factor analysis scree plot

The EFA using the principal component extraction method explored the presence of 10 latent variables, which demonstrate the theoretical foundation of this research. The earlier stated 34 items all presented high factor loadings.

The next step after conducting the EFA test is to test the construct's **reliability**, standard deviations, mean values, and the correlation among the variables.

5.3.4 Reliability analysis, Mean Values, and Standard Deviations

The Cronbach's alpha test was used to assess the internal reliability or consistency of the measurement scales. It is common in the literature that Cronbach's alpha value equal to or more than 0.7 is acceptable (Field 2013).

The main objective of checking the study reliability is to confirm that each survey items are assessing the same variable. Reliability assesses the internal uniformity of a scale (Hair et al. 2014). The internal uniformity evaluation is conducted by assessing two kinds of correlation, the first one is item-to-total correlation and the second one is an inter-item correlation. The scholars must mainly aim for a reliability score of more than 0.50 for the overall scale value, on the other hand, an inter-item correlation score should be more than 0.30 (Hair et al. 2014).

The researcher meets the reliability threshold of the items. All the items of Cronbach's alpha are above 0.7 in this research and succeeded in attaining the inter-item correlation scores for the entire variables, except for career identity inter-items correlations, but its reliability score is .730 so it is more than 0.50. All career identity items have been retained, and the protean self-knowledge inter-items correlations have some scores less than 0.30 but its reliability score is .746 so it is more than 0.50. All self-knowledge items have been retained.

Appendix 5.2 presents the inter-items correlations and the reliability scores for all variables. To confirm the variables' reliability, the researcher achieved variables' unidimensionality. The

Cronbach's alpha test has been conducted by utilising SPSS and the unidimensionality of variables was assessed by a principal component analysis test for every variable separately.

In this research, all the Cronbach's alpha reliability scores were greater than .70. The unidimensionality assessment showed that every construct contains one component for an eigenvalue of more than 1 (Table 25). Table 26 lists the mean, standard deviations, and Cronbach's alpha values of all the constructs.

Variable	Mean	Std. Deviation	Cronbach's Alpha
Know why	6.0	1.0	.784
Boundaryless Know whom	5.5	1.2	.755
Boundaryless Know how	5.6	1.1	.743
Protean Self-knowledge	6.1	.88	.741
Protean Interpersonal knowledge	5.9	1.0	.759
Protean Environmental knowledge	5.3	1.3	.865
Career planning	4.9	1.5	.727
Career resilience	4.9	1.5	.771
Career identity	5.6	1.3	.730
Career success	4.9	1.4	.871

Table 21: Constructs values scores

Deleted Items
Interpersonal knowledge skills 1
Career planning 1 recode
Career planning 2
Career resilience 1

Table 22: Deleted Items after EFA model

Variable	Items Remianed
Know why	Boundaryless_Know_Why1 Boundaryless_Know_Why2 Boundaryless_Know_Why3
Boundaryless Know whom	Boundaryless_Know_whom1 Boundaryless_Know_whom2 Boundaryless_Know_whom3 Boundaryless_Know_whom4
Boundaryless Know how	Boundaryless_Know_how1 Boundaryless_Know_how2 Boundaryless_Know_how3
Protean Self-knowledge	Protean_Selfknowledge1 Protean_Selfknowledge2 Protean_Selfknowledge3 Protean_Selfknowledge4
Protean Interpersonal knowledge	Protean_Interpersonal_knowledge2 Protean_Interpersonal_knowledge3
Protean Environmental knowledge	Protean_Environmental_knowledge1 Protean_Environmental_knowledge2 Protean_Environmental_knowledge3 Protean_Environmental_knowledge4
Career planning	Career_Commitment_Career_planning3_recode Career_Commitment_career_planning4 recode
Career resilience	Career_Commitment_Career_resilience2 Career_Commitment_Career_resilience3 Career_Commitment_Career_resilience4
Career identity	Career_Commitment_Career_identity1 Career_Commitment_Career_identity2 Career_Commitment_Career_identity3 recode Career_Commitment_Career_identity4
Career success	Career_success1 Career_success2 Career_success3 Career_success4 Career_success5

Table 23: Final Items remained after EFA test

Table 28 presenting the final items remained after EFA test. The final EFA model can be found in this thesis on page 171 in table 23.

5.4 Correlation

The correlation analysis test helps the scholars in demonstrating the connections among the research variables since the correlation method presents the intensity and the direction of the relationship among the research variables. In this research, the correlations were assessed by using SPSS IBM software, Pearson's correlation coefficient assessment has been conducted and the standardised covariances among constructs are calculated. Field (2009) has asserted that the constructs' correlation must be between -1 to 1, where the correlation is perfectly positive if the coefficient score is above 1 and considered perfectly negative if the coefficient

score is -1, while a score of zero indicates no relationships occur among the constructs. Additionally, ± 0.5 state enormous impact, while a score of ± 0.3 represents average intensity, and lastly ± 0.1 represents a little impact. Correlation analysis positively affects the regression results in case the correlation is significant.

In this study, all correlation between variables is significant which mean that there is a relationship established between variables except career resilience correlation with (know why, career identity and career success), these variables scores are close to zero, so this indicates that there is no relation between these variables and career resilience. As stated in Table 29, all correlations significant at ± 0.5 (two tailed) have an **enormous** impact, while other correlations significant at ± 0.1 (two tailed) represent **little** impact.

In other words, a correlation coefficient score of +1 presents that the two variables are perfectly positively correlated, therefore as one variable increases, the other increases by a proportionate amount. On the other hand, a coefficient of -1 indicates a perfect negative correlation, so if one variable increases, the other decreases by a proportionate amount. A coefficient of zero indicates no linear relationship at all and so if one variable changes, the other remains the same (Field 2013, p. 170). So, for example, a score of 1 is perfect, a score of 0.75 is strong, a score of 0.5 is moderate, and so on. While a score of -1 considered perfect negative correlation, -0.75 considered strong, - 0.5 considered moderate, and so on.

Correlations											
		KNOW_WHY _ALL	KNOW_WHOM _ALL	KNOW_HOW _ALL	SELFKNOW LEDGE_ALL	INTRPERS ONAL_KN OWLEDG E_ALL	ENVIRON MENTAL_K NOWLED GE_ALL	CAREER_I DENTITY_ ALL	CAREER_ PLANNING _ALL	CAREER_ RESILIE NCE_ALL	CAREER_ SUCCESS _ALL
KNOW_WHY _ALL	Pearson Correlation	1	.541**	.550**	.457**	.500**	.552**	.495**	.224**	.069	.419**
KNOW_WHOM _ALL	Pearson Correlation	.541**	1	.551**	.401**	.560**	.514**	.439**	.122*	.106*	.495**
KNOW_HOW _ALL	Pearson Correlation	.550**	.551**	1	.424**	.580**	.581**	.398**	.209**	.124*	.414**
SELFKNOW LEDGE_ALL	Pearson Correlation	.457**	.401**	.424**	1	.539**	.440**	.360**	.152**	.241**	.304**
INTRPERSO NAL_KNOW LEDGE_ALL	Pearson Correlation	.500**	.560**	.580**	.539**	1	.591**	.473**	.175**	.159**	.443**
ENVIRONME NTAL_KNOW LEDGE_ALL	Pearson Correlation	.552**	.514**	.581**	.440**	.591**	1	.501**	.276**	.138**	.511**
CAREER_I DENTITY_ ALL	Pearson Correlation	.495**	.439**	.398**	.360**	.473**	.501**	1	.254**	.010	.516**
CAREER_PL ANNING_ ALL	Pearson Correlation	.224**	.122*	.209**	.152**	.175**	.276**	.254**	1	-.174**	.181**
CAREER_RE SILIENCE_ ALL	Pearson Correlation	.069	.106*	.124*	.241**	.159**	.138**	.010	-.174**	1	.079
CAREER_SU CESS_ ALL	Pearson Correlation	.419**	.495**	.414**	.304**	.443**	.511**	.516**	.181**	.079	1
**. Correlation is significant at the 0.01 level (2-tailed).											
*. Correlation is significant at the 0.05 level (2-tailed).											

Table 29: Correlation values

5.5 Common method bias

Common method bias is one of the biases that researchers should be cautious of. This type of bias occurs as a result of assessing two or more variables using the same method (Siemsen, Roth & Oliveira 2010). Common method bias leads to either inflation or deflation of the estimates between different latent variables. For instance, if inflation occurs, then common method bias results in having higher regression estimates than the true values, which may lead researchers to think that there is an existent effect. Alternatively, if deflation exists, then common method bias causes lower regression estimates than the true values, which may lead researchers to think that there is no effect (Siemsen, Roth & Oliveira 2010).

For this study, the researcher tried to decrease the possibility of having common method bias during the development of the survey instrument by seeking feedback from faculty and academics, and checking the clarity of the survey language during the pretesting stage. However, common method bias could occur due to other reasons. Therefore, the researcher relied on conducting Harman's single factor test to assess the level of common method bias in the study. Numerous researchers use Harman's single factor test (or single factor test) to assess

whether a model has common method bias. This test is the most widely used diagnostic test (Podsakoff et al. 2003, p. 889); it uses EFA where all the model factors are loaded into one component to check the unrotated factor solution. If the percentage of the total variance is less than 50%, then no common method bias issues exist in the study (MacKenzie & Podsakoff 2012; Podsakoff et al. 2003; Podsakoff, MacKenzie & Podsakoff 2012). Harman's single factor test was conducted, and the results revealed that this study does not include any common method bias, as the highest variance for a single factor was 31.29% out of 68.39%. Table (30) presents the test results of the total variance explained.

The common method bias is one of the important biases that researchers must be aware of. This kind of bias happens when two or more variables are measured by the same approach (Siemsen, Roth & Oliveira 2010). The estimations between distinct latent variables are either inflated or deflated as an outcome of common method bias. For example, if inflation happens, in this case common method bias results in having greater regression estimates than the correct values, leading scholars to believe that an impact exists. Otherwise, if deflation is present, then common method bias leads to lesser regression estimates instated of its correct values, leading scholars to believe that no impact exists (Siemsen, Roth & Oliveira 2010).

In this research, the researcher attempts to reduce the probability of having common method bias throughout the establishment the survey instrument by seeking feedback from professional young graduates and academics about the questionnaire's language clarity in the pretesting stage. Nevertheless, common method bias might happen because of further reasons. The researcher depends on Harman's single factor assessment to evaluate the level of common method bias in this research. Many scholars utilised Harman's single factor assessment or single factor assessment to evaluate if common method bias occurs in their model.

This test utilised broadly diagnostic test (Podsakoff et al. 2003, p. 889); it used exploratory factor analysis where the entire model factors are loaded in a single component to test the unrotated factor solution. In case the percentage of the overall variance is smaller than 50%, then no common bias problems occur in this research (MacKenzie & Podsakoff 2012; Podsakoff et al. 2003; Podsakoff, MacKenzie & Podsakoff 2012).

Harman's single factor assessment was tested, and the outcome reflected that this research does not contain any common method bias, since the maximum variance value for a single factor was 25.35% out of 66.45%. Table 30 presents the test results of the total variance explained.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.872	25.349	25.349	8.872	25.349	25.349
2	2.978	8.508	33.858			
3	1.838	5.25	39.108			
4	1.798	5.138	44.246			
5	1.658	4.738	48.984			
6	1.494	4.269	53.254			
7	1.327	3.79	57.044			
8	1.199	3.425	60.469			
9	1.093	3.124	63.593			
10	1.001	2.859	66.452			
11	0.923	2.638	69.139			
12	0.856	2.446	71.585			
13	0.742	2.119	73.704			
14	0.726	2.073	75.777			
15	0.667	1.905	77.681			
16	0.647	1.849	79.53			
17	0.631	1.803	81.334			
18	0.59	1.686	83.02			
19	0.554	1.583	84.603			
20	0.523	1.494	86.097			
21	0.489	1.398	87.496			
22	0.473	1.351	88.846			
23	0.435	1.241	90.088			
24	0.417	1.191	91.279			
25	0.382	1.092	93.495			
26	0.346	0.99	94.485			
27	0.332	0.947	95.433			
28	0.303	0.866	96.298			
29	0.266	0.761	97.059			
30	0.252	0.721	97.779			
31	0.235	0.672	98.451			
32	0.214	0.611	99.062			
33	0.18	0.513	99.576			
34	0.165	0.472	100			

Extraction Method: Principal Component Analysis.

Table 30: Test results of total variance explained

To ensure that there was no common method bias, the common latent factor (CLF) method test was conducted. The result was that no common method occurred in this research since all delta

scores which present the differences between the estimates with CLF and the estimates without the CLF are less than 0.05 (Eichhorn 2014), Table presented in appendix 5.3.

5.6 Confirmatory factor analysis

The main aim of the CFA is to evaluate how well the measured variables represent the model's constructs before testing the research proposed hypothesis which will be done through multiple regression analysis. CFA assesses the representation level of the measuring scale of the research. Since the research measurement scale and constructs existed earlier in the literature, usually the researchers conduct this test in order to check the appropriateness of the measures to the model in reality. Consequently, the confirmatory factor analysis confirms the tested exploratory factor analysis model and therefore, the theoretical model might be accepted or rejected depending on this stage (Hair et al. 2014). Lastly, the CFA is impacted by different considerations, such as sample size and level of model identification.

5.6.1 Sample size

Hair et al. (2014) have stated that the sample size used in performing CFA affects the level of significance of the overall measurement model. There are many ongoing discussions and arguments about the necessary sample size for conducting the CFA. There is no confirmed endorsement on the exact number. For example, some researchers declare that a sample size of around 200 cases or greater is appropriate for conducting the measurement model path test. Other scholars consider that a sample consisting of 100 cases is adequate, while yet other scholars recommend that a CFA might be performed by using even smaller cases (Anderson & Gerbing 1984; Boomsma 1982; Gagne & Hancock 2006).

Researchers, such as Hair et al. (2014), have stated that some aspects affect the structural equation model. As claimed by them, a sample size between 100 to 150 is adequate if the

following necessities are met. (1) If the study has 5 or more latent variables, (2) no less than 3 items in every variable, and (3) the items' communalities are above 0.6.

The researcher fulfilled these three conditions. The study had 10 latent variables, so it was more than 5 latent variables, and the sample was 407, so it exceeded 150. The item communalities were higher than 0.6 for the majority of the items (Appendix 5.3). The items in each variable were more than 3, except for know whom, know how, interpersonal knowledge, career planning, and career resilience. However, the researcher decided to retain them because they were measured using only 2 items for different reasons. Kline's (2005) rule is not valid for this model since the study has a large sample size. The intercorrelations scored among each latent variable were higher than the threshold of <0.70 , while the level of correlation among other variables was not strong.

The first time AMOS performed the measurement model the following items were deleted (know whom 1, know whom 2, know how 3, self-knowledge 2, interpersonal knowledge 1, career identity 3, career planning 1, career planning 2, and career resilience 1) because of their low loadings. After deleting these items, AMOS ran the model perfectly, without any issues. Thus, the research sample size of 407 cases was adequate for conducting the CFA measurement model.

5.6.2 Model identification

Model identification is the second stage of validating the measurement model, and this was carried out by running a model identification process. Model identification should indicate that the variances and unique covariances are greater than the supposed value of the parameters. The model contained an adequate number of DFS. There are three stages of model identification, which are under-identified, just identified, and over-identified models. For this research, the number of distinct scores in the matrix was computed as follows: $p(p+1)/2$, where

p is the number of measured items in the model (Hair et al. 2014). The number of measured items in the model was 28 $(28+1)/2 = 406$. The number of distinct values in the matrix was 406, while the number of distinct parameters to be estimated was 105, and the DF was 301. Thus, the model was over-identified.

5.6.3 Factor loadings and goodness-of-fit indices

The standardised factor loadings and the goodness-of-model-fit indices were considered additional required verifications in the CFA measurement model. The standardised factor loadings must be more than 0.5, and the factor loading scores should be 0.7 or more (Hair et al. 2014). The goodness of-model fit represented the data's level of fitness to the measurement model (Gallagher, Ting & Palmer 2008; Hair et al. 2014). The goodness-of-model fit is frequently measured by a set of indices. The first indice is chi-square/CMIN assessment, which must produce a non-significant p-value. But this assessment is impacted by the study sample (Schermelleh-Engel, Moosbrugger & Müller 2003). Thus, for this reason, this test must not be the only indicator in determining the goodness-of-model fit (Schermelleh-Engel et al. 2003). Additionally, CMIN might be significant, but the model still needs a good fit for the remaining indicators to match with the determined threshold (Gallagher, Ting & Palmer 2008).

Table 31 illustrates the most important GFIs that are broadly used in academia (Hair et al. 2014; Hooper, Coughlan & Mullen 2008; Hu & Bentler 1999; Gallagher, Ting & Palmer 2008).

	Measure	Cut-off Value
Absolute fit indices	Root mean square error of approximation (RMSEA)	RMSEA < 0.08
	Standardised root mean residual (SRMR)	SRMR < 0.08
	Normed chi-square (CMIN/DF)	CMIN/DF < 5
Incremental fit indices	Comparative fit index (CFI)	CFI > .90
	Tucker-Lewis index (TLI)	TLI > .90
	Relative fit index (RFI)	RFI > .90
Parsimony fit indices	Goodness-of-fit index (GFI)	GFI > 0.95
	Parsimony adjusted goodness-of-fit index (PGFI)	GFI > 0.93 PGFI < 0.5
	Parsimony normed fit index (PNFI)	PNFI < 0.83

Table 31: Goodness-of-fit indices' cut-off values

Scholars are not required to report all the fit indices. Around four fit indices are adequate (Hair et al. 2014). Additionally, CMIN/DF, p-value, RMSEA, SRMR, CFI, TLI, and GFI are considered the most broadly stated fit indices in literature (Hair et al. 2014; Hooper et al. 2008; Hu & Bentler 1999; Gallagher, Ting & Palmer 2008).

To enhance the whole model fit, the researcher deleted 6 items while testing the CFA model at different stages. Hair et al. (2014, p. 605) have suggested that researchers should target the items with standardised scores more than 0.70 or with 0.50 minimum loading, and loading should not exceed a threshold of 1.00. Six items were deleted at various stages while testing the model fit. The final deleted items were knowing whom 1, know whom 2, know how 3, self-knowledge 2, career identity 3, and career resilience 4. After deleting these items, the researcher ran the CFA test again and found that the model improved after these 6 items were deleted and all the items were above 0.50.

Error covariances were applied. The modification indices suggested that protean self-knowledge 1 and protean self-knowledge 4 be covaried, and environmental knowledge 1 and environmental knowledge 2 be covaried. Career success 2 and career success 3, then career

success 4 and career success 5 were covaried, which led to an improvement in the overall model fit (Hair et al. 2014).

After conducting the CFA, some items were deleted from its constructs and two items only remained, such as **(know whom, know how, self-knowledge, career identity, and career resilience)**. The main reason for deleting the items from these constructs was because they contained low loadings and this affected the whole model fit. Continuing the research with two items in some constructs was not an issue. Various researchers, such as Yoo and Donthu (2001), in their highly cited research, ‘Developing and validating a multidimensional consumer-based brand equity scale, have used three variables, which contain two items in each. Scholars, such as Worthington and Whittaker (2006) and Yong and Pearce (2013) have stressed that it is reliable to have a variable with two items only.

Figure 7 explains the CFA model components, and Table 31 shows the goodness-of-model-fit indices for the overall model.

Measure	Estimate	Threshold	Interpretation
CMIN	501.105	--	--
DF	301	--	--
P-value	.001	--	
CMIN/DF	1.665	Between 1 and 3	Excellent
CFI	0.963	>0.95	Excellent
SRMR	0.0399	<0.08	Excellent
RMSEA	0.04	<0.06	Excellent
PClose	0.995	>0.05	Excellent
TLI	0.953	0.90>	Excellent

Table 32: Measurement model fit indices

Table 32 shows that the model fits scores, CMIN score (501.105), DF (301), P-value (.000), CMIN/DF (1.665) meeting the threshold between (1 and 3), CFI (0.963) meeting the threshold above 0.095, SRMR (0.0399) meeting the threshold less than 0.08, and it was extracted by AMOS IBM software by using a plug-in option, with RMSEA (0.040) meeting the threshold

less than 0.06, PClose 0.995 meeting the threshold above 0.05, and TLI (0.953) meeting the threshold above 0.90.

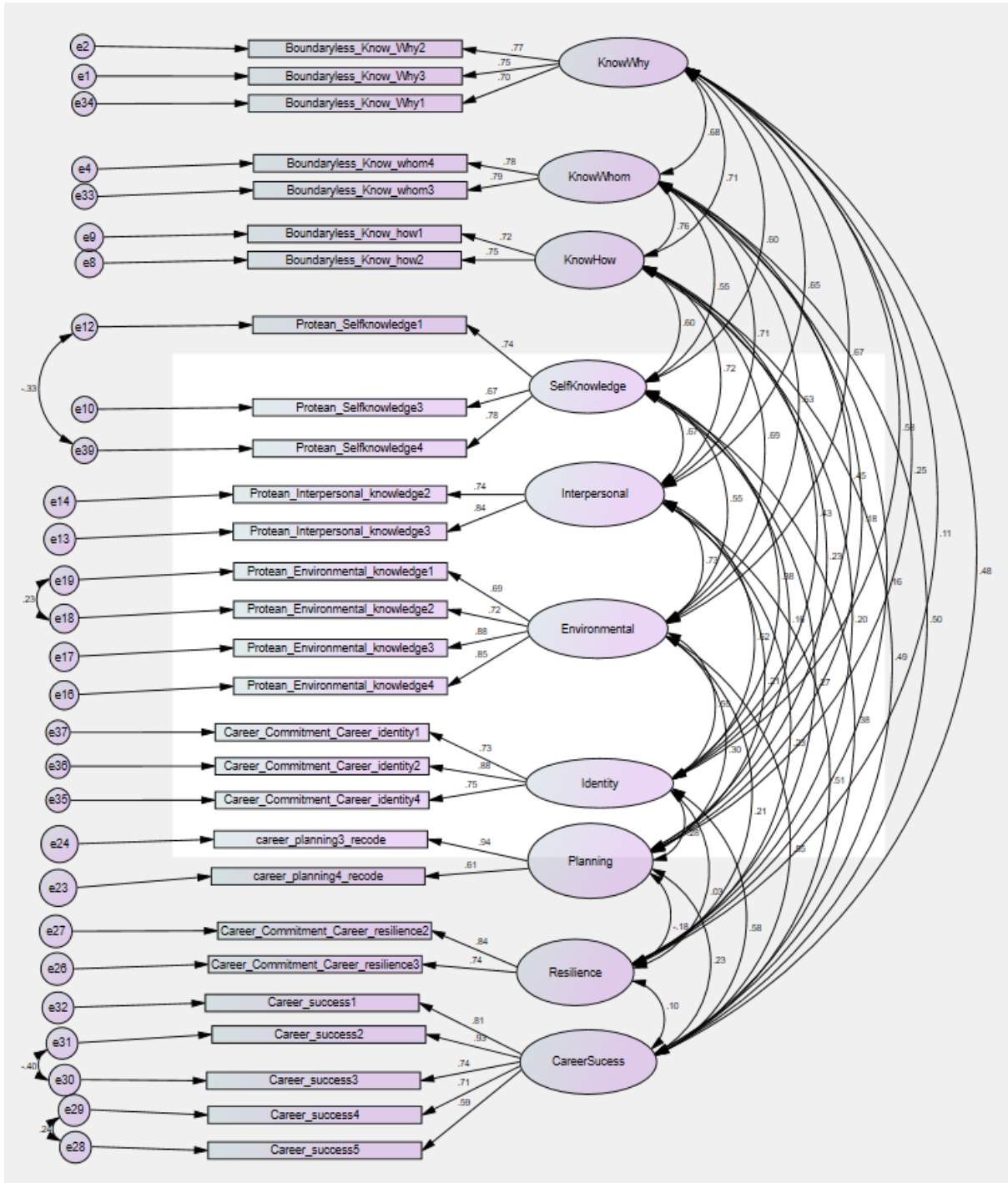


Figure 7: Measurement model visual diagram

Depending on the accepted CFA model fit, in the next section, the researcher evaluates the overall validity of the model.

5.7 Construct validity

Evaluating the measurement model validity is a crucial process to confirm and verify that the measurement scales and constructs are assessing what they are theorised to assess (Gallagher, Ting & Palmer 2008; Hair et al. 2014). Construct validity is measured by various kinds of validity tests, including face validity, AVE, discriminant validity, and nomological validity.

First, face validity assesses the degree to which measurement items indicate the variables they are assessing. This was confirmed according to the researcher's subjective point of view. Face validity occurred throughout the pretesting phase in this research with pertinent participants and an experienced academic expert checking the items' language and overall clarity.

Second, AVE considers the level of common variance among the items of the measured variables, and it is assessed by both AVE and composite reliability. To accomplish high AVE, the AVE scores should be more than 0.5 and the construct reliability (CR) score should be greater than 0.7.

Third, the discriminant validity alludes to the 'extent to which a construct is truly distinct from other constructs both in terms of how much it correlates with other constructs and how distinctly measured variables represent only this single construct' (Hair et al. 2014, p. 601). It is, therefore, about the level of difference of a variable from other variables in terms of not assessing the similar idea. Discriminant validity is met in the case of the AVE score of two variables in the research is more than the squared correlation value of a similar variable (Fornell & Larcker 1981).

Fourth, nomological validity assesses the level of correlation among the theoretical measurement model (Hair et al. 2014).

Convergent validity

For this research, the AVE was assessed by the following equation: $AVE = \sum_{i=1}^n L_i^2/n$, where L_i represents the standardised factor loadings of each item, and n is representing the number of items in each variable (Hair et al. 2014). The AVE values of the items in this study were as follows:

$$\text{Boundaryless know why AVE} = (0.75)^2 + (0.7)^2 + (0.77)^2 / 3 = \mathbf{0.550}$$

$$\text{Boundaryless know whom AVE} = (0.775)^2 + (0.789)^2 / 2 = \mathbf{0.612}$$

$$\text{Boundaryless know how AVE} = (0.716)^2 + (0.754)^2 / 2 = \mathbf{0.541}$$

$$\text{Protean self-knowledge AVE} = (0.668)^2 + (0.78)^2 + (0.739)^2 / 3 = \mathbf{0.534}$$

$$\text{Protean interpersonal knowledge AVE} = (0.836)^2 + (0.736)^2 / 2 = \mathbf{0.620}$$

$$\text{Protean environmental knowledge AVE} = (0.848)^2 + (0.878)^2 + (0.723)^2 + (0.692)^2 / 4 = \mathbf{0.622}$$

$$\text{Protean career planning AVE} = (0.61)^2 + (0.936)^2 / 2 = \mathbf{0.624}$$

$$\text{Protean career resilience AVE} = (0.744)^2 + (0.845)^2 / 2 = \mathbf{0.633}$$

$$\text{Protean career identity AVE} = (0.748)^2 + (0.883)^2 + (0.732)^2 / 3 = \mathbf{0.625}$$

$$\text{Career success AVE} = (0.588)^2 + (0.713)^2 + (0.741)^2 + (0.933)^2 + (0.809)^2 / 4 = \mathbf{0.586}.$$

5.7.1 Construct reliability

For this research, the CR was calculated using the following equation $CR = (\sum_{i=1}^n L_i)^2 / (\sum_{i=1}^n L_i)^2 + (\sum_{i=1}^n e_i)$. L_i , where L_i represents the standardised factor loadings of every item, and e_i denotes the error variance of the items (Hair et al. 2014). The CR scores of the items in this research were as follows:

$$\text{Boundaryless know why CR} = (0.753 + 0.7 + 0.771)^2 / (0.753 + 0.7 + 0.771)^2 + (0.433 + 0.51 + 0.406) = \mathbf{0.786}$$

$$\text{Boundaryless know whom CR} = (0.775 + 0.789)^2 / (0.775 + 0.789)^2 + (0.399 + 0.377) = \mathbf{0.759}$$

$$\text{Boundaryless know how CR} = (0.716 + 0.754)^2 / (0.716 + 0.754)^2 + (0.487 + 0.431) = \mathbf{0.702}$$

Protean self-knowledge CR = $(0.668 + 0.78 + 0.739)^2 / (0.668 + 0.78 + 0.739)^2 + (0.553 + 0.391 + 0.454) = \mathbf{0.774}$

Protean interpersonal knowledge CR = $(0.836 + 0.736)^2 / (0.836 + 0.736)^2 + (0.301 + 0.458) = \mathbf{0.765}$

Protean environmental knowledge CR = $(0.848 + 0.878 + 0.723 + 0.692)^2 / (0.848 + 0.878 + 0.723 + 0.692)^2 + (0.280 + 0.229 + 0.477 + 0.521) = \mathbf{0.867}$

Protean career planning CR = $(0.61 + 0.936)^2 / (0.61 + 0.936)^2 + (0.627 + 0.124) = \mathbf{0.761}$

Protean career resilience CR = $(0.744 + 0.845)^2 / (0.744 + 0.845)^2 + (0.446 + 0.285) = \mathbf{0.775}$

Protean career identity CR = $(0.748 + 0.883 + 0.732)^2 / (0.748 + 0.883 + 0.732)^2 + (0.440 + 0.220 + 0.464) = \mathbf{0.832}$

Career success CR = $(0.588 + 0.713 + 0.741 + 0.933 + 0.809)^2 / (0.588 + 0.713 + 0.741 + 0.933 + 0.809)^2 + (0.654 + 0.491 + 0.450 + 0.129 + 0.345) = \mathbf{0.874}$.

5.7.2 Discriminant validity

Assessing discriminant validity is a very important step in analysing relationships among latent variables. For variance-based structural equation modelling, such as partial least squares, the Fornell and Larcker criterion and the examination of cross-loadings are the leading methods for assessing discriminant validity (Henseler, Ringle & Sarstedt 2014).

Achieving discriminant validity occurs if the loadings of every construct are bigger than its cross-loadings with other constructs. To measure discriminant validity, the researcher used two techniques. The first technique was the Fornell and Larcker values and the second was the heterotrait-monotrait ratio of correlations (HTMT) scores.

In Fornell and Larcker techniques, the AVE of two variables must be bigger than the squared correlation value of the same variable (Fornell & Larcker 1981; Hair et al. 2014). According to the AVE scores presented in Table 33, no discriminant validity issues were stated except for know how. The test shows discriminant validity between know how and know whom variables. Thus, discriminant validity was not established between the subconstructs of boundaryless. This is expected since both belong to the boundaryless career competence.

Henseler, Ringle, and Sarstedt (2014) have indicated in their highly cited study (A new criterion for assessing discriminant validity in variance-based structural equation modelling) that assessing discriminant validity by HTMT technique is superior because previous methods do not reliably distinguish the lack of discriminant validity in common research situations (Henseler, Ringle & Sarstedt 2014).

The researcher checked the discriminant validity for this study and the results indicated that the HTMT values of the constructs were less than the threshold of 0.90 (Appendix 5.4) Therefore, no discriminant validity issues were reported using the HTMT technique. The researcher retained all variables.

Table 33 presents a summary of the AVE and CR values of all the research variables.

	CR	AVE	MSV	MaxR(H)	Why	Whom	How	Self	Inter	Envir	Plan	Resil	Ident	Succ
Know why	.786	.550	.497	.789	.742									
Know whom	.759	.612	.584	.759	.679	.782								
Know how	.702	.541	.584	.703	.705	.764	.735							
Self-knowledge	.774	.534	.449	.781	.603	.546	.604	.730						
Interpersonal knowledge	.765	.620	.531	.778	.648	.711	.722	.670	.785					
Environmental knowledge	.867	.623	.531	.888	.673	.630	.689	.555	.729	.789				
Career planning	.761	.624	.088	.885	.252	.175	.223	.161	.208	.296	.790			
Career resilience	.775	.634	.072	.789	.105	.156	.197	.269	.231	.211	.177	.796		
Career identity	.832	.625	.381	.856	.580	.447	.430	.380	.617	.554	.278	.031	.791	
Career success	.874	.586	.334	.901	.476	.502	.486	.380	.511	.547	.227	.103	.578	.765

Table 24: Composite ratios, average variance extracted and discriminant validity test results

5.8 Multiple regression

Researchers conduct the regression analysis to anticipate the relationship between one dependent variable from the data of one or several independent variables. If the research problem has one independent variable, then the adopted method is simple regression. If the research problem has more than one independent variable, like this research, then the statistical method followed is multiple regression (Hair et al. 2014).

Multiple regression analysis is theorised as a statistical method applied to examine the relationship between a dependent variable and several independent variables. Its primary formulation is $Y1 = X1 + X2 + \dots + Xn$ (metric) (metric).

Therefore, multiple regression analysis has the capacity to explain the relationships between two or more variables and it is more effective than simple regression, which can be carried out with one independent variable (Hair et al. 2014).

According to Hair, before conducting multiple regression analysis, the data should be metric and the researcher should decide which variable is to be dependent and which variables are independent. In the case of simple regression, the sample size of 20 is acceptable, but conducting multiple regression analysis needs a sample size of not less than 50 and preferably 100. In general, independent variables with bigger regression coefficients make more contributions to the predicted value. The researcher found in the literature that there are different values required to be reported when conducting the multiple regression analyses, such as the R-squared, ANOVA table (model significance), and lastly the standardised coefficients and their significance (Hair et al. 2014).

R-squared (R^2) is the correlation coefficient squared, also specified as the coefficient of determination. The R-squared value conveys the percentage of total variation explained by the regression model. While the ANOVA table 36 reflects the overall model fit in terms of the F ratio, which is significant if it is less than 0.05 (Hair et al. 2014).

The **regression coefficients** (b and Beta). The regression coefficient (b) and the standardised coefficient (β) represent the variation in the dependent measure for each unit change in the independent variable. Comparison among regression coefficients allows for a relative evaluation of each variable's significance in the regression model (Hair et al. 2014).

In summary, multiple regression analyses were used in this research to evaluate the impact of the independent variables, which are presented by career competencies (boundaryless and protean career) and career commitment on the dependent variable presented by career success. The researcher computed all the independent variables scores through SPSS IBM software by using the transform–compute variable option. The computed variable presents the final CFA model items after removing the low-loading items.

Table 34 illustrates that all the independent variables were entered in one model to assess their impact on career success, as shown in the table below (career planning, career resilience, career identity, know why, know whom, know how, self-knowledge skills, interpersonal knowledge skills, and environmental knowledge skills), while career success was entered in the model as a dependent variable

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	Career_Commitment_ResilienceCFA, Career_Commitment_IdentityCFA, Career_Commitment_PlanningCFA, Know_HOW_CFA_NEW, SelfknowledgeCFA, Know_Whom_CFA_NEW , EnviromentalknowledgeCFA, InterpersonalknowledgeCFA, KnowWhyCFA ^b		Enter

a. Dependent Variable: CAREER_SUCCESS_ALL

b. All requested variables entered.

Table 25: Entered variables

Table 35 presents the model summary. The model summary presents the R, which is the average correlation of the predictors with the independent variables, $R = .617$, and next to it is its square value, which is the R-squared = .380 and adjusted R-squared = .366.

Taken as a set, the predictors (independent variables) account for 38% of the variance in career success. In other words, the independent variables explained 38% of the variance in career success. The adjusted R-squared does not measure how much individual predictors account for. They are only taken as a group, and the model summary table 35 shows that the regression model contains the independent variables, which predict career success and the overall model accounts for 38% of the variance.

In the literature, R^2 ranges from 0 to 1, with higher values presenting a larger explanatory power. An R^2 value as low as 0.10 is acceptable, for example, in predicting stock returns. For instance, when assessing a concept that is inherently expectable, like physical processes, R^2 values of (up to) 0.90 might be reasonable. However, similar R^2 value levels in a model that forecasts human attitudes, insights, and intentions would likely indicate model overfit (Hair et al. 2019). In some cases, explaining 80% of the variance could be considered 'low', while in others, 10% could be considered 'high'. In other words, Context matters (Hair, Ringle & Sarstedt 2012).

In *Statistical Power Analysis for the Behavioural Sciences* by Jacob Cohen, which is cited 221,156 times, an important suggestion about the R-squared effect is considered. R-squared ~ .02 (e.g., 2%) carries a small effect size, while $R^2 \sim .13$ carries a medium effect size, and $R^2 \sim .26$ carries a large effect size (Cohen 2013). Since this study's R-squared is .380, according to Table 35, the independent variables that predict career success and the overall model accounting for 38% of the variance are considered acceptable.

The model summary below shows that the model is significant because F is less than .05 and the degree of freedom is 397.

Model Summary									
Model	R	R-squared	Adjusted R-squared	Std. Error of the Estimate	Change Statistics				
					R-squared Change	F Change	df1	df2	Sig. F Change
1	.617 ^a	.380	.366	1.08031	.380	27.066	9	397	.000

a. Predictors: (Constant), Career_Commitment_ResilienceCFA, Career_Commitment_IdentityCFA, Career_Commitment_PlanningCFA, Know_HOW_CFA_NEW, SelfknowledgeCFA, Know_Whom_CFA_NEW, EnviromentalknowledgeCFA, InterpersonalknowledgeCFA, KnowWhyCFA

Table 26: Model summary

Table 36 presents the ANOVA table. ANOVA is a test of whether this R-squared is significantly greater than 0. Since the p-value is less than 0.05, the model is significant and the regression is significant. The R-squared is less than 0, which means that the study predictors are able to account for a significant amount of variance in career success.

The ANOVA table demonstrates that the overall general hypothesis and predictors (H1: Boundaryless career competencies lead to career success, H2: Protean career competencies lead to career success, and H3: Career commitment leads to career success) have a significant impact on career success. F is used to test the significance of relations and it is significant because it is less than 0.05. The overall regression model was significant as $F(9 \text{ and } 397) = 27.066, P < .001$, $R\text{-squared} = .380$.

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	284.294	9	31.588	27.066	.000 ^b
	Residual	463.324	397	1.167		
	Total	747.618	406			

a. Dependent Variable: CAREER_SUCCESS_ALL

b. Predictors: (Constant), Career_Commitment_ResilienceCFA, Career_Commitment_IdentityCFA, Career_Commitment_PlanningCFA, Know_HOW_CFA_NEW, SelfknowledgeCFA, Know_Whom_CFA_NEW, EnvironmentalknowledgeCFA, InterpersonalknowledgeCFA, KnowWhyCFA

Table 27: ANOVA

The model summary table and the ANOVA table consider the study predictors as a set, while the coefficients table looks at each of these variables individually and tests the impact or influence of each variable separately. In the coefficients table, the researcher looks at each variable individually and checks if it is significant through each predictor p-value. The researcher evaluated each variable individually at an alpha of 0.05.

The coefficients table result is very important because it shows the significance of each factor and their level of impact on the dependent variable. T value is also used to calculate the model's significance. If the T value is greater than 1.96, then the independent variables have a significant impact on the dependent variable. As shown in Table 38, three independent variables (know whom, environmental knowledge, and career identity) have a T value greater than 1.96, so they have a significant impact on career success. The researcher tested the study hypothesis in two different models. The first model tested the higher order constructs as displayed in Table 37 and consisted of boundaryless career, protean career, and career commitment, while the second model tested the subvariables, as shown in Table 38.

The first model demonstrated that boundaryless career competencies had a significant impact on CS (β .289, t 5.460, p .000) and, as a result, H1 was supported. Protean career competencies had a significant impact on CS (β .173, t 3.128, p .002), and, as a result, H2 was supported. Career commitment had a significant impact on CS (β .265, t 5.641, p .000), and, as a result, H3 was supported.

In conclusion, looking at the overall result of the coefficients table, boundaryless career competencies with standardised coefficients (β .289) presented the highest impact on career

success followed by career commitment (β .265) and, then, protean career competencies with standardised coefficients (β .173).

Hypothesis test results for Model 1

Hypothesis	β	t	p	Hypothesis supported
H1 Boundaryless career competencies → CS	.289*	5.460	.000	Yes
H2 Protean career competencies → CS	.173*	3.128	.002	Yes
H3 Career commitment → CS	.265*	5.641	.000	Yes
R	.603			
R -squared	.364			

Note: * $p < 0.05$. CS = Career success

Table 28: Summary of findings of Higher order constructs; SPSS corresponding output can be seen in Appendix 5.6

Table 38 displays the results of the multiple regressions of the independent variables, the researcher stating all the subvariables research hypotheses along with their Beta value (β), t value, p -value, and, most importantly, if the hypotheses are accepted or rejected. Table 38 shows which variables contributed significantly to the explained variance in career success.

The dependent variable (career success) was regressed on predicting variables of know why, know whom, know how, self-knowledge, interpersonal knowledge, environmental knowledge, career planning, career resilience and career identity. The independent variables significantly predict career success, $F(9,397) = 27.066$, $p < .001$, which indicates that, overall, the predictors have a significant impact on CS. The $R^2 = .380$ shows that the model explains 38% of the variance in CS.

Coefficients were further assessed to determine the impact of each of the factors on the criterion variable (CS). The study found a non-significant impact of know why on CS (β -.157, t 1.447, p .149) so, H1a was not supported. Know whom had significant impact on CS (β -.154, t 2.987, p .003) so the amount of unique variance know whom accounts for is statistically significant.

Accordingly, H1b was supported. Lastly, the study showed a non-significant impact of know how on CS, (β -112, t -1.052, p .294). Therefore, H1c was not supported. These results covered the boundaryless career competencies and indicated that only know whom has a significant impact on career success.

The protean career competencies were assessed to determine the impact of each factor on the criterion variable (CS). The study found a non-significant impact of self-knowledge on CS, (β -.002, t -.040, p .968). Thus, H2a was not supported. A non-significant impact was found for interpersonal knowledge on CS (β -.041, t .753, p .452). Therefore, H2b was not supported. Environmental knowledge was found to have a significant impact on CS (β .235, t 4.261, p .000), so the amount of unique variance environmental knowledge accounts for was statistically significant. Hence, H2c was supported. These results covered the protean career competencies and indicated that only environmental knowledge has a significant impact on career success.

Career commitment variables were assessed, and the study found a non-significant impact of career planning on CS (β .051, t 1.228, p .220). As a result, H3a was not supported. The study found a non-significant impact of career resilience on CS (β .030, t .727, p .467). Hence, H3b was not supported. Lastly, the study found a significant impact of career identity on CS (β .284, t 5.970, p .000), so the amount of unique variance career identity accounts for is statistically significant. Hence, H3c was supported.

Looking at the overall results of the coefficients table, career identity with standardised coefficients (β .284) presents the highest impact on career success, followed by environmental knowledge (β .235) and, then, know whom (β . 154).

To sum up this result, career identity is the only factor in career commitment that has an impact on career success and this predictor is a unique variance, which means that career identity

accounts for, predicts, or explains in CS something other significant predictors (environmental knowledge and know whom) do not. In other words, the career identity variable is unique to itself because it presents something in CS know whom and environmental knowledge did not explain.

Hypothesis test results for Model 2

<i>Hypotheses</i>	Regression Weights	β	t	p-value	Hypotheses Supported
H1a	Know why→CS	.157	1.447	.149	No
H1b	Know whom→CS	.154*	2.987	.003	Yes
H1c	Know how→CS	-.112	-1.052	.294	No
H2a	Self-knowledge →CS	-.002	-.040	.968	No
H2b	Interpersonal knowledge →CS	.041	.753	.452	No
H2c	Environmental knowledge →CS	.235*	4.261	.000	Yes
H3a	Career planning →CS	.051	1.228	.220	No
H3b	Career- resilience →CS	.030	.727	.467	No
H3c	Career-Identity →CS	.284*	5.970	.000	Yes
R	.617				
R-squared	.380				
F (9, 397)	27.066				

Table 29 Summary of findings

Note: *p < 0.05. CS: Career success; SPSS corresponding output can be seen in appendix 5.5

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
CAREER_SUCCESS_ALL Equal variances assumed	4.025	0.046	-2.95	405	0.003	-0.4104	0.13914	-0.68393	-0.13687
Equal variances not assumed			-2.872	274.928	0.004	-0.4104	0.14288	-0.69168	-0.12913

Table 30: T-Test for genders

Table 39 presents the significance of the t-test since the scores are below 0.05. (.003, .004) which means that there is a statistical difference represented by the impact of career commitment and career competencies components on males and females career success.

Group Statistics					
	Q1. Gender	N	Mean	Std. Deviation	Std. Error Mean
CAREER_	Male	145	4.7545	1.42376	0.11824
SUCCESS	Female	262	5.1649	1.29839	0.08021
ALL					

Table 40: T-Test – Group Statistics

Table 40 shows that Boundaryless career competencies represented by Know whom, protean career competencies represented by environmental knowledge skills, and career commitment represented by career identity have more impact on female’s career success because the mean is shown 5.16 for females and for 4.75 for males.

CHAPTER 6

6.1 Introduction

This chapter explains, analyses, and compares this study's results with the literature. The main objective of this research is to describe the impact of career competencies represented by boundaryless career competencies components (know why, know whom, and know how), protean career competencies components (self-knowledge, interpersonal knowledge, and environmental knowledge), and career commitment components (career planning, career resilience, and career identity) on young graduates' career success during the Fourth Industrial Revolution.

The study was conducted using three research questions:

- To what extent do career competencies impact upon the career success of young graduates in the Fourth Industrial Revolution?
- To what extent does career commitment impact upon career success in the Fourth Industrial Revolution?
- How do young graduates build successful careers during the Fourth Industrial Revolution?

This chapter responds to these questions through hypotheses testing and an explanation of the findings. The impact of career competencies and career commitment components on subjective career success is covered in this chapter. The research questions and objectives were addressed through the hypotheses testing carried out by multiple regression analysis, explained in Chapter 5.

This study is the first study in the UAE specifically, and GCC and the Middle East generally, exploring the impact of career competencies and career commitment components on subjective

career success. This area of study covering career competencies, career commitment, and career success is under-researched in this region. The study results are stated below and compared to the current literature. The first section in this chapter reviews the key research results and compares them to current literature. The second section discusses the hypotheses testing results, and the third section highlights the theoretical and practical contributions of this research.

6.2 Key research results

This research responded to the three main research questions using the data collected from UAE young graduates and analysed by SPSS and AMOS software. The first research question (To what extent do career competencies impact on young graduates' career success in the Fourth Industrial Revolution?) was answered successfully by testing the impact of career competencies (reflective, communicative, and behavioural) covered by the boundaryless career competency components (know why, know whom, and know how) and protean career competency components (self-knowledge skills, interpersonal knowledge skills, environmental knowledge skills) as presented in Table 38

Perspective	Reflective competencies	Communicative Competencies	Behavioural competencies
Boundaryless career	<i>Know Why</i>	<i>Know whom</i>	<i>Know how</i>
	- Career insight - Openness to experience - Proactive personality	- Experience in Mentoring Relations - Extensiveness of Networks	- Career Identity - Career-related skills
Protean Career	<i>Self-Knowledge skills</i>	<i>Interpersonal Knowledge skills</i>	<i>Environmental Knowledge skills</i>
	- Self-Assessment - Self-Awareness - Modifying self-perception	- Assertiveness - Conflict management - Dialogue skill - Effective listening - Seeking out relations	- Adapting to changing environment - Exploration - Flexibility - Time and stress management

Table 41: Career competencies perspectives Adopted from (Akkermans et al. 2012)

The findings are as follows:

- 1- Boundaryless career competency, know why, represented by career insight, openness to experience, and proactive personality, does not impact on career success. Know whom, represented by experience in mentoring relations and extensive engagement in a

network, has a positive and significant impact on career success. Know how, represented by career identity and career-related skills, does not impact on career success.

- 2- Protean career competency, self-knowledge skills, represented by self-assessment, self-awareness, self-assessment, and modifying self-perception does not impact on career success. Interpersonal knowledge skills, represented by assertiveness, conflict management, dialogue skills, and effective listening, influencing others, and seeking out relationships, do not impact on career success. Lastly, environmental knowledge skills, represented by adapting to change environment, exploration, flexibility, time and stress management impact on career success.

In conclusion, to answer question number one accurately, career competencies impact on career success to a certain limited extent presented by the impact of a boundaryless career through the know whom competency. Young graduates who have experience in mentoring and extensive relations inside and outside their organisations are abler to construct a successful career. Managing professional networks is a primary key to building career success. The same applies to the protean career, which impacts on career success to a certain limited extent through the impact of environmental knowledge skills. Young graduates who are adaptable, flexible to the changing work environment, interested in exploring and experiencing various aspects, and able to manage their stress are abler to have a successful career.

The term impact to a certain limited extent highlights the fundamental fact that while boundaryless and protean career competencies impact on career success, not all boundaryless and protean career competencies components carry an equal impact on career success.

The results of this study are surprising because, theoretically, boundaryless and protean career competencies components impact and predict career success in general, as claimed by various

studies discussed in Chapters 2 and 3. There are various interpretations for this result. However, this study result partially matches the previous literature since only know whom has a significant impact on career success and the remaining career competencies components (know why and know how) are insignificant. This result supports recent theorising on the crucial implications of know whom career competency in understanding career success (Arthur et al. 1999; Defillippi & Arthur 1994). Earlier studies have reported that networking is connected with re-employment (e.g., Granovetter 1973; Lin & Dumin 1986) and predicts career success, such as upward mobility, extra payments, and job mobility (e.g., Burt 1997). The results of this study extend those other study results by connecting networking, presented by know whom career competence, to career success.

The researcher believes that this result occurs because the sample of this study differs from those used in earlier studies. Young graduates in the UAE lack awareness of the importance of career competencies in building a successful career. There is no single article or research explaining how young graduates might build a successful career during the Fourth Industrial Revolution, particularly by using their career competencies in the UAE context.

Young graduates in the UAE are more familiar with the impact of social media and professional networks in employment and career progression. Around 40% or above of the UAE population is represented by 4.3 million are using social media heavily for this purpose (The Media Lab 2022). Using social media extensively in employment and networking has influenced young graduates' interest and belief that using a professional network is the only way to create their successful career. In the UAE, networking is important in many aspects of social and business life, especially that UAE has a highly competitive labor market and as expatriates account for 88.5% of the country's population (Edarabia, 2021), so individuals are familiar with the concept and the benefits that it may deliver (Wilkins and Emik, 2021b). Furthermore, most young

graduates possess a smartphone, are available online, and frequently use social media (Wilkins and Emik, 2021b).

This position is reflected by know whom questionnaire items, such as ‘I know a lot of people within my work who can help me with my career’, and ‘I know a lot of people outside of my work who can help me with my career’. This study demonstrated that having significant know whom covers the importance of developing professional network over other career competencies, which is unknown by young graduates in the UAE. This study contributed to subjective CS literature by explaining the impact of career competencies components on subjective career success since very few literatures studied the relationships between subjective CS and career competencies.

The importance of flexibility and adaptability, as advocated by various researchers (e.g. Hirschi 2012; Sullivan, Carden, & Martin, 1998), is supported by the results of this study. This study builds upon earlier studies by connecting flexibility and adaptability, as covered in the environmental knowledge skills, to career construction. The nature of careers has transformed dramatically over the last three decades due to advances in technology, increased workforce diversity and changes in organisational structures (Arnold & Jackson, 1997). In the UAE, labor turnover is relatively high, which requires young graduates to develop strong environmental knowledge to stand out from other employees in such a dynamic labor market.

The second research question, To what extent does career commitment impact on career success in the Fourth Industrial Revolution? was answered successfully by testing the impact of career commitment components (career planning, career resilience, and career identity) on career success.

Career planning and career resilience as part of career commitment components do not impact on career success, according to this study's results. The results indicated that young graduates do not favour setting career objectives or being resilient with the freedom to change employments. The results indicated that career identity impacts on career success and has a unique superior impact among all predictors. Career identity has the highest impact on career success. Young graduates who take responsibility for their employment by extending social and business-related ambiguity through the reduced significance of explicit abilities and by emphasising personality traits can enjoy a successful career. This result is not surprising, but it is unique, since most of the career commitment studies covered in Chapters 2 and 3 considered the impact of career commitment on career success without indicating which component of career commitment had a significant impact on career success. However, this study makes a unique contribution to career commitment literature by explaining the impact of the career commitment component on subjective career success, which has never been studied before.

This result validated Hirschi's (2012) career resources model which resulted that career identity considers one of the career resources that predict career success (Hirschi et al. 2017).

The third question, How do young graduates build successful careers during the Fourth Industrial Revolution? was answered successfully by testing the research hypotheses. The study results indicated that young graduates build a successful career by enhancing their career competencies through building their professional networks inside and outside their organisations, developing their environmental knowledge skills by being more adaptable, flexible to the changing and fluctuating labour market, and finally, being career committed by constructing strong career identity and motivation toward a specific career.

6.3 Discussion and findings analysis

Career success has always been one of the top important and trending topics over the last decade, as argued in Akkermans and Kubasch's (2017) research, which reviewed 693 papers in 105 issues indicating that career success trended number one and career competencies under employability trended number three. Both were considered important topics in career research. While career success is one of the most important trending topics, there are many debates and inconsistencies about the factors leading to career success, especially for young graduates in the Fourth Industrial Revolution, which is still under-researched.

Various studies have claimed that career competencies impact on career success, which might be the apparent result every individual is looking for in their career. The claim that career competencies impact on and predict career success have been supported by many highly cited studies, such as *The boundaryless career: A competency-based perspective* (Defillippi & Arthur 1994); *The impact of career boundarylessness on subjective career success* (Colakoglu 2011); *Predictors of success in the era of the boundaryless career* (Eby, Butts & Lockwood 2003); *Crafting your career: How career competencies relate to career success via job crafting* (Akkermans & Tims 2016); *Competencies for the contemporary career: Development and preliminary validation of the Career Competencies Questionnaire* (Akkermans et al. 2012); *Career competencies for career success* (Kuijpers, Schyns & Scheerens 2006); and many others.

Many researchers have called for a critical future study of impact for each of these career competencies, and a study of the interdependence and relationships between them. Such a study would contribute to boundaryless and protean career theories by explaining more about the relationships, influence, or overlap among the career competencies and their impact on career success. For example, proactivity presented by knowing why could be a reason or source of network development presented by knowing whom. Individuals who define their objectives are

eager to try new things and might more probably seek out relations with others and develop their network (Defillippi & Arthur 1994; Eby, Butts & Lockwood 2003). Alternatively, being involving in the process of building relationships inside and outside the organisation (knowing whom) may result in a better understanding of an individual's abilities and motivations, which may inspire exploration (knowing why) or support more effective use of know how, which represents the skills required to build a career and tacit and explicit knowledge needed to perform a specific job (Eby, Butts & Lockwood 2003).

There are some inconsistencies in various studies about the impact of career competencies on career success. For instance, one study has argued for the importance of specific career competencies, such as knowing why and knowing how to improve career independence and reduce career insecurity (Colakoglu 2011). Another study has argued for the importance of knowing whom presented by networking to obtain the position of a global manager (Cappellen & Janssens 2008). A significant quantitative study carried out by Kuijpers and Scheerens (2006) with 1,579 employees in 16 Dutch organisations investigated the relationship between career competencies and career success. They concluded that career control and networking factors are strongly connected with career success, among other factors (Kuijpers & Scheerens 2006) which contradicts Eby, Butts, and Lockwood's (2003) study. The latter study has highlighted that the knowing why career competency is the most critical set of predictors and knowing whom, which represents networking, resulted in the least significant set of predictors.

This study contributes to career success literature by studying the impact of career competency components on subjective career success. The literature that has studied the relationships between subjective career success and career competencies, such as Akkermans and Tims (2016); Blokker et al. (2019); De Vos and Soens (2008); Colakoglu (2006,) did not investigate the impact of career competency components on young graduates' subjective career success.

Only one study by Eby, Butts, and Lockwood (2003) has addressed that topic which created some doubts about its results and measurement credibility as per Arnold et al. (2018).

Various studies have investigated the relationships between career commitment and career success, but none have discussed the impact of career commitment components on career success. For example, Carson et al. (1999) have emphasised in their study that career commitment influences career success, but they did not discuss or mention the impact of career commitment components on career success. According to the best of the researcher's knowledge, this is the first study investigating the impact of career competencies (reflective, communicative, and behavioural), covered by boundaryless career competency components represented by know why, know whom, and know how and protean career competency components defined by self-knowledge skills, interpersonal knowledge skills, and environmental knowledge skills, and career commitment components represented by career planning, career resilience, and career identity on young graduates' career success in the UAE, GCC, and Middle East regions. This research is the first study to examine the impact of career competencies and career commitment components on young graduates' career success in one study.

The main aim of this study was to investigate how young graduates construct their successful careers during the Fourth Industrial Revolution in the UAE by using their career competencies and career commitment.

6.3.1 Protean and boundaryless career competencies findings

This section covers the comparison between the result of this research and the findings in previous literature, which are presented in two parts. The first part covers the comparison between career competency findings in previous literature, while the second part covers the comparison between career commitment findings in previous related literature. The literature

has minimal studies covering the impact of career competencies and career commitment on career success because career success studies are carried out in Western countries, and there is a crucial need to conduct studies related to career success in UAE, GCC, and the Middle East, as recommended by Sullivan and Baruch (2009).

Before discussing the results of the relationship between boundaryless career competencies and career success, it is worth presenting the current state of the literature on this relationship. The importance of the boundaryless career has been asserted by Guan et al.'s (2019) literature review, which covers the relationships between career boundarylessness and career success studies released between 1994 to 2018. The boundaryless career has a different impact on numerous indicators of career success. These impacts depend on various aspects and career competencies are considered one of them. Boundaryless and protean career competencies are one of the most critical career resources positively related to achieving career success and employability. Young employees who progress their career competencies are better at laying the foundation for longstanding success and report a high level of career success (Blokker et al. 2019). These facts and all the literature presented in Chapters 2 and 3 indicate the importance of career competencies as one of the main factors in achieving career success. Nevertheless, the number of studies that have investigated the impact of boundaryless career competency components, represented by know why and know whom, and know how on career success, are very few. In contrast, none of these studies have explained the impact of protean career competencies on career success.

In Chapter 2, the researcher addressed some of the challenges and drawbacks in the literature that cover the impact of boundaryless and protean career competencies on career success. These drawbacks are summarised as follows: literature availability, measurement scales inconsistency, and the availability of updated literature.

First, a small number of studies were found examining the impact of boundaryless career competencies on career success, and are represented by the following studies:

- Career success in academia (Sherif, Nan & Brice 2020)
- Career competencies and perceived work performance (Park 2020)
- Building a sustainable start: The role of career competencies, career success, and career shocks in young professionals' employability (Blokker et al. 2019).
- Crafting your career: How career competencies relate to career success via job crafting (Akkermans & Tims 2017)
- Development and validation of the Career Competencies Indicator (CCI) (Francis-Smythe et al. 2013)
- Global managers' career competencies (Cappellen & Janssens 2008)
- Career competencies for career success (Kuijpers et al. 2006)
- Predictors of success in the era of the boundaryless career (Eby, Butts & Lockwood 2003).

This limitation on studies testing the impact of boundaryless and protean career competencies on career success has created a challenge in comparing the result of this study with these studies. One of these studies, Global managers' career competencies (Cappellen & Janssens 2008) was carried out on the managerial level, while this study is carried out on young graduates. The second drawback is the use of unified measurement frameworks for boundaryless career competencies and career success, so consistent, unified measurement is lacking in all the published studies as follows:

- Career Competencies and Perceived Work Performance (Park 2020); Building a sustainable start: The role of career competencies, career success, and career shocks in young professionals' employability (Blokker et al. 2019); Crafting your career: How

career competencies relate to career success via job crafting (Akkermans & Tims 2017) are the only studies that used the Akkermans et al. (2012) scale for measuring career competency, which is similar to this study scale.

- The development and validation of the CCI (Francis-Smythe et al. 2013) study used different scales to assess career competencies but on the other hand used Greenhaus, Parasuraman, and Wormley's (1990) scale to measure career success, which is similar to this study's scale.
- Global managers' career competencies (Cappellen & Janssens 2008) study is qualitative research. It is included here because of the limited studies.
- Predictors of success in the era of the boundaryless career (Eby, Butts & Lockwood 2003) study used Greenhaus, Parasuraman, and Wormley's (1990) scale to measure career success, which is similar to this study scale but used a different scale to assess career competencies since Akkermans et al.'s (2012) scale was released in 2012 after Eby, Butts, and Lockwood's (2003) study.

In summary, two out of four studies, Francis-Smythe et al. (2013) and Eby, Butts, and Lockwood (2003) were consistent with this study and used Greenhaus, Parasuraman, and Wormley's (1990) scale for measuring career success, and only three studies, Park (2020); Blokker et al. 2019, and Akkermans & Tims 2017; used Akkermans et al.'s (2012) career competency measurement scale to measure career competencies, which is consistent with this study. The results of these studies cannot be compared accurately to each other because different measurement scales were used to measure career competencies and career success. Most of the studies' participants were not young graduates, except in the case of Eby, Butts, and Lockwood's (2003) study.

We can conclude that this study is the first study to test the impact of the boundaryless and protean career competencies components on young graduates' career success since around 19 years ago and, the first study to test the same in the UAE, GCC and the Middle East region. All participants were asked to express their level of agreement on a seven-point Likert scale. This study tested career success using Greenhaus, Parasuraman, and Wormley (1990), and included five items. The Akkermans et al. (2012) measurement scale tested career competencies, which included nine items for a boundaryless career and 11 for a protean career. Boundaryless career results indicated that know whom impacts on career success, while know why and know how do not impact on career success. This result covers boundaryless career competencies indicating that only know whom impacts on career success. In terms of protean career competencies, the study resulted in a non-significant impact of self-knowledge and interpersonal-knowledge on career success, while environmental knowledge was found to significantly impact on career success. This result covering protean career competencies indicates that only environmental knowledge significantly impacts on career success.

The differences between this study's result and the findings of previous literature are presented in summary form.

- Sherif, Nan & Brice (2020) study result indicated that faculty who 'know why', 'know how', and 'know whom' own socially valuable resources and are successful in progressing their careers. This is a qualitative study with faculty members. The study underlines the importance of possessing career competencies in advancing successful career without specify which career competencies (reflective, communicative, or behavioural) significantly impact on career success.
- Park's (2020) study result indicated that knowing why, knowing whom, and knowing how competencies all impact and influence individual perceived work performance. In

particular, the impact of knowing why and knowing whom competencies were greater than the impact of the knowing how competency. Park's (2020) study mainly tested know why, know how, and know whom competencies' impact on work performance, which is relatively related to career success. According to Ballout (2009), self-efficacy led to subjective career success, part of work performance. Park (2020) study result is consistent with this research result since, in this study, know whom has an impact on career success but is inconsistent with the impact of know why and know how since both of them did not have any effect on career success because the relationships were insignificant in this study. Park's (2020) study has consistent results with Cappellen and Janssens (2008) since both studies emphasise the superior impact of know why and know whom career competencies over know how.

- Blokker et al. (2019), Akkermans and Tims (2017), Francis-Smythe et al.'s (2013) study results are not comparable to this study because these studies did not specify which career competencies (reflective, communicative, or behavioural) lead to career success. Still, they indicate that career competencies lead to career success in general.
- Blokker et al.'s (2019) study showed that young graduates are required to develop career competencies and invest in having strategies, such as flexibility and adaptability behaviour toward change (Parker, Khapova & Arthur 2009; Chen 2005), which indirectly supports the protean career competency result of this study by environmental knowledge skills.
- Cappellen and Janssens (2008) have conducted a qualitative study about global managers to investigate which career competencies lead to the career development of the global manager. The results stated that global managers consider knowing why and know whom to be primary career competencies in their career development, which is

consistent with Park's (2020) study, and this study on the significant impact of know whom on career success. Cappellen and Janssens's (2008) study result is consistent with Park's (2020) study result because both confirm the same impact level of know why and know whom on career development and perceived work performance which is relatively related to career success. Capellen and Janssens's (2008) study results are partly inconsistent with this study's results since in this study know why did not have an impact on career success.

- Kuijpers et al.'s (2006) study investigated the competencies employees are required to hold to manage their career development. Kuijpers et al.'s (2006) study tested career competencies through the human capital perspective, and their results indicated that, among other factors, career control and networking are strongly related to career success. This result confirms the importance of networking under communicative competencies in impacting on career success, supporting the result of this study that demonstrates know whom as a predictor of career success.
- Lastly, Eby, Butts, and Lockwood (2003) Predictors of success in the era of the boundaryless career study is the only study related directly to this study, and its result can be compared since the participants were young graduates and the study used the same career success measurement scale developed earlier by Greenhaus et al. (1990). Eby, Butts, and Lockwood's (2003) study concluded that all career competencies, 'knowing why,' 'knowing whom', and 'knowing how' are significant predictors of career success in the boundaryless career. The study highlighted that 'knowing why' occurred as the most significant set of predictors, while the 'knowing whom' career competency appeared to be classified as the least essential set of predictors. Eby, Butts, and Lockwood's (2003) results are inconsistent with this study on the impact of know

why and know how, and partly consistent in terms of the significance of know whom. It is worth mentioning that Park's (2020) and Cappellen and Janssens's (2008) results are not entirely consistent with Eby, Butts & Lockwood's (2003) results. These studies indicated that the effects of the knowing why and knowing whom competencies are more significant than the effect of the knowing how competency, which means that know how has a minor impact on career success. Eby, Butts, and Lockwood (2003) asserted that know why has the most significant effect and know whom has the most negligible impact on career success, which is contradict partially with Park's (2020) and Cappellen and Janssens's (2008) results. They claimed that know whom has a superior effect on career success, similar to know why. Lastly, Eby, Butts, and Lockwood (2003) confirmed that their study result was inconsistent with other studies, such as Siebert, Crant and Kramer (2001).

To sum up, this study result is consistent with the results of Park (2020); Cappellen and Janssens (2008), and Eby, Butts, and Lockwood (2003) regarding the significant impact of know whom on career success and inconsistent with the impact of knowing why and know how on career success.

This study meets an urgent need to study the required career competencies for young graduates to construct a successful career in today's job market, especially since the career competencies concept and measurements are still in their early stages (Akkermans et al. 2012).

Fourth Industrial Revolution impact on young graduates' competencies

During the Fourth Industrial Revolution, graduates encounter many challenges in building their careers due to career uncertainty. This career ambiguity is likely to increase because of fast changes taking place in the workplace, such as the impacts of globalisation (Burke & Cooper 2006; Pink 2006), developments in technology (Barley et al. 2017; Phelps et al. 2012; Susskind

& Susskind 2015), economic changes, and global competition resulted in changing how individuals develop and manage their careers (Kuijpers & Scheerens 2006). Earlier recognisable, organisational career paths are no longer guaranteed (De Cuyper et al. 2011; McElroy & Weng 2016), leaving individuals with more responsibility to manage their own career paths and be **adaptable, flexible, and proactive** in their career behaviour (Hall 2004). The Fourth Industrial Revolution affected the standard of living, income increments, lifestyle, ways of working, and communication. Individuals need to rethink about their current competencies and mindsets to overcome and manage these changes. They need to develop the necessary skills for employability (Boaden 1997).

In their influential study, Teng et al. (2019) claimed that the **employability skills** set required from young graduates will certainly shift from being more technically focused towards being more **social** and softer in nature (Teng et al. 2019).

Teng et al. (2019) called for moving young graduates 'skills focus away from simply developing hard skills towards developing **soft skills** to be more prepared and ready for employment and future career. Soft skills have been defined as "skills, abilities, and traits that pertain to personality, attitude and behaviour rather than to formal or technical knowledge" (MOSS & TILLY 1996).

In conclusion, according to this study's results compared with the latest literature on young graduates 'career progression during the fourth industrial revolution, Career competencies are considered part of the employability skills as per Akkermans and Kubasch (2017). Moreover, know whom under Boundaryless career competencies represented by networking emphasised **social** interaction matching with Teng et al. (2019) recommendation as an essential skill required for young graduates 'employment.

Therefore, since this study is considered one of the very few studies studying the impact of career competencies and career commitment components on young graduates. The results proved by young graduates that Know-how which represents technical skills (Hard skills), was not considered a vital career resource for young graduates while constructing a successful career matching with MOSS & TILLY (1996) study.

In contrast, proactivity presented by career identity has the highest impact on career success, followed by adaptability represented by environmental knowledge skills, and then networking represented by know whom. Therefore, these skills are considered the most important career resources for young graduates to construct their successful careers in the Fourth Industrial Revolution.

6.3.2 Career commitment findings

This study demonstrates that career commitment impacts on career success through career identity. All career commitment variables (career planning, career resilience, and career identity) were measured. The results showed that only career identity has an impact on career success, while career planning and career resilience do not impact on career success. Career identity is the only factor as one of the career commitment components that impacts on career success. This predictor is a unique variance, which means that career identity explains in career success something other significant predictors (environmental knowledge and know whom) do not. Various studies have demonstrated the impact of career commitment on career success, including various mediations, but none of these studies specified which component of career commitment (career planning, career resilience, and career identity) has a significant impact on career success. These studies are as follows:

- Does Work-Life Balance Moderate the Relationship between Career Commitment and Career Success? Evidence from an Emerging Asian Economy (Najam, Burki & Khalid 2020). This study tested data collected from 360 middle-level professionals. The results showed that career commitment has a positive and significant impact on employees' objective and subjective career success without mentioning which component of career commitment contributed to this significant impact.
- Probing the interactive effects of career commitment and emotional intelligence on perceived objective/subjective career success (Sultana et al. 2016). This study's results claimed that employees with developed career commitment could control and manage their career in desirable ways, have more of a sense of power over their careers, and have subjective and objective successful careers. These research results are consistent with previous findings in similar studies (e.g., Adio & Popoola 2010).
- Career Commitment, subjective career success and Career Satisfaction in the Context of Hazelnut Processing Industry in Giresun/Turkey (Karavardar 2014) and, Career Commitment and Career Success: Mediating Role of Career Satisfaction (Srikanth et al. 2012) these studies resulted in that career commitment expect subjective career success. This study result is consistent with Srikanth and Israel's study (2012). Neither study clarifies which career commitment component leads to career success.
- Career commitment and career success: moderating role of self-efficacy (Ballout 2009). This study underlined Carson et al.'s (1999) study result, which perceived the connection of career commitment and organisational commitment to be work-related, which explored that individuals who scored greater on career commitment presented better job and career satisfaction than those who achieved low on career commitment.

Similarly, Day and Allen (2004) have argued that career motivations are comparatively linked to commitment and are positively connected to career satisfaction in the case of municipal employees. Career commitment was found to expect objective career success in terms of salary level and subjective career success in terms of career satisfaction.

- Lastly, career commitment and career success: the moderating role of emotion perception. Poon's (2004) study showed that individuals committed to their careers should experience better subjective career success than those who are less committed.

Career success from different gender perspectives

Individuals may vary in their assumptions about work and accomplishments, and females may define success differently (Dann 1995). Men and women have different perceptions of what determines their career success. For instance, networking activities are linked to career success for males but not for females, according to Forret and Dougherty (2004). A positive connection is drawn between an individual's career aspiration and success from a male perspective (Dolan, Bejarano & Tzafirir 2011). This is not necessarily the case for women who might define success differently (Dann 1995).

As presented by the literature, there are few studies about what defines success from males' and females' points of view. Additionally, there is no common agreement about what defines career success among genders. This study's results partially match Forret and Dougherty's (2004) study that indicated networking activities are linked to career success for males but not females. This explains that females in this study did not favour networking activities and ranked it the lowest career resource for constructing a successful career matching with Forret and Dougherty (2004).

This study result presented career identity as the most impactful career resource in constructing a successful career for young graduates, followed by environmental knowledge skills and, lastly, know whom, which present networking activities.

Additionally, this study's result about career identity matches with Chauhan, Mishra & Bhakri (2022), who claimed that a greater degree of self-confidence, commitment, emotional quotient, and mentoring could help women succeed in their careers. Ashby & Schoon (2010) study highlighted that career aspiration and ambition values were more robust for females than for males.

In conclusion, this study determined that career identity is considered one of the most important career resources for females while constructing their successful careers during the fourth industrial revolution.

Threat of unemployability on young graduates

Employability is a skill that young graduates should acquire to continue their career in life to face global competition and future world work. Individuals need to renovate their employability skills. Based on different literature reviews, and according to employers, employability skills must be owned by employees covering comprehensive skills such as communication, team working, problem-solving and technological skills (Fajaryati et al. 2020).

For instance, unemployment in Europe is considered critical and does not seem about to disappear soon. Widespread views about this problem are that the unemployed are 'unemployable': they lack the skills required in the labour market. Therefore, lacking employability skills lead to unemployment. This idea is always connected with the view that technological advances have increased skill necessities to such a point that comparatively uneducated people do not qualify and consequently end up being unemployed. Additionally, it

is shown that the unskilled unemployment rate increases when the ratio of skilled workers in the economy increases. This happens because the probability of occupying a vacancy with a skilled worker increases, which has a robust positive impact on the option value. When this likelihood exceeds a certain threshold, the demand for unskilled labour falls to zero because the value of an unfilled vacancy in the skilled labour market is greater than the value of a job filled by an unskilled (Saint-Paul 1994).

One of the crucial studies done among young graduates emphasized that employability skills, job mismatch, and unrealistic salary demands play a crucial role in explaining the issue of unemployment among graduates in Malaysia (Mohd Abdul Kadir et al. 2020).

Importance of subjective career success

Career success literature specified a distinction between intrinsic and extrinsic career success. Intrinsic career success can be likened to subjective career success and relies on the individual's satisfaction with his or her career actualisation. In contrast, extrinsic career success is linked to external factors such as salary and working status, which are related to objective career success (Kuijpers, Schyns, and Scheerens 2006).

Salary increments and work promotions measure objective career success. Accordingly, to assess the objective career success of young graduates, one must ask the study practitioners some questions about their salary and employment level. The researcher believes that in UAE and Arab culture, asking participants to disclose such information is inconvenient because it is considered somehow sensitive information, and participants might feel uncomfortable about sharing such information, which might affect their participation in the study. Additionally, in the literature, subjective career success has been given more attention and importance than

objective career success because it reflects individuals' career satisfaction and career success more accurately rather than relying on promotion or salary increment that might happen because of employees' connections or employer's market share or revenues.

The following literature highlighted the importance of subjective career success as follows:

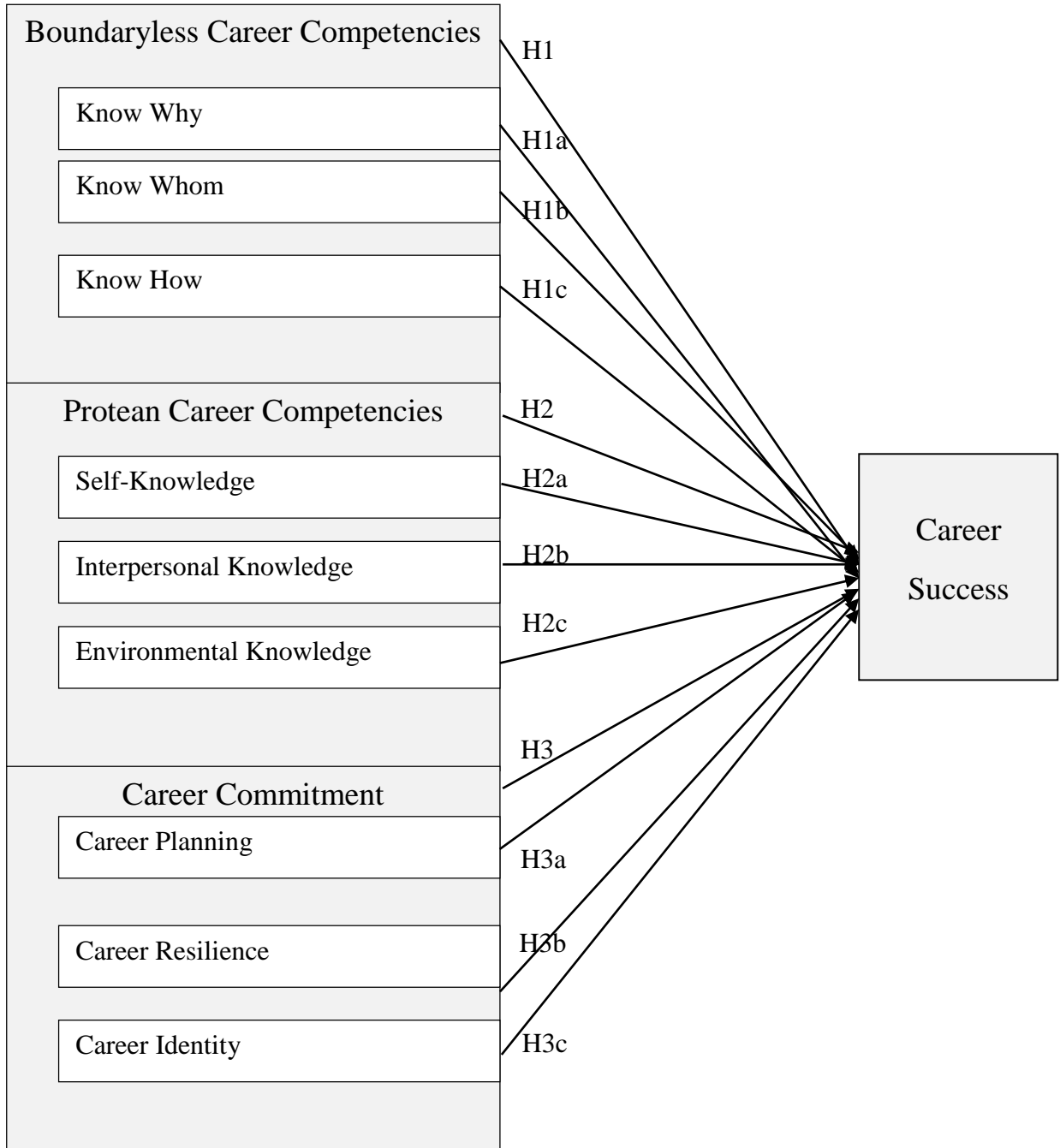
- Subjective success was defined as the individual's own point of view or awareness of success regarding accomplishment, future perception, appreciation, and satisfaction (Nabi 1999). Among subjective career measures, career satisfaction is the **most broadly used**. In a 'boundaryless and protean career world', satisfaction with what has been achieved in his or her work life is more significant in defining success, instead of progressing in a job with substantial compensation (Nikandrou & Galanaki 2016).
- Judge et al. (1999), Judge et al. (1995), and Srikanth & Israel (2012) claimed that career success is an evaluative idea that depends on an individual's perception related to the term itself.
- Abele, Spurk & Volmer (2010) defined subjective success as a fundamental goal of working life. Accomplishments by a person in their profession can bring an overwhelming feeling of achievement and satisfaction (Akhtar 2010).
- Subjective career success depends on the individual assessment of outcomes associated with one's career; it is not surprising that many successful individuals do not feel achievement or career success despite having significant compensation or holding senior positions in organisations. The subjective results of career success, such as career achievements or career mentoring, are subsequently comparatively more internally evaluated by an individual's subjective decisions on career success (Aryee et al. 1994; Poon 2004).
- Heslin (2005) highlighted that using the subjective norm for career success is one of the essential attributes of the modern career. Contemporary careers stress the significance of subjective criteria for determining career success which has been characterised as learning and balancing job and family.
- As adopted and promoted by Hall (1976) and Hall (2002), the protean career emphasises accomplishing subjective career success by self-directed career behaviour.
- **Career aspirations** are significantly attached to subjective career success (Rasdi et al., 2009).

Several attributes have characterised subjective career success as follows:

- Learning
- Balancing job and family
- Career actualisation
- How much employees can acknowledge personal objectives and qualities in their career
- Quality of education received

- Job performed in the organisation
 - career reflection
- These factors have provoked various assessment criteria.

6.4 Conceptual framework



The conceptual framework of this study proposed to explain the impact of boundaryless and protean career competencies components and career commitment components on career

success, which might help young graduates in the UAE identify the career resources required to construct a successful career; The conceptual framework is unique because these independent variables have never been tested together on career success before in any literature. The importance of the relationships between the independent variables and dependent variables has been focused on in the literature frequently, covered in Chapter 3. However, testing how young graduates use career competencies and commitment to construct their successful careers is still under-researched. This study is unique since no study in the literature investigated the impact or strength of relations between career commitment and career competencies components in career success.

6.5 Contributions of study

There is a remarkable gap in the literature in studying the factors leading to career success in a boundaryless and protean career, although there are only a few studies, such as Mirvis and Hall (1994); Arthur and Rousseau (1996); Eby, Butts, and Lockwood (2003); and Kong, Cheung, and Song (2012b) that have stressed this importance. In this study, the researcher contributed to the career success literature by studying the impact of career competencies and commitment components on subjective career success, since the available literature is very limited and contradictory in this area. Most of the career success studies are carried out in Western countries, and there is a need to conduct studies related to career success in different countries such as the UAE, GCC, and the Middle East, as recommended by Sullivan and Baruch (2009). According to the best of the researcher's knowledge, this is the first study investigating the impact of career competencies (reflective, communicative, and behavioural) and career commitment components (career planning, career resilience, and career identity) on young graduates' career success in the UAE, GCC, and the Middle East regions. This study is the first

study examining the combined impacts of career competencies and career commitment components on young graduates' career success.

6.5.1 Theoretical contributions

This study theoretically contributes to two new perspectives on careers known as the protean and boundaryless career and career construction theory (CCT). These perspectives have arisen during the last era and become very popular in the organisational and career literature. Boundaryless career presented by Defillippi and Arthur (1994) established the boundaryless career concept as a reaction to fluctuation in the direction of more permeable (organisational) boundaries. It is defined as the series of work opportunities that go beyond any single employment setting (Briscoe et al. 2006; Defillippi & Arthur 1994, p. 307). The protean career presented by (Hall 1996) provides an understanding of how individuals approach and manage their careers. Lastly, CCT conceptualises career development as an activity-oriented cycle during which individuals construct a career and plan their life.

The study contributes theoretically by bridging the gap between CCT, boundaryless, and protean theory by explaining how young graduates in the UAE construct their successful careers in the Fourth Industrial Revolution through career commitment and career competencies.

The study results met Gubler, Arnold, and Coombs (2013) call to clarify the protean conceptual and empirical model. The results confirmed and validate Hall's (2002) argument about the need for adaptability and identity competencies to pursue a protean career successfully (Gubler, Arnold, and Coombs 2013).

The study responded to Arnold et al. (2008) claim of the need to investigate the career competencies, the role of social institutions, developmental networks in people's

understanding, and enactment of Boundaryless and protean career through the required attributes to obtain work (Arnold et al. 2008).

This study contributes to CCT by testing the impact of career commitment, boundaryless and protean career competencies components on career success. Few competencies are mentioned in CCT, such as cognitive, comprehension, and problem-solving (Savickas 2005). However, the components of career commitment, boundaryless, and protean career competencies as career resources are not tested, and they would add value to this area and lead to career success. Therefore, the researcher believes that career commitment and competencies components are vital career resources leading to career success and contribute to CCT by extending the understanding of the competencies and factors required to construct a successful career.

Given the requirement for individuals to effectively build their careers, while simultaneously reacting to the changes and difficulties evoked by the environment, it is imperative to obtain career resources (Savickas & Porfeli 2012), which lead to job readiness (e.g., Bridgstock 2009; Forrier & Sels 2003).

Career competencies have been identified as a beneficial **career resource** for accomplishing early career success (e.g., Hall 2004). For example, youthful professionals make sense of their characteristics and inspirations by creating career competencies. They can form strategies to efficiently achieve their career objectives during change of work (Akkermans et al. 2013) and achieve career success (Arthur, Khapova & Wilderom 2005; Bridgstock 2009).

Earlier studies have stressed that those career competencies are beneficial for young employee's career development (e.g., Eby et al. 2003) since these competencies make them abler to apply adaptive behaviours (Parker, Khapova & Arthur 2009), add value to their employers (Fleisher, Khapova & Jansen 2014) and to be successful (Colakoglu 2011; Eby et al.

2003). Many studies consistent with CCT have highlighted those individuals with well-developed career competencies have accomplished more subjective career success (e.g., Colakoglu 2011; De Vos, De Hauw & Van der Heijden 2011; Eby et al. 2003). The career commitment literature also underscores that career commitment predicts career success (Ballout 2009; Karavardar 2014; Najam, Burki & Khalid 2020; Poon 2004; Srikanth et al. 2012; Sultana et al. 2016).

There is a remarkable gap in the literature in studying the factors leading to career success in a boundaryless career except for a few studies, such as Park (2020); Blokker et al. (2019); Eby, Butts, and Lockwood (2003), and Cappellen & Janssens (2008)

Since boundaryless, protean, and CCT were all initially developed over 20 years ago, therefore, it is worth exploring the impact of boundaryless and protean career competencies components on young graduates' career success and their application to the contemporary labour market, especially in today's changing labour market during the Fourth Industrial Revolution and COVID-19 pandemic. None of the previous scholars tested those variables' impact on young graduates' career success in one study in the UAE, GCC, and Middle East region.

Based on the above, and in line with CCT, the researcher explained and studied the various effects and impacts of career competencies and career commitment components on career success from a subjective perspective (Blokker et al. 2019).

This research demonstrated that, know whom, as a component of boundaryless career competencies, environmental knowledge skills as a component of protean career competency, and career identity as a component of career commitment contribute to CCT by extending the **career resources** required to construct successful careers, which adds value to CCT by

explaining how recent graduates construct their careers during the Fourth Industrial Revolutions.

As stated by the resource theory (Hobfoll 1989), resources do not normally exist in isolation but instead aggregate such that a person with more resources in one area (e.g., social support) will also possess more resources in other areas (e.g., career identity). The researcher believes that there is a link between career identity, know whom, and environmental knowledge skills. Matching with Hirschi (2012) career management skills, resources can be used to capitalise on one resource to develop another. For example, the existence of developmental networks ('knowing whom') can facilitate the development of a professional identity (career identity) which will help to understand more about the surrounding environment (environment knowledge) through knowledge sharing within the network. Therefore, as presented by Hirschi (2012) career resources are not static entities but are instead assets that change in a dynamic course of mutual reinforcement over time, such that the existence of resources in one range promotes the development of resources in the other areas (Hirschi 2012).

This study also contributes to boundaryless and protean career competencies by presenting which career competencies have a significant impact on young graduates' career success and lead to successful career construction.

The research results explained how young graduates construct their careers during the Fourth Industrial Revolution, which has never been studied before in the UAE and GCC because all career research has been carried out in Western countries (Sullivan & Baruch 2009).

Lastly, this study contributed and confirmed the effectiveness and reliability of the career competency measurement scale presented by Akkermans et al. (2012). It designed a framework reflecting the career competencies and commitment that impact on career success and lead to

constructing successful career for young graduates. The career competencies concept and its measurement are still in their early stages (Akkermans et al. 2012).

To conclude, this study contributes to career success, career competencies, and career commitment literature because it narrows the gap related to the impact of career resources represented by career competencies and career commitment on career success and tests the significance of their components separately, as recommended by Defillippi and Arthur (1994).

6.5.2 Practical implications

The results of this study have individual and managerial practical implications. In terms of employees' development, this study's results offer practical recommendations for allocating resources to acquire career competencies and career commitment to reduce turnover and enhance employee's performance, satisfaction, and career success. Significantly, various studies have claimed that career success is associated with organisational commitment and negatively connected to turnover desires (e.g., Joiner, Batram & Garreffa 2004) because the retention of talented human resources is one of the essential aims of human resource management (Arthur 1994). The support of managers and organisations for young graduates to develop career competencies and commitment might reduce talented employees turnover and maintain organisations' competitive advantages. This study's result adds value to career advisors who can advise and guide young graduates on the importance of acquiring reflective, communicative, and behavioural career competencies, and maintaining career commitment to take charge of their careers during the Fourth Industrial Revolution.

Career competencies have an impact on the individual level. The boundaryless career competency result showed that know whom, which covers networking, as shown in Table 38, page 199, had a significant effect on career success. It was considered very important for the individual to start creating, improving, and utilising their professional networking inside and

outside of their organisation as a valuable career resource that leads to career success. Regarding the protean career competencies, this study demonstrated that environmental knowledge skills have a significant impact on career success, which provides an essential guide for young graduates to be proactive (Thomas, Whitman & Viswesvaran 2010), and aware about their surroundings, be adaptable, flexible, and maintain time and stress management in this fluctuating labour market during the COVID-19 pandemic and the Fourth Industrial Revolution. The impact of career competencies on the managerial level is represented by the need to develop young graduates' skills and abilities through establishing training and development programmes on how to apply effective networking techniques and adopt flexible, time and stress management methods to be more adaptable to their work and achieve their career success and organisational goals. In terms of career commitment, this study found that career identity was one of the career commitment components impacting on and predicting career success. On an individual level, young graduates are required to invest significant time and energy into developing their skills and engaging in professional opportunities to have a successful career. Managers must have plans aligned with their organisational goals to inspire and develop young graduates' skills and engage them in projects and activities that lead to building their career identity and achieving their organisational vision. Employees' career motivations and commitment are vital tools for organisations to sustain their competitive advantage. Therefore, to maintain a high level of career motivation and career commitment, organisations must be aware of the factors that affect employees' subjective career success and career commitment. Various studies have confirmed that career commitment is becoming an important management concept (Baruch 1998; Poon 2004). Therefore, this study has indicated that career identity as a unique compound of career commitment leads organisations' human resource management to understand young graduates' opinions on subjective career success

from career commitment perception. In summary, this study's results can lead managers in setting career development programmes for young graduates who have just joined their organisations by focusing on developing their career competencies, professional network, environmental knowledge skills, and building a successful career identity. In terms of individual development, this study can lead young graduates to use their professional networks, the surrounding environment, and their career identity to achieve a successful career.

6.6 Summary

This chapter has summarised, explained, and analysed the result of this study. The main research questions were answered, and the hypotheses were tested. The study contains several findings. First, not all boundaryless and protean career competencies components impact on career success. Second, not all career commitment components impact on career success. Third, young graduates in the UAE need to be more aware of the importance of career commitment and career competencies as the primary career resource leading to career success. Fourth, the impact of career competencies and career commitment should be tested in a longitudinal study to understand the impact of career competencies and career commitment for young graduates in career success. Finally, this chapter has stated the results of the relationships between all boundaryless and protean career competencies and career commitment on career success. This study findings emphasise the superior impact of career identity, categorised under career commitment, on career success; environment knowledge skills, categorised under protean career competencies, have the second most significant level of influence; and lastly know whom, categorised under the boundaryless career, has the least level of impact on recent graduates' career success in the UAE.

CHAPTER 7

CONCLUSION

7.1 Introduction

This chapter concludes the research with a summary of the practical and theoretical contributions. This chapter also highlights the limitations of the study and possible future research.

7.2 Concluding remarks

This study pinpoints the first step in testing the impact of boundaryless career competency components (know why, know whom, and know how), protean career competency components (self-knowledge, interpersonal knowledge, and environmental knowledge), and career commitment components (career planning, career resilience, and career identity) on young graduates' career success during the Fourth Industrial Revolution and COVID-19 pandemic.

The results of this study met the main objectives of the research and answered all the research questions by testing the impact of career commitment, boundaryless, and protean career competencies on young graduates' subjective career success. The results increased our understanding of young graduates' perspectives about the required tools and career resources to construct a successful career.

The UAE's dynamic labor market has required employees to continuously adjust and develop their career knowledge and skills, and to construct a flexible and adaptable career path. It is interesting to note that know whom and environmental knowledge skills as significant predictors of young graduate career success, may each play an integral role in developing a distinctive and effective career identity.

7.3 Practical and theoretical contributions

This is the first study in the UAE and the GCC to explore the impact of career commitment and boundaryless and protean career competencies on young graduates' subjective career success. This area has been under-researched since earlier studies have either focused on the general impact of career competencies and career commitment, or were conducted in various contexts other than the UAE. These research results can be generalised, to a certain extent, to apply to other GCC and Arab countries that are similar to the UAE context.

From a theoretical perspective, this study contributes to CCT, boundaryless, and protean career theories. Since career success is an ultimate goal for young graduates while constructing their career, the result of this study contributed to CCT by highlighting new tools and resources young graduates can use to construct successful careers during the Fourth Industrial Revolution and the COVID-19 pandemic. These tools and resources comprise building strong networks (know whom), being proactive and aware of the surroundings (environmental knowledge skills), and engaging in professional opportunities to build a strong career identity (career identity). These new tools and career resources contribute to CCT by extending the competencies required to construct a successful career. Some competencies in CCT, such as adaptability, were already confirmed by this study under environmental knowledge skills. This study confirmed the importance of one of the CCT competencies.

In terms of boundaryless and protean career theories, the results of this study contributed to these perspectives by identifying and explaining the career competencies required by young graduates to build a successful career in the UAE and GCC. The result of this study responds to Guan et al.'s (2019) influential study, which has studied the relationships between career boundarylessness and career success studies, which were released between 1994 to 2018 (for

24 years), demonstrating that the boundaryless career has a different impact on numerous indicators of career success such as career competencies.

Guan et al.'s (2019) study did not specify or explain in detail the impact of career competency components on career success. This study contributed to Guan et al.'s (2019) study by presenting the impact of the career competencies components on career success. The result of this study is a unique contribution to boundaryless and protean careers. It is the first study explaining the impact and significance of boundaryless and protean career competency components on young graduate's career success. The majority of other studies have stressed this impact as a general perspective.

As a practical contribution, this study serves as a guideline for managers in setting a career developmental plan for young graduates' new joiners to construct a successful career. Individuals can use the result of this study to build effective career competencies and career commitment, which can help them construct successful careers. Career advisors can use these study results to advise potential graduates to be aware of the importance of acquiring career competencies and career commitment to build a successful career after graduation.

7.4 Study limitations and future recommendations

In this section, the researcher focuses on the main limitations and essential recommendations for future studies.

- Young graduates' knowledge and awareness in the UAE about career competencies and career commitment were very low. No study has previously been conducted in the UAE on these aspects and there is a lack of publications about career competencies and career commitment impact in general and in the UAE in specific.
- Since the study was conducted in the UAE, it can be applied in the UAE, with limited generalisability to other countries.

- This research studied the impact of career commitment and career competencies on young graduates' subjective career success, limiting the study results. It is worth studying the impact of career commitment and career competencies on subjective and **objective** career success in one study.
- This study cannot be generalised to professionals and experienced individuals because it is conducted on young graduates only. The researcher recommends conducting future studies on the impact of career competencies and career commitment on career success for different age groups and generations to understand more about the career commitment and career competency concepts and to validate the results of this study.
- One of the limitations of this study is that the industry of the study participants is not included. Future studies might overcome this issue by including the leading sectors in the questionnaire, which would help explain more about the impact of career commitment and career competencies on young graduates' career success.
- This study's results indicated that only know whom, environmental knowledge skills and career identity predict and impact on career success. Further investigations are required to understand the reasons for the insignificant impact of the other independent variable, which might require a qualitative longitudinal study on young graduates to understand the reasons beyond these insignificant impacts.
- The researcher recommends conducting a future study on the impact of career competencies and career commitment on young graduates by using other measurement scales to confirm and validate the results of this study.
- The researcher recommends conducting future studies to develop the career success scale, which was developed 22 years ago.

- The researcher recommends conducting future studies to explore the impact of career competencies on career success from different perspectives, such as human capital and career self-management perspectives.
- The researcher recommends testing the same variables in other GCC and Arab countries to compare the results.
- The researcher recommends studying the relationships between career competencies components to understand more about career competencies.
- Lastly, the researcher recommends studying the relationships between career commitment components to understand more about the career.

7.5 Summary

This chapter summarises the results of the research. The concluding remarks demonstrate that all the research objectives and questions were addressed through the designed research method, collected data, and data analysis. The chapter presented a summarised explanation of the theoretical and practical implications of the study. The main conclusion that can be drawn from this study is that young graduates construct successful careers by using their networks, being proactive, adaptable, flexible, and engaging in professional opportunities to build their career identity. The chapter discussed the main limitations of the research. Finally, recommendations and future research directions were suggested.

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APPENDIXES:

Appendix 4.5.1: Research questionnaire

CAREER CONSTRUCTION IN THE FOURTH INDUSTRIAL REVOLUTION FOR RECENT GRADUATES IN UAE

1. CONSENT FORM FOR THE STUDY PARTICIPANTS:

Dear Participant, you are invited to participate in a web-based online survey. This consent form gives you the basic idea about the research.

Research Title: Career Construction in the fourth industrial revolution for recent graduates in UAE.

Researcher: Ayman Moustafa Ahmed, doctoral student at the British University in Dubai.

Research overview: This study investigates the impact of career competencies and career commitment on recent graduates' career success.

Participation: Your participation in this survey is voluntary. You may refuse to take part in the research or exit the survey at any time without penalty.

Benefits: You will receive no direct benefits from participating in this research study. However, your responses may help us learn more about how recent graduates construct their successful career during fourth industrial revolution.

Risks: There are no foreseeable risks involved in participating in this study.

Confidentiality: Your survey answers will be sent to a link at Smart Survey.com where data will be stored in a password protected electronic format. Smart Survey does not collect identifying information such as your name, email address, or IP address. Therefore, your responses will remain anonymous.

Contact: If you have questions at any time about the study or the procedures, you may contact me via email at 20181438@student.buid.ac.ae, or my PhD supervisor, Prof. Stephen Wilkins, at stephen.wilkins@buid.ac.ae

By proceeding with this survey, you agree on the followings:

You have read the above information
You voluntarily agree to participate
You are 22 years of age or older

Kindly spare a few minutes of your valuable time to answer the questionnaire. The questionnaire consists of 45 short questions, each answered with a rating scale, which should take you

no longer than 8-10 minutes to complete. The provided information will be kept confidential and will be used purely for the academic purpose by the study researcher and strictly for analysis only.

1. Gender *

Male

Female

2. Age *

22-24

25-27

28-30

3. What is your highest Education level? *

Doctoral Degree

Master's degree

Bachelor's Degree

4. What is your current career level? *

Entry level

Mid-level

Management level

5. How many years of experience do you have? *

1-2 Years

3-4 Years

5-6 Years

7-8 Years

6. In which Emirates do you work? *

Abu Dhabi

Dubai

Sharjah

Ajman

Umm Al Quwain

Ras El Khaimah

Al Fujairah

7. Nationality *

UAE national

Arab-Non UAE national

South Asian (i.e. Indian, Pakistan etc.)

Other

4. Boundaryless Career Competencies (Know Why)

8. I know what I like in my work *

Strongly Disagree

Moderately Disagree

Slightly Disagree

Neither Agree nor Disagree

- Slightly Agree
- Moderately Agree
- Strongly Agree

9. I know what is important to me in my career *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

10. I know well what is my passion at work *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

5. Boundaryless Career Competencies (Know Whom)

11. I know a lot of people within my work who can help me with my career *

- Strongly Disagree
- Moderately Disagree

- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

12. I know a lot of people outside of my work who can help me with my career *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

13. I know how to ask for advice from people in my network *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

14. I am able to approach the right persons to help me with my career *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

6. Boundaryless Career Competencies (Know How)

15. I know how to find different options for furthering my education *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

16. I know how to search for developments in my area of work *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree

Moderately Agree

Strongly Agree

17. I have the ability to find out my career options and opportunities in the labor market *

Strongly Disagree

Moderately Disagree

Slightly Disagree

Neither Agree nor Disagree

Slightly Agree

Moderately Agree

Strongly Agree

7. Protean Career competencies (Self-knowledge skills)

18. I know my strengths in my work *

Strongly Disagree

Moderately Disagree

Slightly Disagree

Neither Agree nor Disagree

Slightly Agree

Moderately Agree

Strongly Agree

19. I know my weaknesses in my current job *

Strongly Disagree

Moderately Disagree

- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

20. I am aware of my talents in my work *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

21. I know which skills I have *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

8. Protean Career competencies (Interpersonal knowledge skills)

22. I can clearly show others what my strengths are in my work *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

23. I am able to show others what I want to achieve in my career *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

24. I can show the people around me what is important to me in my work *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree

Moderately Agree

Strongly Agree

9. Protean Career competencies (Environmental knowledge skills)

25. I have made a clear career plan *

Strongly Disagree

Moderately Disagree

Slightly Disagree

Neither Agree nor Disagree

Slightly Agree

Moderately Agree

Strongly Agree

26. I know what I want to achieve in my career during the next year *

Strongly Disagree

Moderately Disagree

Slightly Disagree

Neither Agree nor Disagree

Slightly Agree

Moderately Agree

Strongly Agree

27. I can create a plan to achieve my career goals *

Strongly Disagree

Moderately Disagree

- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

28. I am able to set goals for myself that I want to achieve in my career *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

10. Career Commitment (Career identity)

29. My line of work/career field is an important part of who I am *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

30. This line of work/career field has a great deal of personal meaning to me *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

31. I do not feel "emotionally attached" to this line of work/career field *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

32. I feel a connection with my chosen line of work/career field *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree

Strongly Agree

11. Career Commitment (Career planning)

33. I do not have a strategy for achieving my goals in this line of work/career field *

Strongly Disagree

Moderately Disagree

Slightly Disagree

Neither Agree nor Disagree

Slightly Agree

Moderately Agree

Strongly Agree

34. I have created a plan for my development in this line of work/career field *

Strongly Disagree

Moderately Disagree

Slightly Disagree

Neither Agree nor Disagree

Slightly Agree

Moderately Agree

Strongly Agree

35. I do not identify specific goals for my development in this line of work/career field *

Strongly Disagree

Moderately Disagree

Slightly Disagree

- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

36. I do not often think about my personal development in this line of work/career field *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

12. Career Commitment (Career resilience)

37. The efforts needed in my line of work/career field sometimes seem too great *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

38. Given the problems I encounter in this line of work/career field; I sometimes Wonder if I get enough out of it *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

39. Given the problems in this line of work/career field, I sometimes wonder if the personal burden is worth it *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

40. The discomforts associated with my line of work/career field sometimes seem too great *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree

Moderately Agree

Strongly Agree

13. career success

41. I am satisfied with the success I have achieved in my career *

Strongly Disagree

Moderately Disagree

Slightly Disagree

Neither Agree nor Disagree

Slightly Agree

Moderately Agree

Strongly Agree

42. I am satisfied with the progress I have made toward meeting my overall career goals *

Strongly Disagree

Moderately Disagree

Slightly Disagree

Neither Agree nor Disagree

Slightly Agree

Moderately Agree

Strongly Agree

43. I am satisfied with the progress I have made toward meeting my goals for income *

Strongly Disagree

- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

44. I am satisfied with the progress I have made toward meeting my goals for advancement *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree
- Strongly Agree

45. I am satisfied with the progress I have made toward meeting my goals for the development of new skills *

- Strongly Disagree
- Moderately Disagree
- Slightly Disagree
- Neither Agree nor Disagree
- Slightly Agree
- Moderately Agree

Strongly Agree

Appendix 5.1 – EFA Model 1

Rotated Component Matrix ^a										
	Component									
	1	2	3	4	5	6	7	8	9	10
Q8. I know what I like in my work							.771			
Q9. I know what is important to me in my career		.304		.303			.614			
Q10. I know well what is my passion at work							.654			
Q11. I know a lot of people within my work who can help me with my career	.313			.617						
Q12. I know a lot of people outside of my work who can help me with my career				.625						
Q13. I know how to ask for advice from people in my network				.659						
Q14. I am able to approach the right persons to help me with my career				.666						
Q15. I know how to find different options for furthering my education				.335					.529	
Q16. I know how to search for developments in my area of work				.389					.535	
Q17. I have the ability to find out my career options and opportunities in the labor market									.703	
Q18. I know my strengths in my work			.319							.717
Q19. I know my weaknesses in my current job										.674
Q20. I am aware of my talents in my work			.534							.435
Q21. I know which skills I have			.710							
Q22. I can clearly show others what my strengths are in my work			.724							
Q23. I am able to show others what I want to achieve in my career		.304	.656							
Q24. I can show the people around me what is important to me in my work			.567			.326				
Q25. I have made a clear career plan	.302	.667							.316	
Q26. I know what I want to achieve in my career during the next year		.748								
Q27. I can create a plan to achieve my career goals		.745								
Q28. I am able to set goals for myself that I want to achieve in my career		.717								
Q29. My line of work/career field is an important part of who I am						.742				
Q30. This line of work/career field has a great deal of personal meaning to me						.785				
Career_identity3_recode					.526	.422				
Q32. I feel a connection with my chosen line of work/career field						.668				
Career_planning1_recode					.783					
career_planning3_recode					.804					
career_planning4_recode					.841					
Q38. Given the problems I encounter in this line of work/career field, I sometimes wonder								.759		
Q39. Given the problems in this line of work/career field, I sometimes wonder if the person								.870		
Q40. The discomforts associated with my line of work/career field sometimes seem too g								.657		
Q41. I am satisfied with the success I have achieved in my career	.779									
Q42. I am satisfied with the progress I have made toward meeting my overall career goals	.778									
Q43. I am satisfied with the progress I have made toward meeting my goals for income	.765									
Q44. I am satisfied with the progress I have made toward meeting my goals for advancement	.763									
Q45. I am satisfied with the progress I have made toward meeting my goals for the develop	.689									

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. ^a

a. Rotation converged in 9 iterations.

Appendix 5.2 - Constructs Reliability Statistics

Reliability Statistics

Cronbach's Alpha	N of Items
.784	3

Item Statistics

	Mean	Std. Deviation	N
Boundaryless_Know_Why1	5.99	1.256	407
Boundaryless_Know_Why2	6.14	1.129	407
Boundaryless_Know_Why3	5.95	1.345	407

Inter-Item Correlation Matrix

	Boundaryless_Kn ow_Why1	Boundaryless_Kn ow_Why2	Boundaryless_Kn ow_Why3
Boundaryless_Know_Why1	1.000	.558	.542
Boundaryless_Know_Why2	.558	1.000	.555
Boundaryless_Know_Why3	.542	.555	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
Boundaryless_Know_Why1	12.09	4.770	.622	.707
Boundaryless_Know_Why2	11.94	5.220	.633	.702
Boundaryless_Know_Why3	12.14	4.437	.621	.714

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.755	.763	4

Inter-Item Correlation Matrix

	Boundaryless_Kn ow_whom1	Boundaryless_Kn ow_whom2	Boundaryless_Kn ow_whom3	Boundaryless_Kn ow_whom4
Boundaryless_Know_whom1	1.000	.355	.451	.468
Boundaryless_Know_whom2	.355	1.000	.378	.412
Boundaryless_Know_whom3	.451	.378	1.000	.612
Boundaryless_Know_whom4	.468	.412	.612	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Boundaryless_Know_whom1	16.15	13.331	.525	.283	.713
Boundaryless_Know_whom2	16.52	13.413	.465	.218	.752
Boundaryless_Know_whom3	15.75	14.113	.609	.420	.673
Boundaryless_Know_whom4	15.94	13.213	.634	.444	.654

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.743	.748	3

Inter-Item Correlation Matrix

	Boundaryless_K now_how1	Boundaryless_Kn ow_how2	Boundaryless_K now_how3
Boundaryless_Know_how1	1.000	.539	.449
Boundaryless_Know_how2	.539	1.000	.502
Boundaryless_Know_how3	.449	.502	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Boundaryless_Know_how1	11.04	5.621	.565	.334	.661
Boundaryless_Know_how2	10.91	5.794	.610	.375	.618
Boundaryless_Know_how3	11.37	5.130	.541	.297	.700

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.741	.746	4

Inter-Item Correlation Matrix

	Protean_Selfkno wledge1	Protean_Selfkno wledge2	Protean_Selfkno wledge3	Protean_Selfkno wledge4
Protean_Selfknowledge1	1.000	.468	.480	.436
Protean_Selfknowledge2	.468	1.000	.322	.299
Protean_Selfknowledge3	.480	.322	1.000	.533
Protean_Selfknowledge4	.436	.299	.533	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Protean_Selfknowledge1	18.29	6.339	.604	.366	.643
Protean_Selfknowledge2	18.59	6.582	.449	.236	.735
Protean_Selfknowledge3	18.49	6.157	.564	.364	.665
Protean_Selfknowledge4	18.31	7.038	.538	.330	.684

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.759	.762	2

Inter-Item Correlation Matrix

	Protean_Interpersonal_knowledge2	Protean_Interpersonal_knowledge3
Protean_Interpersonal_knowledge2	1.000	.616
Protean_Interpersonal_knowledge3	.616	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Protean_Interpersonal_knowledge2	5.99	1.288	.616	.379	.
Protean_Interpersonal_knowledge3	5.64	1.639	.616	.379	.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.865	.871	4

Inter-Item Correlation Matrix

	Protean_Environ mental_knowledg e1	Protean_Environ mental_knowledg e2	Protean_Environ mental_knowledg e3	Protean_Environ mental_knowledg e4
Protean_Environmental_knowledge1	1.000	.614	.597	.564
Protean_Environmental_knowledge2	.614	1.000	.641	.602
Protean_Environmental_knowledge3	.597	.641	1.000	.755
Protean_Environmental_knowledge4	.564	.602	.755	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Protean_Environmental_knowledge1	16.54	14.712	.674	.458	.851
Protean_Environmental_knowledge2	16.03	15.201	.712	.509	.829
Protean_Environmental_knowledge3	15.88	15.831	.768	.639	.808
Protean_Environmental_knowledge4	15.71	16.979	.734	.602	.825

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.730	.753	4

Inter-Item Correlation Matrix

	Career_Commitm ent_Career_identi ty1	Career_Commitm ent_Career_identi ty2	Career_identity3_ recode	Career_Commitm ent_Career_identi ty4
Career_Commitment_Career_identity1	1.000	.662	.196	.503
Career_Commitment_Career_identity2	.662	1.000	.291	.663
Career_identity3_recode	.196	.291	1.000	.280
Career_Commitment_Career_identity4	.503	.663	.280	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Career_Commitment_Career_identity1	14.8452	15.397	.558	.446	.650
Career_Commitment_Career_identity2	15.0614	14.023	.701	.592	.569
Career_identity3_recode	16.6609	15.791	.298	.098	.824
Career_Commitment_Career_identity4	15.2015	14.708	.611	.456	.619

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.727	.727	2

Inter-Item Correlation Matrix

	career_planning3_recode	career_planning4_recode
career_planning3_recode	1.000	.571
career_planning4_recode	.571	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
career_planning3_recode	.0161591	1.004	.571	.327	.
career_planning4_recode	.0109835	1.014	.571	.327	.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.771	.772	2

Inter-Item Correlation Matrix

	Career_Commitment_Career_resilience2	Career_Commitment_Career_resilience3
Career_Commitment_Career_resilience2	1.000	.628
Career_Commitment_Career_resilience3	.628	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Career_Commitment_Career_resilience2	4.86	3.035	.628	.394	.
Career_Commitment_Career_resilience3	4.99	2.712	.628	.394	.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.871	.871	5

Inter-Item Correlation Matrix

	Career_success1	Career_success2	Career_success3	Career_success4	Career_success5
Career_success1	1.000	.764	.587	.556	.462
Career_success2	.764	1.000	.594	.656	.523
Career_success3	.587	.594	1.000	.557	.483
Career_success4	.556	.656	.557	1.000	.554
Career_success5	.462	.523	.483	.554	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Career_success1	19.99	29.648	.726	.613	.836
Career_success2	20.01	29.123	.789	.675	.820
Career_success3	20.47	29.629	.670	.450	.851
Career_success4	20.23	30.295	.704	.514	.841
Career_success5	19.67	33.388	.598	.374	.865

Appendix 2 – Variables reliability scores and intercorrelations

Appendix 5.3: CMB

Standardized Regression Weights: (Group number 1 - Default model)			With CLF	Standardized Regression Weights: (Group number 1 - Default model)			Without CLF	
			Estimate				Estimate	Delta Scores
Boundaryless_Know_Why3	<---	KnowWhy	0.529	Boundaryless_Know_Why3	<---	KnowWhy	0.753	0.224
Boundaryless_Know_whom4	<---	KnowWhom	0.525	Boundaryless_Know_whom4	<---	KnowWhom	0.775	0.25
Boundaryless_Know_how1	<---	KnowHow	0.35	Boundaryless_Know_how1	<---	KnowHow	0.716	0.366
Protean_Selfknowledge3	<---	SelfKnowledge	0.534	Protean_Selfknowledge3	<---	SelfKnowledge	0.668	0.134
Protean_Selfknowledge1	<---	SelfKnowledge	0.589	Protean_Selfknowledge1	<---	SelfKnowledge	0.739	0.15
Protean_Interpersonal_knowledge3	<---	Interpersonal	0.628	Protean_Interpersonal_knowledge3	<---	Interpersonal	0.836	0.208
Protean_Interpersonal_knowledge2	<---	Interpersonal	0.481	Protean_Interpersonal_knowledge2	<---	Interpersonal	0.736	0.255
Protean_Environmental_knowledge4	<---	Environmental	0.575	Protean_Environmental_knowledge4	<---	Environmental	0.848	0.273
Protean_Environmental_knowledge3	<---	Environmental	0.542	Protean_Environmental_knowledge3	<---	Environmental	0.878	0.336
Protean_Environmental_knowledge2	<---	Environmental	0.347	Protean_Environmental_knowledge2	<---	Environmental	0.723	0.376
Protean_Environmental_knowledge1	<---	Environmental	0.209	Protean_Environmental_knowledge1	<---	Environmental	0.692	0.483
career_planning4_recode	<---	Planning	0.875	career_planning4_recode	<---	Planning	0.61	-0.265
Career_Commitment_Career_resilience3	<---	Resilience	0.916	Career_Commitment_Career_resilience3	<---	Resilience	0.744	-0.172
Career_Commitment_Career_resilience2	<---	Resilience	0.688	Career_Commitment_Career_resilience2	<---	Resilience	0.845	0.157
Career_success5	<---	CareerSucess	0.32	Career_success5	<---	CareerSucess	0.588	0.268
Career_success4	<---	CareerSucess	0.494	Career_success4	<---	CareerSucess	0.713	0.219
Career_success3	<---	CareerSucess	0.58	Career_success3	<---	CareerSucess	0.741	0.161
Career_success2	<---	CareerSucess	0.64	Career_success2	<---	CareerSucess	0.933	0.293
Career_success1	<---	CareerSucess	0.647	Career_success1	<---	CareerSucess	0.809	0.162
Boundaryless_Know_Why2	<---	KnowWhy	0.533	Boundaryless_Know_Why2	<---	KnowWhy	0.771	0.238
Boundaryless_Know_how2	<---	KnowHow	0.305	Boundaryless_Know_how2	<---	KnowHow	0.754	0.449
career_planning3_recode	<---	Planning	0.643	career_planning3_recode	<---	Planning	0.936	0.293
Boundaryless_Know_whom3	<---	KnowWhom	0.772	Boundaryless_Know_whom3	<---	KnowWhom	0.789	0.017
Boundaryless_Know_Why1	<---	KnowWhy	0.612	Boundaryless_Know_Why1	<---	KnowWhy	0.7	0.088
Career_Commitment_Career_identity4	<---	Identity	0.564	Career_Commitment_Career_identity4	<---	Identity	0.748	0.184
Career_Commitment_Career_identity2	<---	Identity	0.801	Career_Commitment_Career_identity2	<---	Identity	0.883	0.082
Career_Commitment_Career_identity1	<---	Identity	0.586	Career_Commitment_Career_identity1	<---	Identity	0.732	0.146
Protean_Selfknowledge4	<---	SelfKnowledge	0.626	Protean_Selfknowledge4	<---	SelfKnowledge	0.78	0.154
Boundaryless_Know_Why2	<---	Common	0.557					
Boundaryless_Know_Why3	<---	Common	0.538					
Boundaryless_Know_Why1	<---	Common	0.426					
Boundaryless_Know_whom4	<---	Common	0.505					
Boundaryless_Know_whom3	<---	Common	0.439					
Boundaryless_Know_how1	<---	Common	0.632					
Boundaryless_Know_how2	<---	Common	0.747					
Protean_Selfknowledge1	<---	Common	0.465					
Protean_Selfknowledge3	<---	Common	0.41					
Protean_Selfknowledge4	<---	Common	0.481					
Protean_Interpersonal_knowledge2	<---	Common	0.557					
Protean_Interpersonal_knowledge3	<---	Common	0.59					
Protean_Environmental_knowledge1	<---	Common	0.71					
Protean_Environmental_knowledge2	<---	Common	0.648					
Protean_Environmental_knowledge3	<---	Common	0.697					
Protean_Environmental_knowledge4	<---	Common	0.656					
Career_Commitment_Career_identity1	<---	Common	0.431					
Career_Commitment_Career_identity2	<---	Common	0.451					
Career_Commitment_Career_identity4	<---	Common	0.48					
career_planning3_recode	<---	Common	0.224					
career_planning4_recode	<---	Common	0.042					
Career_Commitment_Career_resilience2	<---	Common	0.117					
Career_Commitment_Career_resilience3	<---	Common	-0.021					
Career_success1	<---	Common	0.51					
Career_success2	<---	Common	0.669					
Career_success3	<---	Common	0.476					
Career_success4	<---	Common	0.529					
Career_success5	<---	Common	0.531					

Appendix 5.4: HTMT Test

Monotrait			
Boundaryless_Know_Why	0.55		
Boundaryless_Know_whom	0.51		
Boundaryless_Know_how	0.50		
Protean_Selfknowledge	0.53		
Protean_Interpersonal_knowledge	0.62		
Protean_Environmental_knowledge	0.63		
Career_Commitment_Career_identity	0.61		
career_planning	0.57		
Career_Commitment_Career_resilience	0.63		
Career_success	0.57		
		Hetetriat	HTMT Ratio
Boundaryless_Know_Why	Boundaryless_Know_whom	.374	0.70481797
Boundaryless_Know_Why	Boundaryless_Know_how	0.38	0.7187325
Boundaryless_Know_Why	Protean_Selfknowledge	0.32	0.58540736
Boundaryless_Know_Why	Protean_Interpersonal_knowledge	0.37	0.63555362
Boundaryless_Know_Why	Protean_Environmental_knowledge	0.39	0.66505659
Boundaryless_Know_Why	Career_Commitment_Career_identity	0.35	0.61145418
Boundaryless_Know_Why	Career_Commitment_Career_planning	0.15	0.26423088
Boundaryless_Know_Why	Career_Commitment_Career_resilience	0.06	0.09423784
Boundaryless_Know_Why	Career_success	0.29	0.50957979
		Hetetriat	HTMT Ratio
Boundaryless_Know_whom	Boundaryless_Know_how	0.37	0.74315012
Boundaryless_Know_whom	Protean_Selfknowledge	0.28	0.53049669
Boundaryless_Know_whom	Protean_Interpersonal_knowledge	0.41	0.72495811
Boundaryless_Know_whom	Protean_Environmental_knowledge	0.36	0.63887816
Boundaryless_Know_whom	Career_Commitment_Career_identity	0.31	0.55041956
Boundaryless_Know_whom	Career_Commitment_Career_planning	0.09	0.15930496
Boundaryless_Know_whom	Career_Commitment_Career_resilience	0.04	0.07258001
Boundaryless_Know_whom	Career_success	0.33	0.60482619
		Hetetriat	HTMT Ratio
Boundaryless_Know_how	Protean_Selfknowledge	0.27	0.52828326
Boundaryless_Know_how	Protean_Interpersonal_knowledge	0.40	0.72476727
Boundaryless_Know_how	Protean_Environmental_knowledge	0.40	0.71812958
Boundaryless_Know_how	Career_Commitment_Career_identity	0.28	0.50354323
Boundaryless_Know_how	Career_Commitment_Career_planning	0.13	0.24427389
Boundaryless_Know_how	Career_Commitment_Career_resilience	0.09	0.16725304
Boundaryless_Know_how	Career_success	0.28	0.51771829
		Hetetriat	HTMT Ratio
Protean_Selfknowledge	Protean_Interpersonal_knowledge	0.39	0.68309851
Protean_Selfknowledge	Protean_Environmental_knowledge	0.32	0.55635479
Protean_Selfknowledge	Career_Commitment_Career_identity	0.24	0.42084473
Protean_Selfknowledge	Career_Commitment_Career_planning	0.09	0.1589326
Protean_Selfknowledge	Career_Commitment_Career_resilience	0.14	0.24042858
Protean_Selfknowledge	Career_success	0.24	0.42525861
		Hetetriat	HTMT Ratio
Protean_Interpersonal_knowledge	Protean_Environmental_knowledge	0.46	0.73990183
Protean_Interpersonal_knowledge	Career_Commitment_Career_identity	0.38	0.62805519
Protean_Interpersonal_knowledge	Career_Commitment_Career_planning	0.12	0.20181253
Protean_Interpersonal_knowledge	Career_Commitment_Career_resilience	0.14	0.23100403
Protean_Interpersonal_knowledge	Career_success	0.32	0.54131324
		Hetetriat	HTMT Ratio
Protean_Environmental_knowledge	Career_Commitment_Career_identity	0.37	0.59270752
Protean_Environmental_knowledge	Career_Commitment_Career_planning	0.17	0.28275202
Protean_Environmental_knowledge	Career_Commitment_Career_resilience	0.11	0.17815628
Protean_Environmental_knowledge	Career_success	0.35	0.58675941
		Hetetriat	HTMT Ratio
Career_Commitment_Career_identity	Career_Commitment_Career_planning	0.18	0.30017076
Career_Commitment_Career_identity	Career_Commitment_Career_resilience	0.01	0.01381319
Career_Commitment_Career_identity	Career_success	0.36	0.60936824
		Hetetriat	HTMT Ratio
career_planning	Career_Commitment_Career_resilience	-0.12	-0.1990137
career_planning	Career_success	0.12	0.2139326
		Hetetriat	HTMT Ratio
Career_Commitment_Career_resilience	Career_success	0.06	0.09778539

Appendix 5.5: Coefficients table – Summary of findings

Coefficients ^a						
Model	Unstandardised Coefficients		Beta	t	Sig.	
	B	Std. Error				
1	(Constant)	.335	.430		.779	.437
	Know_Whom_CFA_NEW	.164	.055	.154	2.987	.003
	Know_HOW_CFA_NEW	-.135	.128	-.112	-1.052	.294
	KnowWhyCFA	.193	.133	.157	1.447	.149
	SelfknowledgeCFA	-.001	.031	-.002	-.040	.968
	InterpersonalknowledgeCF	.033	.044	.041	.753	.452
	A					
	EnviromentalknowledgeCF	.073	.017	.235	4.261	.000
	A					
	Career_Commitment_Identi	.122	.020	.284	5.970	.000
	tyCFA					
	Career_Commitment_Planni	.029	.023	.051	1.228	.220
	ngCFA					
	Career_Commitment_Reseli	.018	.025	.030	.727	.467
	enceCFA					

a. Dependent Variable: CAREER_SUCCESS_ALL

Appendix 5.6: Higher order constructs - Coefficients table

Coefficients ^a						
Model	Unstandardised Coefficients		Standardised Coefficients	t	Sig.	
	B	Std. Error				
1	(Constant)	-.516	.386		-1.338	.182
	Computed_Career_Commitmn	.082	.014	.265	5.641	.000
	et					
	Computed_ProteanCareer	.055	.017	.173	3.128	.002
	Updated_Computed_Bounderyl	.092	.017	.289	5.460	.000
	essCareer					

a. Dependent Variable: Success_compute

Appendix 5.7: Communalities table

Communalities		
	Initial	Extraction
Boundaryless_Know_Why1	1.000	.729
Boundaryless_Know_Why2	1.000	.671
Boundaryless_Know_Why3	1.000	.700
Boundaryless_Know_whom1	1.000	.523
Boundaryless_Know_whom2	1.000	.525
Boundaryless_Know_whom3	1.000	.664
Boundaryless_Know_whom4	1.000	.623
Boundaryless_Know_how1	1.000	.665
Boundaryless_Know_how2	1.000	.682
Boundaryless_Know_how3	1.000	.642
Protean_Selfknowledge1	1.000	.673
Protean_Selfknowledge2	1.000	.594
Protean_Selfknowledge3	1.000	.661
Protean_Selfknowledge4	1.000	.667
Protean_Interpersonal_knowledge2	1.000	.666
Protean_Interpersonal_knowledge3	1.000	.718
Protean_Environmental_knowledge1	1.000	.718
Protean_Environmental_knowledge2	1.000	.662
Protean_Environmental_knowledge3	1.000	.730
Protean_Environmental_knowledge4	1.000	.688
Career_Commitment_Career_identity1	1.000	.671
Career_Commitment_Career_identity2	1.000	.786
Career_identity3_recode	1.000	.637
Career_Commitment_Career_identity4	1.000	.670
career_planning2_recode	1.000	.614
career_planning3_recode	1.000	.591
career_planning4_recode	1.000	.707
Career_Commitment_Career_resilience2	1.000	.736
Career_Commitment_Career_resilience3	1.000	.797
Career_Commitment_Career_resilience4	1.000	.610
Career_success1	1.000	.693
Career_success2	1.000	.720
Career_success3	1.000	.701
Career_success4	1.000	.652
Career_success5	1.000	.472
Extraction Method: Principal Component Analysis.		