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THE RELATIONSHIP BETWEEN EMPLOYABILITY, CAREER ADAPTABILITY, AND PSYCHOLOGICAL CAPITAL AMONGST NON-DEGREED YOUTH AT AN EDUCATIONAL INSTITUTION

by

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I declare that the above dissertation is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

I further declare that I submitted the dissertation to originality-checking software and that it falls within the accepted requirements for originality. The APA 7th Edition was used as the reference style in this dissertation.

I further declare that I have not previously submitted this work, or part of it, for examination at Unisa for another qualification or at any other higher education institution.

Jean van Vuuren   4 April 2023

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"Count your blessings, name them one by one" - Johnson Oatman, Jr.

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Abstract

Orientation: The world of work is advancing and dominated by the demands of the Fourth Industrial Revolution (4IR) and ever-faster technological developments. Employability, rather than just finding employment, is required today. Consequently, employees, but increasingly the youth, must adapt and adjust their skills, knowledge, and behaviour to maintain employability in our contemporary work context. An adaptability mindset and a set of psycho-social career resources are needed to enable youths to sustain employment in a fluid work climate. To remain employable, people must adopt a protean career by adapting to their circumstances and updating their skills and knowledge to stay relevant in the 4IR work environment and contribute to their employers' success. Career adaptability is a critical skill linked to a person's ability to identify ideas to find or create employment opportunities. Due to the pressures of the 4IR, students and workers will experience stressors and pressure to find and maintain employment. Therefore, they may need to be equipped with psycho-social career resources to assist them in managing challenges and setbacks and adjusting their careers to find employability.

Research Purpose: The study explored the relationship between employability, career adaptability, and psychological capital amongst non-degreed youth at an educational institution. The objectives of the study were as follows:

- To establish if there is a significant positive relationship between employability and career adaptability amongst non-degreed youth at an educational institution.
- To determine if a significant positive relationship exists between employability and psychological capital amongst non-degreed youth at an educational institution.
- To determine if a significant positive relationship exists between career adaptability and psychological capital amongst non-degreed youth at an educational institution.
- To determine if there is a statistically significant difference between employability and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.
- To determine if there is a statistically significant difference between career adaptability and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.
- To establish if there is a statistically significant difference between psychological capital and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.

- To offer recommendations for the practice and research of industrial and organisational psychology professionals as well as educational and counselling professionals regarding employability, career adaptability, and psychological capital and how it affects youth.

Motivation for the Study: The present-day work environment is volatile owing to the pressures of the 4IR. Therefore, there is an ever-increasing need to equip youths and new entry workers with the attributes that ensure employability and the know-how to flex their careers around the work environment demands. There is also a need to aid them in strengthening their psycho-social career resources to help them cope with changes in their career and to help them maintain employability. The researcher could not find research examining the association between employability, career adaptability, and psychological capital, especially among youth, and how they relate to these concepts.

Research Design, Approach and Method: This study used a cross-sectional quantitative, non-experimental research approach to evaluate the interrelatedness of variables. A Biographical Questionnaire, Employability Attributes Scale (EAS), Career Adapt-Abilities Scale (CAAS) and Psychological Capital Questionnaire (PCQ-24) were used to gather data. A non-probability approach was followed to select the participants using a convenience sampling method. There were 263 participants in the sample group. Descriptive statistics and techniques such as correlation statistics, t-tests, and tests for significant mean differences between the participant groups were used to analyse the data.

Main Findings: The results demonstrated a strong positive significant relationship between employability and career adaptability, employability and psychological capital, and career adaptability and psychological capital. The relationship between employability and career adaptability was more substantial than the relationship between employability and psychological capital. There was also evidence of significant statistical differences at a demographic level.

Practical Implications and Contributions: The study results indicate that cultivating employability attributes and career adaptability, together with psychological support factors such as resilience and efficacy of youths in educational institutions, may strengthen youths' self-perceived employability and how well they adjust their careers to a changing labour environment. The findings also highlight educational institutions' vital role in navigating students towards fostering self-directed behaviour early in their academic training through their curriculum. Within workplaces, industrial psychologists also have to play an active role in developing young entry-level workers and assisting them in obtaining the required

employability attributes and mindset to adjust their careers in a changeable 4IR work environment.

Contribution/ Value-Add: The research is consequential in its usefulness as it contributes to the theoretical understanding of how employability, career adaptability, and psychological capital relate. It is also a study focusing on a South African view of this combination of variables and how professionals can use it to the advantage of South African youth.

Keywords: career adaptability, employability, psychological capital, psycho-social career resources, Fourth Industrial Revolution

Opsomming

Oriëntasie: Die wêreld van werk moet voldoen aan die eise van die vierde industriële revolusie (4IR) en met algaande sneller tegnologiese vooruitgang tred hou. Deesdae word indiensneembaarheid vereis eerder as bloot 'n betrekking vind. Gevolglik moet werknemers en veral jong mense aanpasbaar wees en hulle vaardighede, kennis en gedrag aanpas om indiensneembaar te bly. 'n Ingesteldheid van aanpasbaarheid en psigo-sosiale loopbaanhulpmiddels is onontbeerlik in 'n vloeibare werksklimaat. Mense moet proteïese beroepe kan beoefen, hulle by omstandighede kan aanpas, en hulle kennis en vaardighede kan verbeter om relevant te bly en tot hulle werknemer se sukses by te dra. Beroepsaanpasbaarheid is 'n kritiese vaardigheid wat verband hou met iemand se vermoë om idees aan te toon of werksgeleenthede te skep. Weens die druk van die 4IR sal studente en werknemers stressors en druk ondervind om werk te vind en te behou. Hulle moet daarom toegerus word met psigo-sosiale beroepshulpmiddels om aan uitdagings en terugslae die hoof te bied en hulle beroep aan te pas om indiensneembaar te wees.

Navorsingsoogmerk: Hierdie studie het die verband tussen indiensneembaarheid, beroepsaanpasbaarheid en psigologiese kapitaal onder voorgraadse jong mense aan 'n opvoedkundige instelling verken. Die oogmerke van hierdie studie was die volgende:

- Om vas te stel of daar onder voorgraadse jongmense aan 'n opvoedkundige instelling 'n betekenisvolle, positiewe verband tussen indiensneembaarheid en beroepsaanpasbaarheid bestaan.
- Om te bepaal of daar onder voorgraadse jongmense aan 'n opvoedkundige instelling 'n betekenisvolle, positiewe verband tussen indiensneembaarheid en psigologiese kapitaal bestaan.
- Om uit te vind of daar onder voorgraadse jongmense aan 'n opvoedkundige instelling 'n betekenisvolle, positiewe verband tussen beroepsaanpasbaarheid en psigologiese kapitaal bestaan.
- Om agter te kom of daar onder voorgraadse jongmense aan 'n opvoedkundige instelling 'n statisties betekenisvolle verskil tussen indiensneembaarheid en (a) geslag, (b) ouderdom, (c) ras en (d) huistaal bestaan.
- Om te bepaal of daar onder voorgraadse jongmense aan 'n opvoedkundige instelling 'n statisties betekenisvolle verskil tussen beroepsaanpasbaarheid en (a) geslag, (b) ouderdom, (c) ras en (d) huistaal bestaan.
- Om vas te stel of daar onder voorgraadse jongmense aan 'n opvoedkundige instelling 'n statisties betekenisvolle verskil tussen psigologiese kapitaal en (a) geslag, (b) ouderdom, (c) ras en (d) huistaal bestaan.

- Om aanbevelings oor die indiensneembaarheid, beroepsaanpasbaarheid en psigologiese kapitaal van jong mense te doen ten bate van die praktyk en die navorsing van maatskappy- en bedryfsielkundiges asook opvoedkundiges en voorligters.

Motivering vir die studie: Die hedendaagse werksomgewing is veranderlik as gevolg van die druk wat die 4IR meebring. Dus word dit al hoe noodsakliker om jongmense en nuwe werkers met eienskappe toe te rus sodat hulle indiensneembaar en kundig kan wees, en hulle beroepe kan aanpas na die eise wat die werksomgewing stel. Ook moet hulle psigo-sosiale beroepshulpmiddels verbeter word met die oog op veranderings in hulle beroepe en hulle indiensneembaarheid. Die navorser kon geen navorsing oor die verband tussen indiensneembaarheid, beroepsaanpasbaarheid en psigologiese kapitaal onder veral jong mense en hulle siening daarvan vind nie.

Navorsingsontwerp, -benadering en -metode: In hierdie studie is ʼn deursnee-kwantitatiewe, nie-proefondervindelike navorsingsbenadering gevolg om die onderlinge verband tussen veranderlikes te evalueer. Data is met behulp van ʼn biografiese vraelys, ʼn skaal van indiensneembaarheidseienskappe (SIE), ʼn beroepsaanpasbaarheidskaal (BAS), en ʼn vraelys aangaande psigologiese kapitaal (PCQ-24) ingesamel. ʼn Nie-waarskynlikheidsbenadering is in die keuse van deelnemers gevolg en ʼn gerieflikheidsteekproefneming is toegepas. Die steekproefgroep het uit 263 deelnemers bestaan. Om die data te ontleed, is beskrywende statistiek en tegnieke soos korrelasiestatistiek, t-toetse en toetse vir verskille tussen die betekenisvolle gemiddeldes van die groepe deelnemers gebruik.

Bevindings: Volgens die bevindings is daar ʼn sterk positiewe, betekenisvolle verband tussen indiensneembaarheid en psigologiese kapitaal. Die verband tussen indiensneembaarheid en beroepsaanpasbaarheid was groter as dié tussen indiensneembaarheid en psigologiese kapitaal. Daar was eweneens bewyse van betekenisvolle statistiese verskille op demografiese vlak.

Praktiese implikasies en bydraes: Uit die bevindings van hierdie studie blyk dat die kweek van indiensneembaarheidseienskappe en beroepsaanpasbaarheid asook psigologiese hulpfaktore soos veerkrag en werksaamheid by jong mense aan opvoedkundige instellings, jong mense se persepsie van hulle eie indiensneembaarheid en vermoë om hulle beroepe volgens ʼn veranderende werksomgewing aan te pas, kan verbeter. Afgesien hiervan benadruk die bevindings die wesenlike rol wat opvoedkundige instellings en kurrikulums vroeg in jong mense se akademiese opleiding speel om selfgerigte gedrag by hulle te kweek.

Bedryfsielkundiges behoort intreevlakwerkers by te staan om die verlangde indiensneembaarheidseienskappe en ingesteldheid aan te kweek sodat hulle hul beroepe by 'n veranderlike 4IR-werksomgewing kan aanpas.

Bydrae/Waardetoevoeging: Die navorsing lewer 'n wesenlike bydrae tot die teoretiese begrip van die verband tussen indiensneembaarheid, loopbaanaanpasbaarheid en psigologiese kapitaal. Dit gee 'n Suid-Afrikaanse siening van hierdie kombinasie van veranderlikes en van hoe beroepslui dit tot voordeel van Suid-Afrikaanse jong mense kan aanwend.

Sleutelwoorde: beroepsaanpasbaarheid, indiensneembaarheid, psigologiese kapitaal, psigo-sosiale beroepshulpmiddels, vierde industriële revolusie.

Kakaretšo

Tebelelo: Lefase la mošomo le tšwela pele go hlaBologa ebile le laolwa ke dinyakwa tša legato la bone la phetogo ya diintasteri (4IR) gammogo le ditlhabollo tša theknolotši tšeo di hlangwago ka lebelo. Bokgoni bja go thwalega, go fapana le go no hwetša mošomo, bo a nyakega matšatšing a lehono. Ka lebaka leo, bašomi, kudu ka koketšego, go šupša baswa, ba swanetše go fetoša le go beakanya bokgoni, tsebo le maitshwaro a bona gore ba kgone go thwalega ka go seemo sa rena sa mešomo ya sebjalebjale. Mogopolo wa go kgona go fetoga le kgoboko ya methopo ya mananeo ao a ikemišeditšego go godiša mabokgoni a setšhaba a mešomo a hlokega go kgontšha baswa go kgotlelela mešomo mo maemong a diphetogo mešomong. Gore ba dule ba thwetšwe, batho ba swanetše go amogela mešomo ye e iphetogelago nako le nako ka go itlwaetša maemo a bona le go mpshafatša bokgoni le tsebo ya bona gore ba dule ba hlokega tikologong ya mešomo ya 4IR go tsenya letsogo katlegong ya mongmošomo. Bokgoni bja go amogela phetogo mošomong ke bokgoni bjo bohlokwa bjo bo amantšhwago le bokgoni bja motho bja go hlatha dikgopolo tša go hwetša goba go hlola menyetla ya mošomo. Ka lebaka la dikgatelelo tša 4IR, baithuti le bašomi ba tla itemogela matshwenyego a maikutlo le kgatelelo ya go hwetša le go swarelela mešomo. Ka lebaka leo, ba ka swanelwa ke go hlahlwa ka methopo ya mananeo ao a ikemišeditšego go godiša mabokgoni a setšhaba a mešomo go ba thuša go laola ditlhohlo le ditšhitišo gammogo le go beakanya mešomo ya bona gore ba thwalege.

Morero wa nyakišišo: Nyakišišo ye e hlahlobile kamano magareng ga go thwalega, bokgoni bja go amogela phetogo mošomong le boemo bjo bobotse bja monagano bja motho go itlhabolla gare go baswa bao ba senago mangwalo a thuto ya godimo gotšwa go sehlongwa sa thuto. Maikemišetšo a nyakišišo ye e be e le ao a latelago:

- Go hlatha ge e ba go na le kamano ye botse ye bohlokwa magareng ga go thwalega le bokgoni bja go amogela phetogo mošomong gare go baswa bao ba senago mangwalo a thuto ya godimo gotšwa go sehlongwa sa thuto.
- Go bona ge e ba go na le kamano ye botse ye bohlokwa magareng ga go thwalega le boemo bjo bobotse bja monagano bja motho go itlhabolla gare go baswa bao ba senago mangwalo a thuto ya godimo gotšwa go sehlongwa sa thuto.
- Go bona ge e ba go na le kamano ye botse ye bohlokwa magareng ga bokgoni bja go amogela phetogo mošomong le boemo bjo bobotse bja monagano bja motho go itlhabolla gare go baswa bao ba senago mangwalo a thuto ya godimo gotšwa go sehlongwa sa thuto.

- Go bona ge e ba go na le phapano ye bohlokwa go ya ka dipalopalo magareng ga go thwalega, le (a) bong, (b) mengwaga, (c) morafe le (d) polelo ya gae gare ga baswa bao ba senago mangwalo a thuto ya godimo gotšwa go sehlongwa sa thuto.

- Go bona ge e ba go na le phapano ye bohlokwa go ya ka dipalopalo magareng ga bokgoni bja go amogela phetogo mošomong le (a) bong, (b) mengwaga, (c) morafe le (d) polelo ya gae gare ga baswa bao ba senago mangwalo a thuto ya godimo gotšwa go sehlongwa sa thuto.

- Go bona ge e ba go na le phapano ye bohlokwa go ya ka dipalopalo magareng ga boemo bjo bobotse bja monagano bja motho go itlhabolla le (a) bong, (b) mengwaga, (c) morafe le (d) polelo ya gae gare ga baswa bao ba se nago mangwalo a thuto ya godimo go tšwa go sehlongwa sa thuto.

- Go fana ka ditigelo ka ga ditirišo le dinyakišišo tša ditsebi tša thutotlhaloganyo ya intasteri le ya mokgatlo gammogo le ditsebi tša thuto le tša thobamatswalo mabapi le go thwalega, bokgoni bja go amogela phetogo mošomong le boemo bjo bobotse bja monagano bja motho go itlhabolla le gore di ama baswa bjang.

Tlhohleletšo ya Nyakišišo: Tikologo ya mošomo ya gabjale e a fetogafetoga ka lebaka la dikgatelelo tša 4IR. Ka gona, go na le tlhokego ye e tšwelago pele go oketšega ya go hlama baswa le bašomi bao ba sa tšwago go tsena ka ditlabela tšeo di netefatšago gore ba thwalege le gore ba tsebe go katološa le go fetoša mešomo ya bona go obamela dinyakwa tša tikologo ya mošomo. Gape go na le tlhokego ya go ba thuša go maatlafatša methopo ya bona ya go kgona go amogela maemo a phetogo setšhabeng go ba thuša ka mananeo go amogela diphetogo mešomong ya bona gammogo le go ba thuša gore ba thwalege. Monyakišiši ga se a hwetša nyakišišo yeo e hlahlobago kamano magareng ga go thwalega, bokgoni bja go amogela phetogo mošomong le boemo bjo bobotse bja monagano bja motho go itlhabolla, kudu gare ga baswa, le ka moo ba amanago le dikgopolo tše.

Tlhamo ya Nyakišišo, Mokgwa le Tebelelo: Nyakišišo ye e šomišitše mokgwa wa nyakišišo ya boleng ya go lebelela mabaka a mantši ka nako ye tee, ye e sa huetšego ke lebaka le tee fela go sekaseka kamano ya mabaka. Mananeopotšišo a Taodišophelo, a Tekanyo ya Ditlabela tša go Thwalega (EAS), Bokgoni bja go Amogela Diphetogo Mošomong (CAAS) le Lenaneopotšišo la Boemo bjo bobotse bja Monagano bja Motho go Itlhabolla (PCQ-24) a ile a šomišwa go kgoboketša datha. Mokgwa wa go kgetha bakgathatema bao go nago kgonagalo ya gore ba ka se šomišwe o šomišitšwe go kgetha bakgathatema, ka go šomiša mokgwa wa go tšea bakgathatema bao ba ka ba hwetšago. Go bile le bakgathatema ba 263 go sehlopha sa bakgathatema. Dipalopalo tše di hlalošago le dithekniki tša go swana le

dipalopalo tša kamano, diteko tša 't' gammogo le diteko tša diphapano tše bohlokwa tša magareng ga dihlopha tša bakgathatema di šomišitšwe go sekaseka datha.

Dikutollo tše bohlokwa: Dipoelo di bontšhitše kamano ye bohlokwa ye botse ebile ye maatla magareng ga go thwalega le bokgoni bja go amogela phetogo mošomong, go thwalega le boemo bjo bobotse bja monagano bja motho go itlhabolla gammogo le bokgoni bja go amogela phetogo mošomong le boemo bjo bobotse bja monagano bja motho go itlhabolla. Kamano magareng ga go thwalega le bokgoni bja go amogela phetogo mošomong e be e le ye kgolo go feta kamano magareng ga go thwalega le boemo bjo bobotse bja monagano bja motho go itlhabolla. Gape go bile le bohlatse bja dipalopalo bjo bo laetšago diphapano tše bohlokwa tša dipalopalo maemong a dipalopalo tša batho.

Ditlamorago tše di ka diregago le Diabe sa tšona: Dipoelo tša nyakišišo di laetša gore go hlola ditlabela tša gore motho a kgone go thwalega le go kgona go amogela phetogo mošomong, go akaretšwa le thekgo ya ditlabela tša monagano go swana le kgotlelelo le go šoma gabotse ga baswa go dihlongwa tša thuto, go ka maatlafatša go ipona ga bona bjale ka batho bao ba ka thwalegago le gore ba beakanya mešomo ya bona gabotse gakaakang go ya ka tikologo ya mošomo yeo e fetogago. Dikutollo di laetša gape tema ye bohlokwa yeo dihlongwa tša thuto di nago le yona go sepetša baithuti go ya go godišeng boitshwaro bja go itlhahla mathomong a tlhahlo ya bona ya thuto ya kharikhulamo ya bona. Ka gare go mafelo a mošomo, ditsebi tša monagano tša intasteri le tšona di swanetše go kgathatema ye e bonalago go hlabolla bašomi ba maemo a go tsena ba baswa le go ba thuša go hwetša ditlabela tše di nyakegago tša gore ba kgone go thwalega le monagano wa go beakanya mešomo ya bona tikologong ya mešomo ya 4IR ye e fetogago.

Seabe/ Boleng bjo bo okeditšwego: Nyakišišo e na le ditlamorago ka mohola wa yona ka ge e tsenya letsogo go kwešišo ya teori mabapi le ka fao go thwalega, bokgoni bja go amogela phetogo mošomong le boemo bjo bobotse bja monagano bja motho go itlhabolla di amanago ka gona. Gape ke nyakišišo yeo e lebanego le bobono bja Afrika Borwa bja kopanyo ya mabaka le ka moo ditsebi di ka šomišago mabaka a go hola Afrika Borwa.

Mantšu a bohlokwa: bokgoni bja go amogela phetogo mošomong, go thwalega, boemo bjo bobotse bja monagano bja motho go itlhabolla, methopo ya mananeo ao a ikemišeditšego go godiša mabokgoni a setšhaba a mešomo, legato la bone la phetogo ya diintasteri

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List of abbreviations

4IR	Fourth Industrial Revolution
ANOVA	Analysis of Variance
CAAS	Career Adapt-Ability Scale
CFA	Confirmatory Factor Analysis
EAS	Employability Attributes Scale
ERC	Ethics Review Committee
HPCSA	Health Professions Council of South Africa
HR	Human Resources
ICT	Information, Communication and Technology
IOP	Industrial and Organisational Psychology
MI	Modification Index
PCQ-24	Psychological Capital Questionnaire
POPI Act	Protection of Personal Information Act
RERC	Research Ethics Review Committee
RPSC	Research Permission Sub-Committee
SPSS	Statistical Package for the Social Sciences
STARA	Smart Technology, Artificial Intelligence, Robotics and Algorithms
UNISA	University of South Africa

Chapter One: Scientific orientation to the research

1.1.   Introduction

This research study investigated the relationship between employability, career adaptability, and psychological capital amongst non-degreed youth at an educational institution – specifically within a higher education setting. This chapter summarises the background and rationale for the research topic, the problem statement and research questions driving the research, and the scientific research guiding the theoretical and empirical objectives. Furthermore, an outline provides the paradigmatic perspectives shaping this study's theoretical models, associated concepts, and hypotheses. Lastly, the focus is placed on the study's research design and method and a concluding summary of the chapters that form the study's extent.

1.2.   Background and rationale for the study

1.2.1.   The Fourth Industrial Revolution world of work and its implications

The world of work is ever-changing and becoming increasingly complex. As a consequence, it is becoming more challenging to sustain one's employability (Coetzee, 2019). The world of work evolves and is dominated by the demands of the Fourth Industrial Revolution (4IR) and STARA (Smart Technology, Artificial Intelligence, Robotics and Algorithms) (Oosthuizen, 2022). The degree to which the future workforce will be employable and how competitive commerce and educational institutions will be in future will be dictated by technological evolution. It will become crucial for these institutions to draw, retain and, in the case of education, develop nimble employable talent with the needed skills, talents and characteristics which will add to the success of these institutions (Coetzee, 2019) and, down the line, to the development of a country's economy. The employment relationships between worker and employer are increasingly flexible, and long-term single-employer careers are not secured anymore (Cox & King, 2006; Schreuder & Coetzee, 2016). Initial career paths and job requirements are becoming volatile and ever-changing due to how jobs and information are digitised (Cox & King, 2006, Oosthuizen, 2022).

The employment market operates as adaptable and ever-changing. It allows workers to determine their career paths through the range of skills, knowledge, networks and experiences they offer, rather than being defined by employer institutions. Consequently, workers are required to assume accountability for their careers by making sure that they remain responsive

to the employment market needs and demands and that they consistently adapt to those needs and demands by staying relevant in terms of their knowledge, skills, networks and experience (Coetzee, 2019; Cox & King, 2006; Oosthuizen, 2022; Rothwell & Arnold, 2005; Tomlinson, 2007). Given the unsettling nature of 4IR, the truth is that students and workers alike will experience stress and pressure to find and maintain employment at some point during their career journeys. According to Broad and Luthans (2020), they will have to overcome challenges such as changes in the workplace, depression, and anxiety, to name a few examples. Therefore, they will have to rely on their psychological capital (also known as PsyCap) to cope with these challenges and adapt their careers and behaviour, favouring their long-term employability (Broad & Luthans, 2020; Zyberaj et al., 2022).

1.2.2.   The need for psychosocial resources to ensure employability

Youth unemployment continues to be a critical predicament for the transformation process of the South African labour market. Youth entering the world of work for the first time face numerous challenges. Firstly, they must manage unemployment after qualifying or securing employment to avoid unemployment. Secondly, they must effectively deal with the transitional shift from student to employee, becoming used to their unfamiliar work environment. Lastly, they must deal with the numerous worldwide career challenges of the ever-evolving 4IR and technology- and information-driven digital revolutionary society (Coetzee, 2019; Coetzee & Esterhuizen, 2010).

Expectations are for young adults entering the contemporary world of work to be work-ready, employable and able to sustain their employability (Potgieter & Coetzee, 2013). As alluded to earlier, workers face a decline in job security, employment vacancies, ever-evolving technology and increasing responsibility to upskill and learn about changes happening in their field of work (Rawat & Sharma, 2018). Finding or creating employment is essential to an individual's career and psychological well-being (Coetzee et al., 2019). Technical skills and academic expertise alone are insufficient to secure employment (Potgieter & Coetzee, 2013).

The ability to adapt and utilise psycho-social resources to adjust oneself and situations for employability is needed (Hartung & Cadaret, 2017). It has become essential to understand the psychological factors that enable people to become responsive in maintaining employability in our current world of work. Self-regulation comprises a process of motivation that propels personal resource distribution to achieve one's most prominent goals (Coetzee, 2019). It has become significant for workers to psychologically (self-agency) adapt and respond in a resourceful manner to the employment and skills-requirement pressures posed by a disruptive

and constantly changing career environment (Coetzee, 2019; Coetzee & Harry, 2015). Consequently, workers' careers are becoming more protean – meaning that individuals continuously have to shape their careers themselves (Schreuder & Coetzee, 2016).

As cited in Coetzee et al. (2015), Savickas (2005) states that employment is a way of social assimilation that offers workers a method to participate in and support themselves in the general societal world. Employability brings an appreciation of being autonomous or having an independent will in keeping or securing employment through one's actions. A collection of personal career-related characteristics is generally upheld as another possibility for job security against an ever-changing employment background (Coetzee & Roythorne-Jacobs, 2012; Potgieter & Coetzee, 2013). Workers must cultivate career meta-competencies or adaptive resources and abilities that are required to shape a meaningful career in a disordered world of work (Savickas & Porfeli, 2012; Schreuder & Coetzee, 2016). Fugate et al. (2004) theorised employability as a variety of work-specific adaptability skills, allowing workers to find potential career opportunities and make those opportunities materialise. Therefore, employability makes the transfer between jobs possible. Employability does not promise tangible employment but improves the possibility of obtaining employment.

Fugate et al. (2004) proposed a psycho-social framework of employability. It allows workers to manage joblessness by appreciating that employability can be self-effected. The framework has three related aspects: personal adaptability, career identity and social and human capital. Personal adaptability denotes workers with a robust endurance for career ambiguity and uncertainty. The aspect of career identity describes how workers characterise themselves in a career setting. The human capital aspect deals with the personal factors influencing a worker's vocational progression. Coetzee (2008) advances that career meta-competencies are essential for developing people's careers and influencing their employability. These career meta-competencies are skills and abilities such as emotional intelligence, adapting behaviour, identity appreciation, a sense of dedication, and self-esteem. Fugate et al. (2004) reinforce this notion by stating that workers with various career meta-competencies (psychological career resources) demonstrate increased employability. They are better able to adjust to career transitions.

Career adaptability forms a group of essential psycho-social resources and transactional competencies workers use to direct their career-related changeovers and transformations. It gained importance in studies about the contemporary 21st-century career (Chen et al., 2020; Coetzee & Harry, 2015; McArdle et al., 2007). Career adaptability originates in career construction theory. It is narrowly related to the vocational psychology model of vocational

development (Coetzee & Harry, 2015; Savickas & Porfeli, 2012). Career construction theory states that adaption results through adaptive readiness, adaptability resources and adapting resources. Being willing (adaptive) and capable (adaptability) to modify behaviour to varying conditions (adapting) leads to greater levels of adaptation (outcome) (Xia et al., 2020). Career adaptability denotes four psycho-social resources for the management of particular career development tasks: career concern (the ability to be mindful of and constructively positioned to plan for an occupational future), career control (one's ability to assume accountability for career and work experiences, having a mindset of self-directedness, perseverance, and resoluteness regarding a future vocation), career curiosity (to investigate the work environment, looking for facts and taking chances to learn and gain experience about something new) and career confidence (to feel confident about being able to overcome and solve career-related setbacks and problems) (Coetzee & Harry, 2015; McArdle et al., 2007; Savickas & Porfeli, 2012). Given the importance of a person's career adaptability, Maree (2012) suggested additional research on career adaptability resources of young and employed adults in an African setting.

Savickas and Porfeli (2012) suggest that psychological capital is a concept relatively close to their view of adaptability. Psychological capital, conceived by Luthans et al. (2007), is explained as a person's positive psychological condition of development, characterised by (1) having self-assurance (efficacy) to undertake and dedicate the needed work to be successful at demanding tasks; (2) making a confident ascription (optimism) regarding being successful in the present moment and the future; (3) persisting concerning reaching goals and, when needed, adjusting the means to reach those goals (hope) successfully; and (4) when plagued by setbacks and hardship, maintaining and overcoming these setbacks (resiliency) to accomplish success (Bakari & Khoso, 2017). Research by Avey et al. (2010) concluded that psychological capital is significantly positively connected to constructive work behaviours and self-evaluations, such as job satisfaction and organisational commitment, and negatively associated with unfavourable consequences such as turnover intention, cynicism and deviance. Bakari and Khoso (2017) noted that research predominantly focused on psychological capital in employment contexts. It was also recently applied to measuring and developing psychological capital in academic contexts. It is a "buffer" to stress from various sources but also showed a positive link to academic performance. Considering that psycho-social resources are vital contributors to self-perceived employability, the researcher proposes a need to test the relationship and effect of psychological capital on self-perceived employability and career adaptability.

1.3. Problem statement

Given the initial outline, this research study focuses on employability, career adaptability, and psychological capital. There are several studies done on the topic of employability and employability attributes. The latter refers to the collection of attributes considered important to improve the possibilities of creating, obtaining or keeping continuous employment opportunities in our contemporary world of work (Bezuidenhout, 2011). From a South African perspective, studies such as Bezuidenhout (2011), Coetzee et al. (2015), and Potgieter and Coetzee (2013) focused on employability and employability attributes as the central study theme. However, Coetzee et al. (2015) and Coetzee and Engelbrecht (2019) considered employability with self-perceived employability and career adaptability. With regards to career adaptability, Coetzee and Harry (2015), Harry and Coetzee (2013), Maree (2012) and Ndlovu (2017) also focused on adaptability concerning other constructs such as burnout, hardiness, or sense of coherence. Regarding psychological capital, studies mainly addressed the Psychological Capital Questionnaire (PCQ-24) or predominantly in terms of the relationship with leadership, wellness, or work satisfaction.

The researcher could not find any South African-based study which explicitly addressed employability, career adaptability, and psychological capital in relationship with each other. There is, therefore, an insufficient number of studies investigating the relationship between employability attributes, career adaptability, and psychological capital amongst non-degreed youth at an educational institution, specifically within a higher educational setting. Based on this identified research problem, the researcher raised the following research questions emanating from the scientific literature review and empirical study:

1.3.1. Research questions pertaining to the literature review

1. How are employability, career adaptability, and psychological capital amongst non-degreed youth at an educational institution thought about from a theoretical perspective?
2. How is the theoretical association between employability, career adaptability, and psychological capital amongst non-degreed youth at an educational institution viewed from a theoretical perspective?
3. What role do demographic variables such as gender, age, race, and home language play on employability, career adaptability, and psychological capital amongst non-degreed youth at an educational institution?

4. What recommendations can be put forward for industrial psychology practices, career counsellors, and practitioners for future research, based on the scientific literature findings of this study concerning employability, career adaptability, and psychological capital?

1.3.2. Research questions pertaining to the empirical study

1. What are the characteristics of the empirical association between employability, career adaptability, and psychological capital as manifested in a sample of non-degreed youth at an educational institution?
2. Do non-degreed youth at an educational institution from the different demographic groups (gender, age, race, and home language) demonstrate any significant differences amongst the main variables and subscales of the employability, career adaptability, and psychological capital measures?
3. What recommendations can be offered for industrial psychology practices, career counsellors and practitioners, and future research derived from the empirical findings of this study concerning employability, career adaptability, and psychological capital?

Work confirms self-worth, is a mechanism for not being left behind in society, and gives a sense of belonging to society (Di Fabio & Svicher, 2022; Oosthuizen, 2022; Schreuder & Coetzee, 2016). Given the context of 4IR and STARA, unemployed and non-degreed youth may face job losses and fewer job opportunities due to automation and frequent skills and knowledge obsolescence. They may also experience a decline in psycho-social well-being as they may not have an anchor of stability and be unable to adjust to the influences of STARA and its resultant difficulties in ensuring employment. Therefore, they need to get to grips with constant adaptation, tapping into and strengthening their psycho-social strengths to remain employable (Broad & Luthans, 2020; Oosthuizen, 2022; Schreuder & Coetzee, 2016).

Understanding the associations between employability attributes, and psycho-social resources such as adaptability and psychological capital, a better understanding of how psycho-social resources link a worker's capability to cope successfully with 4IR-induced career-related stressors can be formed (Broad & Luthans, 2020; Coetzee & Roythorne-Jacobs, 2012). Students can also be better prepared for their future careers with this understanding (Hamzah et al., 2021). According to Ackerman and Beier (2003), as cited by Coetzee and Esterhuizen (2010), additional empirical research studies in career psychology are needed. Studies endeavouring to determine associations between the measures of various career-related constructs are considered important in building career-counselling frames of reference that speak to the basic career needs of clients.

1.4. Research objectives

General and specific objectives were formulated based on the above research problems:

1.4.1. General objective

The study aimed to determine the relationship between employability, career adaptability, and psychological capital amongst non-degreed youth at an educational institution.

1.4.2. Specific objectives

The following specific aims were identified for the study:

1.4.2.1. Literature review

The review of the literature aimed to:
1. Conceptualise employability, career adaptability, and psychological capital amongst non-degreed youth at an educational institution from a theoretical point of view;
2. Conceptualise the theoretical relationship between employability, career adaptability, and psychological capital amongst non-degreed youth at an educational institution as described in the scientific literature;
3. Establish the influential role played by biographical variables such as (a) gender, (b) age, (c) race, and (d) home language on employability, career adaptability, and psychological capital amongst non-degreed youth at an educational institution; and
4. Offer recommendations for industrial psychology practices and career counsellors for future research, drawn from the scientific literature study findings concerning employability, career adaptability, and psychological capital.

1.4.2.2. Empirical study

The empirical study aimed to:
1. Establish the empirical relationship between employability, career adaptability, and psychological capital as displayed in a sample of non-degreed youth at an educational institution;
2. Ascertain whether non-degreed youth from the different demographic groups ((a) gender, (b) age, (c) race, and (d) home language) at an educational institution demonstrate any significant differences amongst the primary variables and

subscales of the employability, career adaptability, and psychological capital measures;

3. Offer recommendations for industrial psychology practices and career counsellors and practitioners, derived from the empirical results of this study concerning employability, career adaptability, and psychological capital.

1.5. The paradigm perspective

Babbie (2021) explains that a paradigm provides a frame of reference to observe and understand. A scientific paradigm is a whole system of thinking with assumptions. It establishes the written and unwritten rules, defines the boundaries and tells one what research techniques to use to be successful (Luthans, 2011). This section summarises the relevant paradigms and the market for intellectual resources utilised in this study. The research design and method for this study are also presented.

1.5.1. Paradigms relevant to this study

1.5.1.1. Humanistic paradigm

The humanistic paradigm is concerned with the individual holistically and, through positive psychology, with the positive aspects of conscious mental activity. It promotes the idea that humans have a positive nature, free will, and motivation to set goals, make decisions, and take responsibility for their choices (DeRobertis, 2016, Joseph, 2020). Emphasis is put on the view of the self-concept and the advancement of human potential (for example, self-actualisation). The individual also strives to find personal meaning for their existence through self-reflection (Coetzee & Roythorne-Jacobs, 2012, Purswell, 2019). This paradigm relates most to the themes of career adaptability and self-perceived employability.

1.5.1.2. Positive psychology paradigm

In 1902, William James first raised the concept of "healthy-mindedness" in his writings (Gable & Haidt, 2005). Decades later, Seligman and Csikszentmihalyi (2000) voiced a concern that there is a dominant focus on pathology in the psychology field, and there was a need to document the positive features that make life worth living. They consequently outlined a frame of reference for the science of positive psychology. Positive psychology concerns the scientific study of personal resources such as

personal internal experiences, positive foundations and habits, and individual qualities, which develop an individual's well-being and inhibit the onset of psychopathology (Mayer & Oosthuizen, 2019; Ng & Lim, 2019; Schreuder & Coetzee, 2016). Positive psychology focuses primarily on finding the strengths of individuals and positive psychological interventions (Luthans, 2011; Ng & Lim, 2019) and is derived from the principle that human behaviour cannot be explained using an illness-centred frame of reference alone (Seligman & Csikszentmihalyi, 2000). Personal resources refer in broad terms to personal resilience (optimism, hope, resilience, self-efficacy, and adaptability), well-being (self-perceived employability) and job resources (career control, support) (Luthans, 2011; Schreuder & Coetzee, 2016). This paradigm applies to this research study because it accepts that human behaviour can be defined in respect of strengths and wellness, compared to a disease-model approach (Schreuder & Coetzee, 2016).

1.5.1.3. The systems paradigm

A system is a group of interlocked parts integrated by design and designed to achieve one or more objectives (Cascio & Aguinis, 2014). The systems perspective views the individual as a system made up of interacting subsystems, and as a subsystem in a more extensive system in which the individual interacts. It stresses complexity and change. In a multifaceted, changing, and interconnected world, individuals need flexibility and resilience to respond to problems and change (Coetzee & Roythorne-Jacobs, 2012; Foxcroft & Roodt, 2010). Here, an individual's psychological capital, adaptability, and employability should be considered from a systemic perspective. The individual should also be considered part of a broader ever-changing macro-societal system that impacts the individual at a micro-level.

1.5.2. *The market of intellectual resources*

Mouton and Marais (1990), as cited by Bezuidenhout (2011), state that the market of intellectual resources represents a body of meta-theoretical principles, assumptions, and values of individuals active within a discipline that, in every respect, relates to the epistemological status of scientific statements. The research is contextualised within the industrial and organisational psychology domain and its career psychology, counselling, and psychometrics sub-domains.

1.5.2.1. Meta-theoretical statements

The research is approached from the overarching industrial and organisational psychology discipline, focusing on career psychology, counselling, and psychometrics.

1.5.2.1.1. Industrial and Organisational Psychology (IOP)

Rothman and Cilliers (2007), Van Vuuren (2010), and Van Zyl et al. (2016) describe IOP as an applied scientific branch of psychology. IOP is involved with the development and function of theories, processes, and practices within a psychological and work-related context, which promotes organisational functioning, operation, and commercial welfare. The principal subfields of IOP are ergonomics, research methodology, organisational psychology, personnel psychology, occupational-psychological assessment, career psychology and counselling, and employee and organisational well-being (Bergh & Theron, 2008; Coetzee & Veldsman, 2022). IOP practitioners operate as scientists, building on existing knowledge and applying science-based techniques in career psychology, employee well-being, and organisational development (Avedon & Grabow, 2010; Coetzee & Veldsman, 2022; Van Zyl et al., 2016).

1.5.2.1.2. Career psychology and counselling

Career psychology studies the interaction between workers and their jobs (Arnold et al., 1995), the development of their careers, the make-up of employment and unemployment, organisational career issues, and outside factors influencing work (Bergh & Theron, 2008). Areas of interest for career psychologists are occupational and organisational choice; withdrawal behaviours from organisations and careers; career development issues; career issues affecting individuals; business processes in organisations; and the ever-changing nature of work and organisations, which may affect people's long-term careers (Bergh & Theron, 2008). Kekki (2022) describes counselling as a process with a shared two-way interaction between the career counsellor and the client. More specifically, Coetzee and Roythorne-Jacobs (2012) and Di Fabio and Svicher (2022) describe career counselling as a service highlighting processes such as facilitation, introspection, and cognitive realignment in clients to develop career proficiency, career maturity, career self-reliance and viable career-life projects. This research study focused on specific areas such as employability,

psychological career resources, and psychological capital, which enables and ensures an individual's employability (Schreuder & Coetzee, 2016).

1.5.2.1.3. Psychometrics

Psychometrics is the discipline of psychology studying principles and practices of psychological information measurement to predict psychological traits, aptitudes and human behaviour. It also studies the quantitative and technical aspects enabling measuring psychological processes and attributes (Bergh & Theron, 2008; Moerdyk, 2015; Wijsen et al., 2022). This study made use of psychometric instruments, namely the Employability Attributes Scale (EAS), the Career Adapt-Abilities Scale (CAAS), and the Psychological Capital Questionnaire (PCQ-24).

1.5.2.2. Theoretical models

The theoretical models are centred on the self-perceived employability attributes framework (Coetzee & Engelbrecht, 2019; Coetzee et al., 2015; Potgieter & Coetzee, 2013), the career adaptability model (Savickas, 2012), and the psychological capital model (Luthans, 2011).

1.5.2.2.1. Self-Perceived Employability Attributes framework

The self-perceived employability attributes framework defines a collection of principal employability characteristics necessary for enhancing the chances of acquiring and maintaining employment opportunities (Coetzee, 2019; Potgieter & Coetzee, 2013):

1. **Career agility** concerns taking accountability for decisions made and the tendency to take a committed role that leads to a self-initiated future action as a mechanism to adjust to shifting circumstances through expanding knowledge and skills (Coetzee et al., 2015; Potgieter & Coetzee, 2013).
2. **Career self-management potency** involves an intrinsic autonomous motivation and capacity to support employability by means of continuous educational prospects, career planning and management activities working towards career goals (Coetzee & Engelbrecht, 2019; Coetzee et al., 2015; Potgieter & Coetzee, 2013).
3. **Cultural ingenuity** involves the capacity to understand, confidently behave, and positively interact within a multicultural environment (Coetzee, 2019).

4. **Emotional acuity** concerns the flexible use of expressed feelings and the ability to detect, identify, and control one's emotions and those of others (Coetzee, 2019; Potgieter & Coetzee, 2013).

5. **Proactive career resilience** refers to an enabling temperament leading to an adequate adaptation to fluid circumstances, flexibility, self-assurance, and proficiency, irrespective of a person's career situation (Coetzee, 2019; Coetzee et al., 2015; Potgieter & Coetzee, 2013).

6. **Career agency** relates to a person's estimation ability to set challenging targets, function and make decisions independently of others, cope with challenges, and thrive through the enjoyment of the discovery of original solutions (Coetzee, 2019; Coetzee & Engelbrecht, 2019).

7. **Career sociability** refers to developing, maintaining, and using social networks to advance an individual's career (Coetzee et al., 2015; Potgieter & Coetzee, 2013).

Bezuidenhout's (2011) study established career self-management, career resilience, and cultural competence as significant characteristics impacting an individual's capacity to maintain employability. The three characteristics mentioned above and the career-related fundamental dispositional self-evaluations of self-efficacy, sociability, proactivity, emotional literacy, and entrepreneurial orientation advance pre-emptive adaptableness in fluid work contexts and improve a person's match for employment and the possibility of accomplishing a successful career (Potgieter & Coetzee, 2013).

1.5.2.2.2. Career Adaptability model

Career adaptability involves an individual's cognitive appraisal of how external environmental changes affect the individual's present fit between personal interest, talent, abilities, and employer demands for employability (Coetzee & Engelbrecht, 2019). It, therefore, describes a set of transferable resources, consisting of a group of attitudes, proficiencies, and behaviours which facilitate job exploration opportunities and enable the formation of other courses of action for career improvement, tailoring the person to ideal occupational settings and constructively taking part in an occupational role (Coetzee et al., 2015). Career-related outcomes considered, career adaptability, allows the integration of the different facets of the person-environment approach, namely personal, identity characteristics, developmental, and contextual facets (Santilli et al., 2017).

As a psycho-social construct, career adaptability comprises four particular abilities which add to regulating processes known as career adapt-abilities. Career concern, linked to a mindset of proficiency in planning, promotes attentiveness and preparation and helps people manage the pressures of the work environment. Career control encourages accountability for one's own life through career and work. Decisiveness and assertiveness may help people craft a chosen work experience (Santilli et al., 2017; Savickas, 2012). Career curiosity allows a possible match between the world of work and the self by allowing the person to explore and be courageous, suggesting that individuals gain new knowledge and capabilities through these activities. Career confidence is associated with self-esteem and self-efficacy. It points to the belief one has in oneself to overcome setbacks and solve problems skilfully, suggesting an ability to act in response to stressful conditions (Santilli et al., 2017; Savickas, 2012). Career adaptability links to several personal characteristics such as optimistic hopes, beliefs and positions about the future, an assured view of oneself and healthy self-agency beliefs, and a constructive evaluation of the context, encouraging emotional dispositions and emotional intelligence (Santilli et al., 2017).

1.5.2.2.3. Psychological Capital model

Psychological Capital is a higher-level collection of positive psychological components: hope, efficacy, resilience, and optimism (Görgens-Ekermans & Herbert, 2013). Within the structure of Hobfoll's psychological resources theory, which advances that a number of psychological concepts are best recognised as embodying a core underlying a construct (Avey et al., 2009), Luthans (2011) depict psychological capital as a constructive psychological state of growth. Psychological capital is regarded as exhibiting the confidence (self-efficacy) to undertake and dedicate the needed determination to be successful at a challenging task; responding in a positive manner (optimism) about prospering now and in the future; being goal-directed as needed, adjusting the ways to meet one's objectives (hope); and when facing challenges and misfortune, maintaining and rebounding back or better (resiliency) one's mental state to reach success (Black et al., 2020; Luthans, 2011). Psychological capital is fundamentally cognitive (Avey et al., 2010) and epitomises a person's constructive evaluation of circumstances and the likelihood of producing performance excellence based on motivated determination and persistence (Black et al., 2020; Görgens-Ekermans & Herbert, 2013). Researchers had empirically found the four indicated psychological resources to comprise a core construct of a higher nature, which interact

together in a synergetic way. The whole is, therefore, greater than its parts (Salanova & Ortega-Maldonado, 2019).

1.5.2.3. Conceptual descriptions

The following conceptual descriptions functioned as basic assumptions for examination in this study:

1.5.2.3.1. Employability

The construct employability attributes refer to the collection of qualities essential for the increased probability of creating, obtaining, and supporting employment prospects, even when one is jobless or finds oneself in the 4IR-influenced world of work (Bezuidenhout, 2011; Coetzee, 2019). Coetzee and Engelbrecht (2019) state that, as a psycho-social construct, employability exemplifies the career-related characteristics which support flexible reasoning, behaviour, and feelings, which improves a fit for appropriate and continued employment. Employability is therefore defined from an individual and contextual perspective (Coetzee, 2019), including career self-management, cultural competence, self-efficacy, career resilience, sociability, entrepreneurial orientation, proactivity, and emotional literacy (Coetzee et al., 2016).

1.5.2.3.2. Career Adaptability

Career adaptability denotes four psycho-social resources of individuals that enable them to deal with ambiguous developmental tasks related to career development (Savickas & Porfeli, 2012). Career concern is the capacity to be conscious of, and constructively involved in, planning an occupational future. Career control points to an ability to take accountability for obtaining a career and work experience, and for experiencing self-sufficiency, determination, and certainty about a vocational future (Coetzee & Harry, 2015). Career curiosity indicates the proneness of the individual to investigate the environment and gain new knowledge and skills through research and courageousness. Career confidence points to having a feeling of self-efficacy about becoming proficient at career-related tasks and effectively solving problems (Coetzee & Harry, 2015; Savickas & Porfeli, 2012).

1.5.2.3.3. Psychological Capital

Luthans (2002), as cited in Görgens-Ekermans and Herbert (2013) and Black et al. (2020), identified four constructs that compose the core construct of psychological capital: hope, efficacy, resilience, and optimism. Luthans and Youssef-Morgan (2017, p. 340) defined psychological capital elements as:

> *"an individual's positive psychological state of development, characterised by (1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering towards goals, and when necessary, redirecting paths to goals (hope) to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resiliency) to attain success".*

1.5.2.4. Methodological convictions

The research study used a quantitative approach. The individual members attending the educational institution comprised the unit of analysis.

1.5.2.5. Central hypothesis

The central hypothesis is formulated: A positive relationship exists between employability, career adaptability, and psychological capital amongst non-degreed youth at an educational institution.

1.5.2.6. Research hypotheses

Based on the central hypothesis, the following research hypotheses were formulated:
- **H0:** There is no relationship between employability, career adaptability, and psychological capital amongst non-degreed youth at an educational institution.
- **H1:** There is a significant positive relationship between employability and career adaptability amongst non-degreed youth at an educational institution.
- **H2:** There is a significant positive relationship between employability and psychological capital amongst non-degreed youth at an educational institution.

- **H3:** There is a significant positive relationship between career adaptability and psychological capital amongst non-degreed youth at an educational institution.
- **H4:** There is a statistically significant difference between employability and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.
- **H5:** There is a statistically significant difference between career adaptability and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.
- **H6:** There is a statistically significant difference between psychological capital and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.

1.6.   Research design

The research design has reference to the selected technique and structure of a research investigation to gather and analyse data (Salkind, 2012). The following properties of the research design are discussed: research variables, research type, the unit of analysis, and approaches to ensure reliability and validity.

1.6.1.   Research variables

The three variables for this research study are employability, career adaptability, and psychological capital.

1.6.2.   Research type

A cross-sectional, quantitative non-experimental study was conducted, where randomised primary data from participants was obtained through a survey design. The survey research aimed to collect quantitative information from multiple participants concerning their behaviour at a particular time and place (cross-sectional survey) (Babbie, 2021; Bergh & Theron, 2008; De Jager-Van Straaten et al., 2016). Although a cross-sectional survey method was limiting regarding the causes of an occurrence, the researcher used this survey method to make inferences about a process that occurs over time (Babbie, 2021). Quantitative research entails collecting and using numerical data and statistical techniques to analyse the collected data (Hair, 2019; Tredoux & Durrheim, 2008). A non-experimental approach relates to the researcher not directly controlling the independent variable (Tredoux & Durrheim, 2008). The

research design was correlational research, which allows for numerical data to be extracted and correlation coefficients to be calculated (Hair, 2019; Salkind, 2012).

1.6.3. Unit of analysis

Units can be various things (Kerlinger & Lee, 2000). Units of analysis refer to the things or people whose characteristics are observed, described, and explained in the study (Babbie, 2021). In this study, the unit of analysis comprised people (Kerlinger & Lee, 2000). More specifically, the units of analysis were the individual youth members attending the particular educational institution (Babbie, 2021).

1.6.4. Methods to ensure ethical research principles

Ethical guidelines, as specified by the Health Professions Council of South Africa (HPCSA), the Department of Industrial and Organisational Psychology at the University of South Africa (UNISA), the applicable COVID-19 policy, and the presiding Ethics Review Committee (ERC) of UNISA recommendations formed the foundation of the study. Before the research study commenced, ethical clearance to perform the study was obtained from the ERC of the Department of Industrial and Organisational Psychology (Addendum A) and partaking educational institution's Research Permission Sub-Committee (RPSC) (Addendum B).

Permission was acquired in writing to use the CAAS and EAS. The test supplier of the PCQ-24 also provided usage permission for up to 350 rounds of assessments following a research proposal submission. The survey was distributed by the participating educational institution's ICT department. For ethical compliance and to comply with the Protection of Personal Information (POPI) Act 4 of 2013, no identifiable or unused variable information was collected electronically.

For an introduction, every participant received an outline of the research study. The researcher explained the mutual rights and responsibilities of the participants and the researcher. Every participant took part voluntarily and provided informed consent to the researcher to use their anonymised data for the study. The participants could withdraw at any time during the survey study. The collected data was kept secure and encrypted on a central data server. Apart from the ICT department, which managed the survey distribution, the researcher and statistician had sole access to the obtained anonymised data.

1.6.5. Methods used to ensure reliability and validity

The researcher implemented a systematic approach during the theoretical and empirical studies to ensure validity and reliability. Measuring instruments that have been proven reliable and valid were used to collect response data (Babbie, 2021; Neuman, 1997).

1.6.5.1. Validity

Validity refers to the extent to which the research study accurately mirrors the concepts under investigation (Babbie, 2021; Hair, 2019). It concerns how closely the concepts are defined by the measures used in the research study (Hair, 2019). It has been confirmed through the investigation of other research studies that the measuring instruments have been deemed valid for the purpose they were constructed. The resultant outcome can therefore be considered valid as the measuring instruments and the research techniques employed are also deemed valid. The results were interpreted in the context of the theories, sample, and backdrop in which the assessments occurred (Hair, 2019; Salkind, 2012).

1.6.5.2. Reliability

Reliability is a method of quality measurement implying that, in replicated examinations of the same phenomenon, data of a similar nature would be collected (Babbie, 2021). Therefore, reliability deals with the consistency of what is measured (Hair, 2019). Before any statistical work was done, the reliability coefficients of the measurements were calculated using Cronbach's coefficient alpha to determine an approximation of the consistency of responses of the measurement's scale items (Hair, 2019; Tredoux & Durrheim, 2008). This statistic provided the degree to which the results can be relied upon to make accurate and valid conclusions.

It has been determined upfront that the selected tools were valid and reliable through reviewing various research studies. All the assessment measurements were standardised to ensure measurement consistency. To ensure that the actual testing process is standardised and to avoid deviating from the pre-determined steps, all the assessments were conducted online through an encrypted assessment link. The data were analysed using the Statistical Package for Social Science Software (SPSS) version 28.

1.7. Research method

The variables of the study were conceptualised through a literature review. Following the review, an empirical study was performed. It included selecting the research participants, administering measurement instruments and research procedures, and carrying out data analysis. The final step consisted of the interpretation of the results.

1.7.1. Phase 1: Literature review

1.7.1.1. Step 1: Literature review of Employability

The first step entailed conceptualising employability and its sub-constructs amongst the non-degreed youth at an educational institution.

1.7.1.2. Step 2: Literature review of Career Adaptability

Step two comprised the conceptualisation of career adaptability and its sub-constructs amongst non-degreed youth at an educational institution.

1.7.1.3. Step 3: Literature review of Psychological Capital

Step three involved conceptualising the psychological capital construct amongst non-degreed youth at an educational institution.

1.7.1.4. Step 4: Theoretical relationships conceptualisation

Step four included the focus of the literature study, which was on amalgamating the scientific literature mentioned earlier. It confirmed the theoretical associations between employability, career adaptability, and psychological capital amongst non-degreed youth at an educational institution.

1.7.2. Phase 2: Empirical study

Chapter Three presents a research article that deals with the empirical study and serves as a framework for the central focus of the research. It provides the study's background and the observed trends and developments from the scientific literature. Possible contributions to science and the field of study are also examined. The research design, consisting of the

research approach and method, is outlined. The research outcomes, results and conclusions are discussed and concluded with the limitations and recommendations for practice and future research.

The empirical study is integrated with Chapter Four. It examines the literature and empirical study conclusions, limitations, and recommendations in more granular detail. The empirical research consisted of the following steps:

1.7.2.1. Step 1: Sample determination and description

According to Babbie (2021) and Neuman (1997), a target population refers to a specific pool of cases that can be investigated. The target population was non-degreed youth in their first or second year of degree study at a South African educational institution. A non-probability convenience sampling method was used to gather data from the sample group of 263 non-degreed youths. According to Salkind (2012), this method suggests that the possibility of picking any particular individual is unknown, and potential sample participants do not have an equivalent or independent likelihood of being chosen.

1.7.2.2. Step 2: Measuring instruments

The empirical study used the following measurement instruments:

1.7.2.2.1. Biographical questionnaire and consent

For ethical compliance and to follow the Protection of Personal Information (POPI) Act 4 of 2013, no identifiable or unused variable information was collected electronically. Demographic information such as gender, age, racial groupings, and home language were collected from the study sample by completing a multiple-choice biographical questionnaire section at the start of the online survey. Together with the biographical questionnaire, a description of the study, the rights and responsibilities of the participant and researcher, and space for informed consent were provided.

1.7.2.2.2. The Employability Attribute Scale (EAS)

The self-rated EAS measured the participant's psycho-social employability attributes. The measure is multifactorial and contains 51 items and seven subscales, namely:

career agility (13 items), career self-management potency (7 items), cultural ingenuity (7 items), emotional acuity (7 items), proactive career resilience (8 items), career agency (5 items), and career sociability (4 items) (Coetzee, 2019). Respondents answered statements through a Likert-type scale, ranging from "definitely disagree" (1) to "strongly agree" (7). Previous studies demonstrated reliability and validity applied to a South African context. Internal consistency reliability coefficients (Cronbach's alpha) ranged from .71 for self-efficacy to .91 for cultural competency (Coetzee et al., 2016). In a 2019 study, the EAS achieved an internal consistency validity of .97 (Coetzee, 2019). Oosthuizen et al. (2021) also reported a Cronbach's alpha coefficient for the EAS and sub-scales, ranging between an acceptable .78 and .90. It was also deemed to be at an acceptable level.

1.7.2.2.3. Career Adapt-Abilities Scale (CAAS)

The CAAS measured career adaptability. It is a measure where statements are subjectively rated. The measure consists of 24 statements and four equally loaded sub-scales: concern, control, curiosity, and confidence. A Likert-type scale, ranging from "not strong" (1) to "strongest" (5), captured individual responses to every statement (Savickas & Porfeli, 2012). Coetzee and Harry (2015) indicated that in previous studies, the measure's reliability (internal consistency) Cronbach's alpha coefficients are as follows: concern (.76), control (.70), curiosity (.81), confidence (.83), and overall career adaptability scale (.91). A study by Coetzee et al. (2017) found an internal consistency ranging from .83 (control) to .90 (confidence). Confirming a strong internal consistency in their study, Zyberaj et al. (2022) also reported a Cronbach's alpha of .92.

1.7.2.2.4. Psychological Capital Questionnaire (PCQ)

The PCQ-24 measured psychological capital. It comprises four equivalently loaded sub-scales: hope, efficacy, resilience, and optimism, where every subscale consists of six questions each. Response options range from "strongly disagree" (1) to "strongly agree" (6) (Avey et al., 2009). According to Görgens-Ekermans and Herbert (2013), previous studies reported an internal consistency score of between .72 and .80 for hope; .69 and .79 for optimism; .75 and .85 for self-efficacy; and .66 and .72 for resilience. Zyberaj et al. (2022) and Daswati et al. (2022) reported a somewhat stronger internal consistency, with a Cronbach's alpha of .88 in both respective studies.

1.7.2.3. Step 3: Data collection

The researcher provided every participant with a secure encrypted online link via the university's ICT department. The online survey method allowed the participants to complete the following without being in direct contact with the researcher, as per the COVID-19 policy of UNISA:

1. An online consent form furnished the participant with background information about the study and a commitment to confidentiality. Participants could voluntarily partake and withdraw at any time.
2. An anonymous biographical questionnaire captured information such as the participant's gender, age, racial group, and home language.
3. The EAS was administered online with instructions to assess attributes contributing to employability.
4. The CAAS was administered online with instructions to determine the participant's level of career adaptability.
5. The PCQ-24 was administered online with instructions to get a reading of the participant's main psychological capital score and a measure of the sub-scores.

The researcher followed all standard assessment protocols for online assessments to ensure standardisation and fairness of the process. The collected data were anonymous to ensure participant confidentiality. Apart from the university's ICT department, anonymised data access was restricted to the researcher and the statistician. The analysed results of the study were addressed at a group level. The survey was conducted online and did not expose the participants to physical or psychological harm.

1.7.2.4. Step 4: Data analysis

Data analysis was performed using the statistical software SPSS version 28. The research study employed the following statistical techniques:

1. Descriptive statistics (arithmetical mean, frequency, range, and standard deviation) were calculated to analyse the demographic profile and its characteristics. These statistics provided depth to the inferential statistics where differences in specific demographic groups are investigated (Salkind, 2012).
2. To calculate the contribution of each measurement instrument scale item and to include how well the scale measures a concept (reliability), a Confirmatory Factor Analysis (CFA) was used (Hair et al., 2019).

3. Pearson product-moment correlation coefficients determined and described associations between the study variables. The resultant correlation coefficients determined the strength and direction of the linear variable relationships (Neuman, 1997; Tredoux & Durrheim, 2008).

4. Making assumptions about population parameters entails the supposition that the distribution shape of the population is normal and that the variance is homogenous. Levene's Test for Equality of Variances established conditions of homogeneity of variance (Tredoux & Durrheim, 2008).

5. The independent samples t-test established the difference between the means of two independent sample groups, such as those of the gender groups affecting the three main variables and their factors (Tredoux & Durrheim, 2008).

6. The one-way analysis of variance (ANOVA) calculated mean score variance distribution differences in two or more demographic sample groups (including gender, age, race, and home language) (Babbie, 2021). ANOVA was applied where the condition for homogeneity of the variance had been met (Hair et al., 2019; Stindt, 2022). Where this condition has not been met, the Welch Robust Test was used to test independent samples with unequal variances (Derrick et al., 2016).

7. The Tukey HSD test (for significant differences calculated with the ANOVA test) or Games-Howell Post-Hoc test (for significant differences calculated with the Welch Robust test) established where the differences are between sample groups on the various variables (Tredoux & Durrheim, 2008; Stindt, 2022).

1.7.2.5. Step 5: Hypotheses

The stated research hypotheses were statistically examined to meet the study's objectives.

1.7.2.6. Step 6: Results

Statistical analysis and data outcomes were reported as data tables and figures. Interpretations pertinent to the analytical procedures were used to explain the results.

1.7.2.7. Step 7: Integration of the research findings

Once analysed, the empirical study's outcomes were integrated with the literature review findings.

1.7.2.8. Step 8: Conclusions

The research conclusions were derived along the overall objective and specifically stated theoretical and empirical objectives.

1.7.2.9. Step 9: Limitations and recommendations

The researcher examined a range of restrictions concerning the literature study, research design, sampling technique, sample size, and characteristics. Possible limitations were acknowledged and outlined. The researcher also offered proposals for research methodology, implementation in practice, and subsequent research.

1.7.2.10. Step 10: Chapter framework

Figure 1.1 provides a broad overview of this study's research method and chapter layout. In general terms, Chapter One provided the scientific positioning for the research. Chapter Two presented a review of the concepts and theories in the existing literature. Chapter Three comprises the research article on the research process and obtained results. Chapter Four closes with a presentation of the conclusion, limitations, and recommendations which resulted from the research study.

Figure 1.1

Research method overview
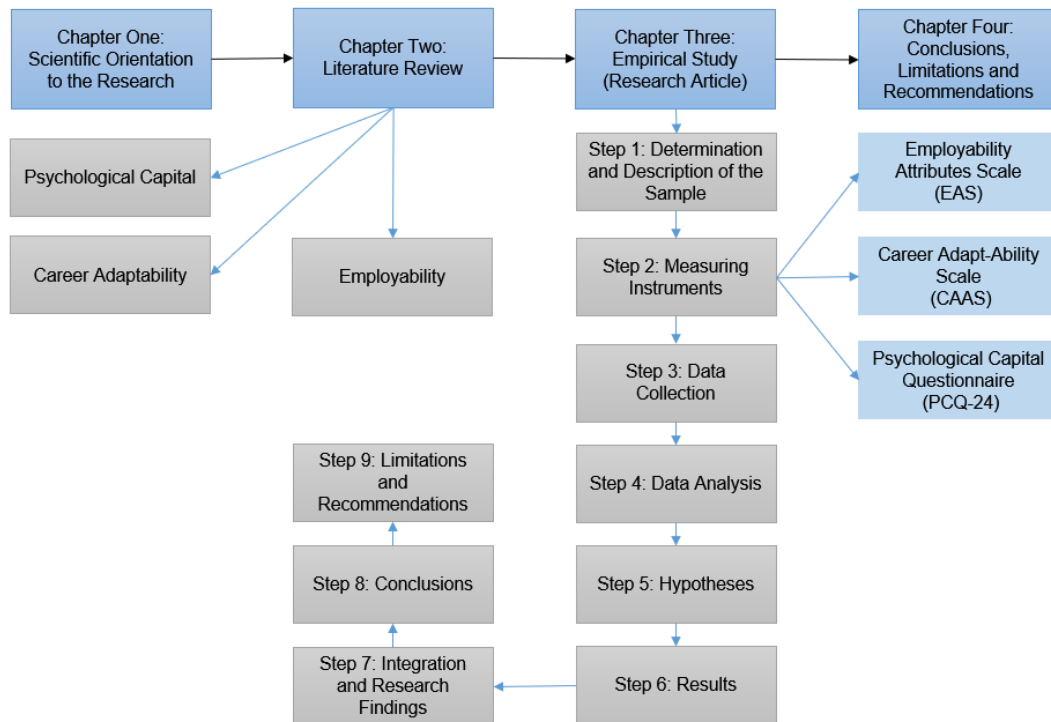
1.8. Chapter layout

1.8.1. Chapter One: Scientific orientation to the research

Chapter One offers the scientific positioning of the research. The chapter presents the research topic and discusses the variables under study. It provides guidelines regarding the study design and the methodology utilised to collect and analyse the data.

1.8.2. Chapter Two: Literature review

Chapter Two offered a conceptual study of the research variables, namely employability, career adaptability, and psychological capital, and each variable's components. A theoretical integration explains the relation of the variables and their effects in practice.

1.8.3. Chapter Three: Research article

The empirical study is unpacked in Chapter Three as a research article. All the methodologies collected data and analysis were described and discussed. The measuring instruments were

described and motivated, and the results from each were examined. The chapter closes with a research integration and concluding summary.

1.8.4. *Chapter Four: Research study conclusions, limitations, and recommendations*

Chapter Four concludes with an integrated results discussion, in line with the research objectives. Identified limitations concerning the literature and empirical study were listed and formulated. Recommendations for additional research were also presented.

1.9. Summary

Chapter One aimed to provide the study's background overview, research topic rationale, problem statement, and research questions. The researcher provided a review of the theoretical and empirical aims of the study. Moreover, the chapter outlined the paradigmatic perspectives that formed the theoretical models, related concepts, and hypotheses for this research study. The chapter furthermore focused on this study's research design and method. Finally, the chapter concluded by outlining a chapter framework that formed the research study.

Chapter Two: Literature review

This chapter provides contextual and theoretical backgrounds and a conceptual examination of the research variables (self-perceived employability, career adaptability, and psychological capital) in the form of a literature review. Chapter Two also offers a theoretical amalgamation of the association of the above-named variables. It discusses the practical implications for industrial psychology and the practices of career counsellors and educational institutions.

2.1.   The Fourth Industrial Revolution world of work and its implications

The world of work is evolving and dominated by ever-changing technology and the introduction of STARA into the workplace (Oosthuizen, 2022). Maintaining employability in the fluid, complex work world is becoming increasingly challenging (Coetzee, 2019). The COVID-19 pandemic amplified this challenge, which required workers to adapt their career objectives, change jobs, or deal with shifts brought about by the crisis (Zyberaj et al., 2022). The 4IR dictates to commercial (and, by implication, educational institutions) how employable the future workforce will be and how competitive these institutions will remain. As a consequence, it will become necessary for these institutions to attract, retain and, in the case of education, develop agile employable talent with a set of talents and attributes which will add to the success of institutions (Coetzee, 2019) and consequently the development of the economy of a country.

As a result of the increasing speed of information transfer (Maree, 2017) and STARA (Oosthuizen, 2022), employees (including the youth) must consistently adapt and adjust their skills, knowledge, and behaviour to remain employable in our contemporary work contexts (Maree, 2017). The current employment relationship between worker and employer is flexible; career paths and job requirements are ever-changing; and long, continuous careers at one employer are not guaranteed (Cox & King, 2006). The employment market functions as flexible and shifting and allows individuals to define their careers through the range of skills, knowledge, networks, and experience on offer, rather than being defined by institutions. Consequently, it is expected for workers to take accountability for their careers by ensuring that they remain agile in the process of adapting to the relentless changes in employment availability and demands (Coetzee, 2019; Cox & King, 2006; Rothwell & Arnold, 2005; Tomlinson, 2007). As a country, South Africa has been suffering from chronic unemployment, with the youth considered the most at-risk group. The recent COVID-19 pandemic worsened this unemployment situation. Therefore, addressing youth employment is essential to achieving social stability and individual mental well-being (Botha, 2021).

In the new world of work, the ability to adapt and make use of psycho-social resources to bring about changes in oneself and situations is needed for employability (Hartung & Cadaret, 2017). Adaptability also involves career management skills that affect one's employability (Zyberaj, 2022). It has become essential to understand the psychological factors that enable people to become responsive in maintaining employability in the present-day working world (Coetzee, 2019; Potgieter & Coetzee, 2013). Self-regulation is a motivational process that drives personal resource supply in order to achieve one's critical goals (Coetzee, 2019). In this discussion, self-perceived employability will be discussed first, followed by career adaptability and psychological capital (also known as PsyCap).

2.2. Conceptual foundation of Self-Perceived Employability

The focus of this section is on the concept of self-perceived employability. A discussion on the concept's background; definition; theoretical conceptualisation; model; and implications on industrial psychology, human resource (HR) practitioners, career counsellors, and educational institutions follow.

2.2.1. Background

In the contemporary work milieu, the notion of employability has surfaced as a vital source of career success (McArdle et al., 2007). To remain employable and to endure and flourish in all areas of life, people must adopt or adapt to a protean career (which alludes to the Greek god Proteus, who could shape-shift himself at will) (Hartung & Cadaret, 2017; Maree, 2017). The protean career is conceptualised in respect of flexibility and adaptability. People adapt to their circumstances by reinventing or reshaping themselves to maintain employability and avoid their skills and abilities becoming obsolete or irrelevant. This process is values-driven, self-directed, and a contract with oneself rather than with an organisation (Clarke & Patrickson, 2007; Coetzee & Roythorne-Jacobs, 2012).

Recently the influence of the fluid nature of work on people, their careers, and their attitudes has been an important research topic and discussion point, especially in the context of difficult employment conditions the world over, particularly for students (Rothwell & Arnold, 2005; Qenani et al., 2014; Rothwell et al., 2009). The traditional employment arrangement between employers and employees has made way for a more individually focused approach where it is on the employees to boost their appeal in the labour market (Rothwell & Arnold, 2005) by means of the expansion of their employability skills to add to an organisation's success (Botha,

2021). One focus is on the employee's competence – the abilities, capacities, and skills which enhance employment opportunities. The other focus is the employee's character, where attitudes towards a career and work affect how they adjust to their circumstances and employ psychological strengths to ensure employment (Vanhercke et al., 2014).

Employability is a direct concern for students worldwide. The main reason for attending an educational institution is not to study a specific discipline per sé, but to improve their chances of finding employment (Botha, 2021; Cox & King, 2006; Xia et al., 2020). This study considers employability from a psychological understanding – what it is and how all its elements fit together. The psychological understanding is a micro-level analysis of a person's subjective and perceived interpretation of employability (Vanhercke et al., 2014).

2.2.2. *Defining Self-Perceived Employability*

Employability is a multi-faceted concept dating back to the beginning of the twentieth century. Its definition ranged from being a vague idea, often unclearly defined and sometimes not defined at all (Rossier et al., 2012). In all cases, the idea indicates a person's propensity to obtain a job (Botha, 2021; Harvey, 2010). It is noted as a point of clarification that employability and employment should not be mixed up. Rothwell and Arnold (2007), as cited in Di Fabio (2017), point out that employability involves considering the employment prospects people think they have and the influences which affect these perceptions against the background of self-confidence and their views on the labour market.

Reported definitions of employability posit that the most highly skilled person can become unemployed. Therefore, the definition should include the relative chances of a person acquiring and maintaining different kinds of employment (Baker & Henson, 2010). These definitions, thus, point more to an external locus of control where a person is seemingly at the mercy of the work environment. Against the background of a fluid world of work, Cox and King (2006) view employability from a competence point of view as one's ability to attain the skills to perform work – not automatically that the work itself can be done right away and without extra or additional training. Fugate et al. (2004, p. 23) defined employability as "one's ability to identify and realise career opportunities". The researchers view employability as a person-centred and psycho-social concept independent of employment status, which suggests that a person can be employable whilst unemployed (McArdle, 2007). Some researchers, such as Clarke (2017), consider employability a multi-variable concept as a collection of human and social capital, as well as personal characteristics, behaviours, and perceptions of one's employability that enables people to gain employment (Xia et al., 2020).

This study defines employability from individual and contextual perspectives (Coetzee, 2019), including career self-management, self-efficacy, cultural competence, career resilience, entrepreneurial orientation, sociability, proactivity, and emotional literacy (Coetzee et al., 2016). Coetzee and Engelbrecht (2019) state that employability embodies the features or characteristics of careers which support flexible reasoning, behaviour, and feelings, which improves the person's match with suitable and continued employment opportunities. Employability is, therefore, a collection of *attributes* necessary for enhancing the possibility of generating, obtaining, and maintaining employment opportunities – all the more so when the person is faced with joblessness or has to cope with the demands set by the 4IR (Bezuidenhout, 2011; Coetzee, 2019). Oosthuizen et al. (2021, p. 3) view self-perceived employment in their study as "an individual's *perception* of his or her capabilities of obtaining and retaining fulfilling work and having the knowledge, understanding, skills, experience and personal attributes to move self-sufficiently within the labour market".

Coetzee (2019) also adds that employability is a self-regulatory positive psychological construct that aids with the explanation of the agency side of people in navigating their employability. This view differs from other approaches listed earlier, focusing on the meso-level (such as the organisation or employer) or the macro level (such as the broader society, government, or labour market) (Coetzee, 2019), rather than the control the person has. Coetzee et al. (2016) and Vanhercke et al. (2016) suggest that a sense of employability provides a feeling of control over one's career and the pursual of career goals. Being in control of one's work situation and securing meaningful employment is an important mechanism to survive the ever-changing work environment.

2.2.3. Theoretical conceptualisation of Self-Perceived Employability

Self-perceived employability is a multi-faceted (Rothwell et al., 2009) psycho-social concept with subjective and objective elements (Qenani et al., 2014). Self-perceived employability, or just employability, has been approached from various perspectives (Coetzee, 2019). The concept of self-perceived employability has been theoretically approached in various ways, namely the competence-based, dispositional, and perceived employability perspectives (Coetzee, 2019). All of these perspectives share the belief of "employment as an outcome" (Botha, 2021) and the person's perception of the relationship between personal and structural factors that influence how one's employability is managed (Vanhercke et al., 2014). A person's abilities to maintain employment are highlighted through a competence-based perspective, whereas the proactive mindset of the employed person in maintaining employability is emphasised through the dispositional perspective. The perceived employability perspective

highlights the employability of market entrants (the employed and unemployed) throughout all career stages while considering their feelings regarding their influence over their careers (Coetzee, 2019; Vanhercke et al., 2014). However, Coetzee (2019) points out that these perspectives do not clarify the association between inherent motivational and self-directing processes and people's autonomy in navigating employment. The self-directive perspective to employability assesses the constructive psychological career characteristics which, during unsure employment situations, aid people in developing the agency or autonomy to find their way towards employability.

For this study, employability is viewed from the perspective that self-directiveness aids in developing agency or autonomy in maintaining employability. A person demonstrates manageable proactive agentic behaviour when using various sources and abilities to attain an employment objective through self-directiveness. A person has an encouragement to succeed, develop and craft employment opportunities, where employability turns into the goal on which personal resources are focused. Maintaining employability comprises self-operating processes which allow people to steer their goal-focused activities in a range of employment situations and to achieve meaningful outcomes such as employment. These self-operating processes require goal-setting, monitoring goal-achievement, adjusting conditions by self-reflection, development and growth, and exhibiting hands-on independent behaviour (Coetzee, 2019).

Self-determination theory states that people's motivations are understood by considering their inherent psychological needs for competence, autonomy, and relatedness (Deci & Ryan, 2014) to ensure their future employability (Coetzee, 2019). Needs specify the conditions for psychological growth, welfare, and coherence (Deci & Ryan, 2014). Performance in managing employment is self-operating, independent, and driven. When dealing with their employability, people select behaviours that satisfy their psychological needs for autonomy, competence, and relatedness. These psychological needs support their sense of well-being and satisfaction. Positive psychological attributes allow a person's self-directive processes toward sustainable employment (Coetzee, 2019). Coetzee (2019), incorporating Deci and Ryan's (2014) outline of self-determination theory, explains that constructive employability attributes and motivational mindsets towards work and a career generally allow for employability by means of hands-on career management behaviours. Proactive career management behaviours focus on guiding one's employability and the need for autonomy, competence, and relatedness. Through enhancing and displaying positive psychological career-related characteristics, the requirements that realise the basic needs for independence create proficiency and connection through pro-active employability management.

2.2.3.1. Self-Perceived Employability model

The self-perceived employability attributes framework portrays a collection of main characteristics essential for the improved probability of acquiring and supporting employment opportunities (Coetzee, 2019; Potgieter & Coetzee, 2013). According to this framework, there are seven positive psychological characteristics or attributes of self-directed employability. These attributes or characteristics include the autonomous career-related attitudes, skills, and behaviours required to maintain employability (Coetzee, 2019). The career-related attitudes fall into three general areas of psychological needs, namely psychological needs of autonomy (consisting of career agility, career self-management potency, and career agency psychological attributes); psychological needs of competence (consisting of cultural ingenuity, emotional acuity, and proactive career resilience psychological attributes); and psychological needs for relatedness (consisting of career sociability psychological attributes) (Coetzee, 2019). Figure 2.1 outlines the self-regulatory employability attributes investigated in this study.

Figure 2.1

Self-regulatory employability attributes (Coetzee, 2019)
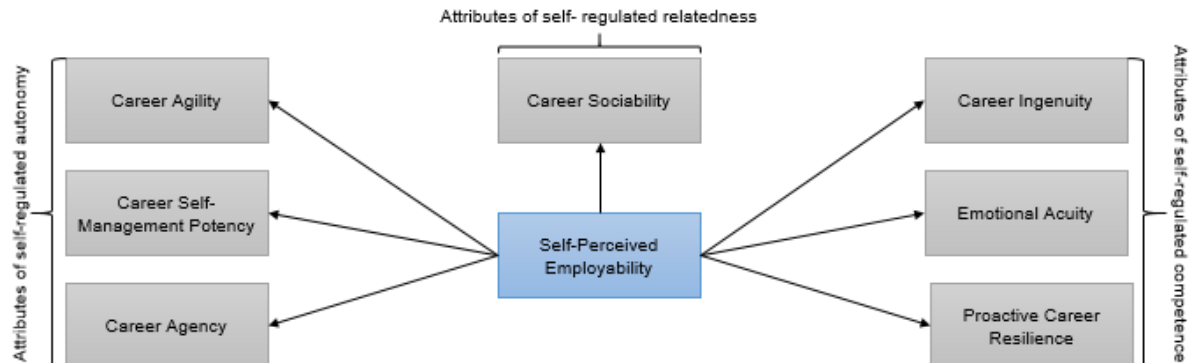
2.2.3.2. Employability attributes of self-regulated autonomy

According to Deci and Ryan (2000), self-regulated autonomy points to a person's wish to self-manage experiences and behaviour and to participate in endeavours consistent with his or her character. By being autonomous in handling one's career and establishing and realising goals that aid in achieving a more congruent person-environment fit, one demonstrates personal agency (autonomy) (Coetzee & Engelbrecht, 2019). The elements of self-regulated autonomy are as follows:

a) **Career agility** indicates the acceptance of accountability for one's choices. It also points to a person's predisposition to take a more involved role that leads to future and self-started activities as a means to adapt to changing circumstances through improving knowledge and skills (Coetzee et al., 2015; Potgieter & Coetzee, 2013).

b) **Career self-management potency** involves an intrinsic autonomous motivation and capacity to support employability by way of continuous learning and development opportunities, career planning, and management efforts to pursue career goals (Coetzee & Engelbrecht, 2019; Coetzee et al., 2015; Potgieter & Coetzee, 2013).

c) **Career agency** relates to the person's estimation of his or her ability to set challenging targets, function and make decisions independently of others, cope with challenges, and thrive through the enjoyment of the discovery of original solutions (Coetzee, 2019; Coetzee & Engelbrecht, 2019).

2.2.3.3. Employability attributes of self-regulated competence

Deci and Ryan (2000) describe employability attributes of self-regulated competence as an inclination to impact the environment and achieve valued outcomes from it. Therefore, a person feels competent and confident about actions and behaviour, which supports achieving career outcomes, such as employability and achieving proficiency over circumstances that affect a person's career success and employability (Coetzee & Engelbrecht, 2019). The elements of self-regulated competence are as follows:

a) **Cultural ingenuity** involves a capacity to understand, confidently initiate and behave, and positively interact with various groups of people in a multicultural environment (Coetzee, 2019).

b) **Emotional acuity** concerns the flexible application of emotions and the ability of individuals to detect, recognise, and effectively manage the emotions and moods of others and themselves (Coetzee, 2019; Potgieter & Coetzee, 2013).

c) **Proactive career resilience** concerns the temperament that enables: a person's degree of anticipation and adjustment to changeable circumstances, openness, self-assurance, and proficiency, irrespective of the person's career circumstances (Coetzee, 2019; Coetzee et al., 2015; Potgieter & Coetzee, 2013).

2.2.3.4. Employability attributes of self-regulated relatedness

Relatedness indicates a person's need to belong and connect with others (Deci & Ryan, 2000). Only one employability attribute falls into this area: career sociability. It reflects a person's need for relatedness by developing and maintaining satisfying social relationships that can be leveraged to advance their career (Bezuidenhout, 2011; Coetzee & Engelbrecht, 2019; Potgieter & Coetzee, 2013).

2.3. The implication of Self-Perceived Employability in the context of 4IR and education

Due to technological evolution in the current work world and the changeable employer-employee relationships, it is becoming more difficult for individuals to remain employed (Coetzee, 2019; Cox & King, 2006). Individuals' self-perception (Oosthuizen et al., 2021) and feelings about their employability (Qenani et al., 2014) affect how they intrinsically cognitively adjust and realign goals and behaviours so that they can meet what the labour environment demands (Coetzee et al., 2015). Self-perceived employability relates to a person's perception of employability, being in charge of their career, and autonomy (Oosthuizen et al., 2021). Self-perception of employability affects a person's feelings, health, emotions, and happiness, and becomes vital in the context of students entering a fast-evolving labour market. Feeling employable can give a person a sense of security, autonomy, motivation, and behaviour, leading to effective negotiations and resilience (Qenani et al., 2014). It is a subjective resource that allows a person to intrinsically cognitively regulate and alter their objectives and behaviours to the extent that they can fit the labour environment's demands (Coetzee et al., 2015). As an autonomous person, the student takes proactive steps and is accountable for every decision, which progresses the student's knowledge and skills for career progression, allowing them to keep up with the demands and changes in the labour environment (Coetzee et al., 2015; Rothwell & Rothwell, 2017).

Employability attributes or traits characterise a person and are not taught by educational institutions. Employability qualities highest regarded by employees are being able to work under pressure, effective time management, adapting to change, follow-through and delivery, being customer-focused, managing one's career development, keeping one's knowledge and skills up-to-date, and engaging in life-long learning activities. These emotional and social skills are often in greater demand than occupational skills and give the person a competitive edge in a labour market characterised by a fast-changing economy, globalisation, and constant technological change and evolution (Coetzee et al., 2019).

The challenge of employability within the educational system is that educational institutions may have to appropriately adjust the learning design of programmes to ensure that students develop a sense of employability (Ehiyazaryan & Barraclough, 2009). The shift from employment security to employability involves that employers and (highly skilled) employees adapt to the idea of employability as a contemporary employment relationship (Clarke & Patrickson, 2007), and those students need to acquire a sense of self-sufficiency to direct their careers effectively (Coetzee, 2019).

2.3.1. *Biographical variables influencing Self-Perceived Employability*

The relationship between self-perceived employability and sociodemographic variables such as gender, age, race, and home language is investigated in this section.

2.3.1.1. Gender

The conclusions concerning how gender influences self-perceived employability are inconsistent. Numerous researchers have reported that females are inclined to have lower employability than males (Potgieter, 2012). According to a study conducted by Pitan and Muller (2019) and Qenani et al. (2014), male students demonstrated higher self-perceived employability than females. It could be that male students are more likely to be employed than women (Qenani et al., 2014; Rothwell & Arnold, 2005). A study by Oosthuizen et al. (2021) also established that male research participants experienced more positive entrepreneurial and proactivity attributes of employability than female participants. In another study by Monteiro et al. (2016), male and female students evaluated their employability similarly after obtaining their masters degrees. However, when adding the first working experience and the genders were asked to rate their employability, females again tended to perceive their employability as lower than males.

On the other hand, Bezuidenhout et al. (2019) and Botha (2021) did not find any statistically significant differences between male and female students regarding self-perceived employability. Similarly, Rothwell et al. (2009) could not establish any statistically significant difference between males and females regarding self-perceived employability.

2.3.1.2. Age

Bezuidenhout et al. (2019) found that younger students tended to obtain higher values on the self-development and self-satisfaction attributes of employability. However, no significant differences could be established for all the other attributes. Clarke and Patrickson (2007) and Rothwell and Arnold (2005) found that age and employability are negatively correlated; however, perceived employability peaks around early-to-mid career when employees have accumulated career achievements. In a research dissertation, Potgieter (2012) reports that various researchers observed that age and employability are connected. More mature employees and new entrants are in a similar situation due to the heightened pace of transformation in the labour market. Furthermore, it was established that employability reduces with age, specifically when the employee shifts to a different area of employment. Similarly, newly graduated students find employment difficult due to a stereotypical perception that they lack practical experience.

2.3.1.3. Race

Potgieter (2012) and Rothwell et al. (2009) suggest that race's influence on employability is inconsistent. Rothwell et al. (2009) observed no significant differences in race and self-perceived employability. However, according to Potgieter (2012), some researchers found a positive influence of education levels on the advancement of some racial groups concerning employability. According to a study led by Bezuidenhout et al. (2019), there were significant differences between race groups concerning the career resilience attribute. The results found that white students perceived themselves as more employable than Indian, coloured, and black students. The same applied to the self-development and self-directedness attributes of employability. Indian students nevertheless presented with more self-satisfaction when compared to other race groups. Oosthuizen et al. (2021) also reported statistically significant differences linking self-perceived employability attributes and racial groups. These differences were especially the case between black and white groups, where the former rated higher than the latter on average. Qenani et al. (2014) indicated in their study that race significantly influenced self-perceived employability. Potgieter (2012), however, highlighted that South Africa has a macroeconomic impact on the employability of certain racial groups through the Black Economic Empowerment (BEE) policy, which results in different racial demands.

2.4. Conceptual foundation of Career Adaptability

The concept of career adaptability is conceptualised and discussed in this section. The theoretical model is explained, and variables influencing career adaptability are discussed.

2.4.1. Background

According to Hartung and Cadaret (2017), it is essential for humans to adapt to survive and thrive in the domain of work. Adapting and surviving necessitates career adaptability, a specific ability to identify and utilise the needed psycho-social resources to enable the person to bring about changes in themselves and career situations for career fulfilment and success.

Savickas developed the career construction theory as an extension of Super's career development theory (Coetzee & Roythorne-Jacobs, 2012). Career construction theory states that an individual should pursue career tasks with involvement in the future, with a feeling of being in control over their career, and with curiosity regarding the possibilities and choices and confidence in planning their future career and how it is implemented. Career adaptability is the central concept of career construction theory (Hlaďo et al., 2019). Career adaptability is a construct suggested by Savickas as a replacement for the idea of career maturity (Tien & Wang, 2017). Career adaptability has developed as a concept and operates as a meta-competency for successful career construction and life design. As a meta-competency, career adaptability entails the psycho-social ability and skills to bring about self- and environmental adjustments for handling tasks, transitions, and traumas during one's career progression (Hartung & Cadaret, 2017).

Adaptability plays an essential role in what is seen as an emphasis on person-environment fit. Appropriately, the Latin substrate of "adapt" is *adaptare*, meaning to fit, adapt, and adjust, or to modify. Our contemporary views of fit require the person to be more strategic and intentional in accepting change. Compared to how careers were seen as static in existence and development, the current world of work demands more self-knowledge, flexibility, and personal management from a person, all within the context of a vague, less-supportive social structure (Rottinghaus et al., 2017; Xia et al., 2020). These less-supportive social structures require people to self-manage their careers in a tight labour market which requires them to adapt to changeable circumstances more often. These changeable circumstances make the desire for a career and career adaptability important for people to find decent work (Hamzah et al., 2021; Rossier et al., 2012). Savickas associated adaptability to planfulness, an inclination to manage changes, and preparedness to self-reflect and investigate the

environment. Flexible people tolerate ambiguity and are at ease with unfamiliar situations (McArdle et al., 2007).

2.4.2. Defining Career Adaptability

Career adaptability is considered a fundamental psycho-social resource for people (Xia et al., 2020), enabling them to cope with ambiguous developmental tasks related to their existing and expected career development activities (Savickas & Porfeli, 2012; Tien & Wang, 2017). Therefore, it refers to a person's readiness to adapt to situational changes and relies on flexible proficiencies and motivation (Harry, 2014). Concern, control, curiosity, and confidence make up career adaptability resources (Xia et al., 2020).

Career adaptability involves a person's cognitive appraisal of how external environmental changes affect their present fit between personal interest, talent, abilities, and employer demands for employability (Coetzee & Engelbrecht, 2019). It, therefore, describes a collection of assignable resources, consisting of particular mindsets, competencies, and behaviours which facilitate job search prospects and enable the formation of another course of action for career improvement, tailoring the person to ideal work settings and constructively taking part in the work role (Coetzee et al., 2015; Rottinghaus et al., 2017). When career-related outcomes are considered, career adaptability allows the integration of the different aspects of the person-environment approach, namely the personal, developmental, situational, and identity factors (Santilli et al., 2017).

A psycho-social construct, career adaptability comprises four particular abilities that add to these regulating processes, namely career adapt-abilities. Career concern, linked to a mindset of – and proficiency in – planning, promotes endurance behaviours of mindfulness and readiness and helps individuals manage the burdens of the work environment. Career control encourages individual accountability for the individual's career and work experiences. A resolute mindset, participating in making decisions, and acting assertively may help individuals to create a sought-after work experience. Career curiosity enables a suitable match between the individual and the demands of the world of work. It implies that individuals obtain up-to-date knowledge and capabilities through investigation and risk-taking. Career confidence has been equated to self-confidence and self-efficacy, which is the confidence in oneself to get to grips with challenges and effectively solve problems, signifying an ability to act in response to demanding situations (Coetzee & Harry, 2015; Santilli et al., 2017; Savickas, 2012; Xia et al., 2020). Career adaptability is connected to a number of personal characteristics, such as a promising future outlook and disposition, a self-assured self-image and strong independency

beliefs, and an optimistic evaluation of context, encouraging emotional dispositions and emotional intelligence (Santilli et al., 2017).

2.4.3. Theoretical conceptualisation of Career Adaptability

The career adaptability model will be discussed in this section

2.4.3.1. Career Adaptability model

Career adaptability is a hierarchical construct (Maree, 2012) which has been described as proactiveness, flexibility, or core reflections, and which entails the capability for the preparedness to involve the adaptability resources or strengths, namely: concern, control, curiosity, and confidence (Rottinghaus et al., 2017) and are discussed below:

a) **Concern** aids a person in preparing for future career developments (Savickas & Porfeli, 2012). It entails a feeling of optimism concerning what is in store and acting according to a plan for what the person wants to accomplish. It is, therefore, the capacity to be conscious of, and devise a plan for, one's future career. Being concerned about the subject of one's future requires being aware, involved and equipped for what is to come. An absence of career concern may lead to a challenge of disinterest and doubt about the future (Hartung & Cadaret, 2017).

b) **Control** involves the subjective feeling of self-regulation and career decision-making about a vocational future (Savickas & Porfeli, 2012). The person takes responsibility and ownership of constructing a vocational career. Assertive behaviour and determined acts support the person's autonomy and self-reliance. Career control challenges that may arise are career indecisions. Those with a diminished feeling of control may find it difficult to manage doubt and hesitation about a career selection. Exhibiting control over one's career allows one to accept ambiguity and related anxieties (Hartung & Cadaret, 2017).

c) **Curiosity** refers to a person's inclination to explore the environment for possible opportunities and seeks information on its requirements to changing circumstances (Savickas & Porfeli, 2012). When curious, the person presents an attitude of interest and participates in an investigation by trialling, risk-taking, and questioning, which leads to a productive career. A lack of curiosity leads to limited exploration and unrealistic expectations about the future (Hartung & Cadaret, 2017).

d) **Confidence** points to the person's self-belief in solving a concrete career problem and succeeding by overcoming obstacles (Savickas & Porfeli, 2012). Career

confidence deals with the extent to which a person acquires problem-solving abilities and believes in his or her capacity to create and implement sensible and realistic career choices. When a person lacks career confidence, the person feels that he or she is incapable of going through occupational struggles. Confidence is exhibited through how well a person deals with numerous stressors during the lifetime of their career journeys (Hartung & Cadaret, 2017).

The sequence of career adaptability is as follows: "Higher levels of adaptation (outcome) are expected for those who are willing (adaptive) and able (adaptability) to perform behaviours that address changing conditions (adapting)" (Savickas & Porfeli, 2012, p. 663). The four dimensions of career adaptability are considered vital vocational developmental tasks involving a primary flexible goal that forms a basis for career success, future adaptableness, and development (Hartung & Cadaret, 2017). Figure 2.2 below illustrates the four dimensions of career adaptability.

Figure 2.2

The four dimensions of career adaptability (Savickas & Porfeli, 2012)
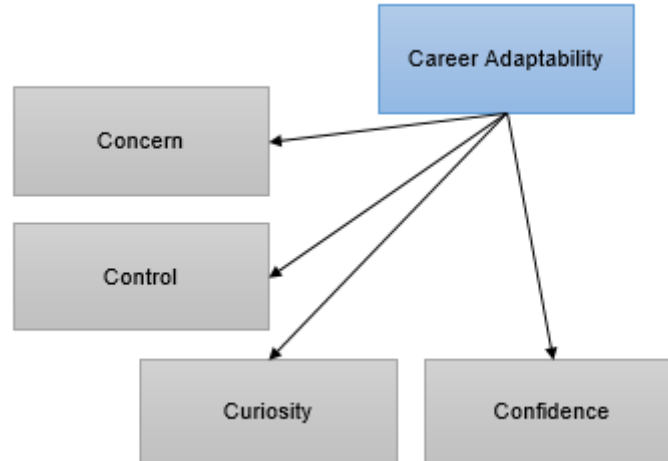
2.4.4. The implication of Career Adaptability in the context of 4IR and education

It has become increasingly crucial for people to adapt and respond in a resourceful manner during their career journey. This need for adaptation is emphasised by increasing requirements from an uncertain and turbulent local and worldwide employment environment (Coetzee & Harry, 2015; Hamzah et al., 2021). Contemporary employers require workers who can rapidly adjust, respond to change, and handle numerous tasks due to rapid organisational

changes (Hamzah et al., 2021). According to Maree (2017), career adaptability is essential when selecting a career direction. Recognising the importance of adaptability is turning into a valuable construct for recognising vocational behaviour and designing interventions to help people make changes to themselves and the career circumstances they find themselves in. It allows them to steer themselves through jobs and places of work; enhance their employability; and develop self-directed thoughts, emotions, behaviours, and attitudes required for career satisfaction and success (Hamzah et al., 2021; Hartung & Cadaret, 2017).

A study by Hlaďo et al. (2019) found that work experience gained in the student's field of study is an overall good predictor of career adaptability. According to this study, students show a higher degree of career curiosity when gaining work experience. Work experience allows students to orientate themselves, think about their careers, plan for what is to come, and explore the world of work. This research suggests that educational institutions should consider implementing work experience as part of their curriculum, rather than simply focusing on a purely academically orientated curriculum. Coetzee et al. (2015) also affirm that a focus on strengthening the employability capacities of students may improve their career adaptability. These capacities explain students' active engagement in career management strategies essential for sustained employability.

2.4.5. Biographical variables influencing Career Adaptability

According to Zacher (2014), few studies have been done to determine the influence of specific biographical details on career adaptability over time. The researcher found limited South African and international research focused on demographic details such as home language, which emphasises a need for further research to understand how these demographic details influence career adaptability. The demographic variables that may affect the development of career adaptability are discussed next.

2.4.5.1. Gender

Numerous researchers found varying outcomes regarding the impact of gender on career adaptability. It appears that the degree of career adaptability may also be related to socialisation amongst cultural groups. Hlaďo et al. (2019) found that females scored lower on career adaptability than males in their study. The researchers hypothesised that this could be due to gender socialisation and that males have been socialised to have a more profound belief that they are the creators of their destiny. Males in Czech society are given the opportunities to plan their careers and to make independent

decisions, while it is less so for females. Coetzee and Harry (2015) and Peila-Schuster (2017) observed a significant relationship between gender and career adaptability. The results indicated that females demonstrated higher career adaptability levels than males. Comparable results were presented by Harry and Coetzee (2013) and Harry (2014). On the other hand, Coetzee et al. (2015) could not find any significant relationship between career adaptability and gender. Additionally, Chen et al. (2020) report on the findings of Rottinghaus and those of Hirschi, who did not find gender to have any notable difference in career adaptability among middle school students.

2.4.5.2. Age

Many studies appear to confirm a significant association between age and career adaptability. However, some studies could also not find significant relationships between age and career adaptability. Ismail et al. (2016) observed a significant positive association between young adults in the school-to-work transition phase, self-esteem, graduateness skills, and career adaptability. This result suggests that the career adaptability of young adults is affected by the strength of their self-esteem (Ismail et al., 2016). Although their study focused on older participants, Tladinyane and Van der Merwe (2015) found significant differences between younger and older participants. This difference was particularly the case in the dimension of career concern for older participants, where being challenged with work allowed younger participants to develop a deeper, optimistic attitude toward their future careers. In a study conducted by Zacher (2014), the researcher found that the area of concern of career adaptability was negatively associated with age, whereas control was positively associated with age.

Other researchers observed that younger adults are unsure where to obtain career information to help with career decision-making. The researchers also found that insufficient self-reflection leads to adverse results, such as an inability to decide on a career direction (Creed et al., 2009; Julien, 1999). Chen et al. (2020) assert that age is a reliable predictor of career development. Then again, researchers such as Hirschi did not find any effect on career adaptability. Hakiki et al. (2020) could not determine any significant age differences in career adaptability among the youth they studied. However, the relationship between age and career adaptability was observed to be negatively associated. Similarly, Coetzee et al. (2015) could not find a significant relationship between age and career adaptability in their study, although too small a sample size could have influenced this finding. A similar result from a research study led

by Rossier et al. (2012) amongst French-speaking Swiss participants goes against the notion of vocational maturity, which should increase with age (Rossier et al., 2012).

2.4.5.3. Race

Numerous studies found notable differences between race, career adaptability, or its different subdimensions. Tladinyane and Van der Merwe (2015) found significant differences amongst race groups on the dimension of concern as an element of career adaptability. Black participants scored higher in this dimension than white participants. Similarly, Coetzee and Stolz (2015) observed that black research participants demonstrated higher career adaptability levels than white research participants. They attributed this finding to the increased career opportunities within a democratic South Africa.

However, the question arises whether or not it is valid to consider all black participants as a homogenous group or whether there are differences between linguistic, gender, or cultural groups. In a doctoral study by Harry (2014), the researcher indicated that Ferreira found that black women scored higher on control, suggesting their need to control their careers more. Conversely, no significant results were observed between race and resiliency-related behavioural capacities such as career adaptability in the researcher's study. Similarly, Coetzee et al. (2015) found no significant association between racial groups and career adaptability.

2.4.5.4. Home language

A search for relationships between home language and career adaptability delivered only a few studies that either explicitly, or as a moderating influence, investigated these variables. The researcher could not find studies from South Africa investigating how different home language groups (and, as an outflow, cultural groups) relates to career adaptability. There generally seems to be an absence of studies exploring or including this influencing variable of career adaptability.

Hirschi and Valero (2015) and Rottinghaus et al. (2017) noted that previous studies found career adaptability to be a higher-level factor and that it is also specified by its elements of concern, control, curiosity, and confidence across different home languages. However, it is essential to note that where these studies were conducted across other countries and linguistic groups, the CAAS was translated and adapted for

cultural meanings and phrases (Rottinghaus et al., 2017). Rossier et al. (2012) concluded from a study with Swiss French-speaking individuals that they generally found similar results to English speakers from the United States. However, they advised that the results should be interpreted by people from the same cultural background rather than those with linguistic similarities.

2.5. Conceptual foundation of Psychological Capital

Psychological Capital (or PsyCap) is an understudied topic among students. It is a construct focusing on strengths and positive aspects of people, labelling it collectively as positive psychological resources (Asbari et al., 2021). Most have been successfully explained in individual workplaces, although, on occasion, psychological capital and student or youth experiences intersected (Calvo & Garcia, 2020; Black et al., 2020).

2.5.1. Background

Unemployment among students is a global phenomenon, which may be an after-effect of the latest economic crisis, globalisation, business competitiveness, increased utilisation of technology, and technical and organisational transformations within organisations, to name but a few. In this non-traditional career context, the workplace demands more flexible and hardy workers skilled at operating in several contexts and prevailing over career obstacles (Calvo & Garcia, 2020).

In the 1980s and 1990s, the American Psychological Association (APA) encouraged positive psychology studies (Black, 2020). The knowledge of this application developed into the research of positive organisational behaviour and theories about the best way to motivate functional behaviour and personal well-being. The notion of psychological capital was one of the theories developed from this development. The understanding of psychological capital evolved within the positive psychology paradigm, which historically aimed at developing psychology beyond the focus of dealing with mental health and illness and also focused on wellness and developing well-being in people (Black et al., 2020; Daswati et al., 2022; Ngoma & Ntale, 2016).

Luthans (2011) developed the psychological capital model for organisations to manage individual performance effectively, but the model is also suitable for other settings and applications. Students must be involved with personal proficiency and a proficiency-oriented mindset to succeed. The discussion of Luthans' (2011) autonomous ability to cultivate a wide-

ranging array of hope pathways is enabled by optimism to bring about solution-seeking behaviours. Enhanced persistence, motivation, and confidence that one can recover, provided by hope, promote an improved self-image of one's sureness in problem-solving and conquering dilemmas. The person's self-efficacy belief stimulates the action taken. Students facing many challenges have to overcome said challenges. The psychological capital model appears valuable for understanding and assisting students in their studies (Black et al., 2020) and, by implication, helping them develop the skills to develop their employability and adaptability skills. Developing psychological capital will empower students with self-knowledge and an increased sense of willpower to adapt to, and be successful in, an ever-changing work environment (Broad & Luthans, 2020; Ngoma & Ntale, 2016).

2.5.2. Defining Psychological Capital

Psychological capital denotes a higher-order collection of an individual's strengths and positive capacities (Calvo & Garcia, 2020; Görgens-Ekermans & Herbert, 2013). Luthans (2011) and Luthans and Youssef-Morgan (2017) describe psychological capital as a positive psychological state of growth. It is regarded as possessing self-confidence (self-efficacy) to undertake and dedicate the necessary determination to accomplish a demanding task. It is to make an upbeat response (optimism) regarding prospering at this instant and in the future; persisting towards objectives and, when needed, adjusting the paths to reach one's objectives (hope) to succeed; and when facing setbacks and misfortune, maintaining a sense of self and bouncing back to where one was, or even better (resiliency).

The four psychological resources have been empirically found to make up a core construct of a higher nature and interact harmoniously. The whole is, therefore, greater than its parts (Salanova & Ortega-Maldonado, 2019). Within the framework of Hobfoll's psychological resources theory, which advances that some psychological constructs are best recognised as representing a core underlying a construct (Avey et al., 2009), psychological capital is of a cognitive nature (Avey et al., 2010). It epitomises an individual's positive evaluation of circumstances and likelihood for accomplishment based on determined effort and persistence (Görgens-Ekermans & Herbert, 2013). Mohammed et al. (2019) state that psychological capital resources can drive career adaptability. This adaptability is due to the resources of psychological capital turning a person's state of mind towards positivity.

2.5.3. Theoretical conceptualisation of Psychological Capital

2.5.3.1. Psychological Capital model

The elements, considered an extension of the definition, will be briefly discussed below to enable an in-depth understanding of psychological capital as a construct. The psychological capital model is outlined below in Figure 2.3. Psychological capital consists of the following elements: Hope, Efficacy, Resilience, and Optimism (HERO).

Figure 2.3

Psychological capital model (Luthans, 2011)
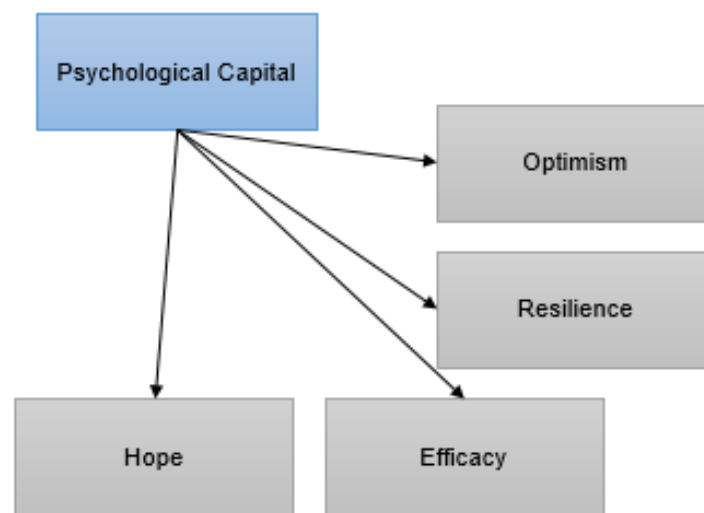
2.5.3.2. Hope

Hope is a "positive motivational state that is based on an interactive sense of successful agency (goal-directed energy) and pathways (planning to meet goals)" (Luthans, 2011, p. 217). Hope is self-initiated and capitalises on the person's goal-directed motivations and behaviours. Self-reliance or internalised control generates the determination, drive, or willpower to achieve one's goals. A second constituent is a process by which alternate routes and contingencies are developed and adjusted to meet goals and rise above challenges. Hope also comprises the quality of the objectives being set and the process by which ever-more challenging objectives are picked, taken on, completed, and adapted against other realities and evidence based on the situation (Luthans & Youssef, 2007).

2.5.3.3. Efficacy

Efficacy is derived from Bandura's social cognitive theory (Luthans, 2011). It refers to the belief about one's capacity to activate the drive, mental resources, and required actions to execute a task within a particular setting effectively (Avey et al., 2009). People with high efficacy are active collectors of beneficial information for their career choice, networking and improvement of competencies, and improving their chances of employability. According to Rawat and Sharma (2018), agency projects employability. Employability can consequently be enhanced through hope and motivation for career professionals. Boosting the level of hope of a student should therefore strengthen their perceived employability.

2.5.3.4. Resilience

According to Avey et al. (2010) and Luthans (2011), resilience is one's ability to recover when confronted with adversity, negative results, increased responsibility, and dramatic positive events or changes. Adaptability is at the core of resiliency, especially when facing setbacks (Avey et al., 2010). Resilience implies that the person takes reactive and proactive measures to recuperate (Luthans & Youssef, 2007). According to Ngoma and Ntale (2016), resilience helps people to become more flexible and adaptable. Resilient people are also more optimistic, enthusiastic about life, inquisitive, and open to new experiences.

2.5.3.5. Optimism

Optimism is both realistic and flexible. An optimistic explicatory approach ascribes incidents to personal, permanent, and ubiquitous causes, while undesirable incidents ascribe to external momentary and circumstantial events (Avey et al., 2009). As cited in Luthans and Youssef-Morgan (2017), Carver et al. (2009) describe optimism as a generalised positive outlook, bringing about overall promising expectancies. Therefore, optimists expect good things to happen in a general sense (Luthans & Youssef-Morgan, 2017).

2.5.4.   The implication of Psychological Capital in the context of 4IR and education

Psychological capital is a positive take on human development that draws from psychological resources such as hope, efficacy, resilience, and optimism (Broad & Luthans, 2020; Zyberaj

et al., 2022). The 4IR (and the recent COVID-19 pandemic) places importance on solutions that have been shown to improve people's well-being, especially solutions that contribute to improvements in performance. Due to the disruptive nature of the 4IR, the reality is that students and workers will experience stress and pressure to find and maintain employment and, according to Broad and Luthans (2020), will have to overcome challenges such as changes in the workplace, depression, anxiety, and so forth. A possible implication of psychological capital in the context of employability and career adaptability is that students and workers can benefit from being cognitively equipped and have their psycho-social resources strengthened to cope with the challenges and setbacks that will present themselves. It also necessitates the appropriate adaptive reaction from the current student and future worker.

2.5.5. Biographical variables influencing Psychological Capital

Research on psychological capital was sparse, especially from a South African perspective. Demographic details such as home language offered little research. Generally, there appears to be a strong need for studies investigating psychological capital among South Africans.

2.5.5.1. Gender

Rawat and Sharma (2018) found significant mean differences between males and females in the psychological capital resources of hope and self-efficacy, where males scored higher than females. Okafor (2014) established a statistical difference between the two genders, where females scored relatively higher than males. On the other hand, Avey et al. (2006) and Du Plessis and Barkhuizen (2012) found no significant relationship between psychological capital and gender. More specifically, Dirzyte and Patapas (2022) did not conclude any statistically significant association between gender and self-efficacy, hope, resilience, optimism, or psychological capital as a whole. Luthans and Youssef-Morgan (2017) also assert that many studies find weak relationships between gender and psychological capital.

2.5.5.2. Age

Dirzyte and Patapas (2022) revealed the only relationship between age and the sub-element of resilience. Luthans et al. (2007) determined with their sample group study that psychological capital has no connection to age in their study. Avey et al. (2006) and Okafor (2014) found a similar result in their research studies. This finding is also

emphasised by Luthans and Youssef-Morgan (2017), who assert that numerous studies find weak relationships between age and psychological capital.

2.5.5.3. Race

Du Plessis and Barkhuizen (2012) found statistically significant differences for race groups in their research study. The researchers determined that white participants demonstrated more substantial hope and efficacy scores than black participants. The explanation offered was that it could be related to the dominance of white participants in the workplace (at the time of the study). Okafor (2014) determined that black participants demonstrated higher resilience than other racial groups, which the researcher explained might be due to the Ubuntu culture.

2.5.5.4. Home language

Du Plessis and Barkhuizen (2012) found statistically significant differences for home language groups in the area of psychological capital. Participants from traditional black languages scored higher in resilience than those who spoke Afrikaans.

2.6. Theoretical integration of Self-Perceived Employability, Career Adaptability, and Psychological Capital

This section incorporates self-perceived employability, career adaptability, and psychological capital. The earlier discussion established that each variable is a different construct. However, career adaptability and psychological capital are distinct in that they are psychological resources, while self-perceived employability deals with personal attributes. This section presents a theoretical link between self-perceived employability, career adaptability, and psychological capital.

2.6.1. Theoretical definitions of constructs

Below is a summary of the theoretical definitions of the constructs supporting the study.

2.6.1.1. Self-Perceived Employability

Employability is a psycho-social concept that characterises the career-related features or attributes supporting adaptive reasoning, demeanour, and affect, which helps a

person match up with suitable and continued job opportunities (Coetzee & Engelbrecht, 2019). Employability attributes signify qualities deemed vital for boosting the probability of generating, obtaining, and sustaining employment opportunities, even when faced with unemployment or the 4IR world of work (Bezuidenhout, 2011; Coetzee, 2019). Employability is therefore defined from individual and contextual perspectives (Coetzee, 2019). It includes the following: career self-management, cultural competence, self-efficacy, career resilience, sociability, entrepreneurial orientation, proactivity, and emotional literacy (Coetzee et al., 2016).

2.6.1.2. Career Adaptability

Career adaptability represents four psycho-social resources of individuals, allowing them to cope with explicit developmental tasks related to their career development (Savickas & Porfeli, 2012). Career concern deals with an individual's ability to be conscious of, and constructively involved in planning an occupational future. Career control refers to the personal accountability a person takes to gain career knowledge and experiences and to feel confident about independently determining and deciding on an occupational future. Career curiosity indicates a propensity of the individual to investigate the work environment and, by employing research and boldness, acquire new wisdom and proficiencies about careers and the work environment. Career confidence points to feeling self-assured about becoming skilled at career-related tasks and successfully solving problems that may cross one's way (Coetzee & Harry, 2015; Savickas & Porfeli, 2012).

2.6.1.3. Psychological Capital

Luthans (2002), as cited in Görgens-Ekermans and Herbert (2013), identified four constructs that compose the core construct of psychological capital: hope, efficacy, resilience, and optimism. Luthans and Youssef-Morgan (2017, p. 340) defined the elements of psychological capital as:

> *"an individual's positive psychological state of development, characterised by (1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering towards goals, and when necessary, redirecting paths to goals (hope) to succeed; and (4) when*

beset by problems and adversity, sustaining and bouncing back and even beyond (resiliency) to attain success".

2.7. Theoretical relationships between Self-Perceived Employability, Career Adaptability, and Psychological Capital

Youth unemployment in South Africa and internationally is a challenge that is a consequence of the contemporary world of work. Youth enter the labour pool facing obstacles such as having to cope with the threats of unemployment after schooling, qualifying for a particular job, securing employment, dealing with the challenges of shifting from learner to employee, and adapting to the demands of the workplace (Coetzee, 2019; Coetzee & Esterhuizen, 2010).

It is expected of young adults to be job-ready and employable and ensure that they present with an in-demand set of skills (Potgieter & Coetzee, 2013). Recently, the economic crisis, increasing globalisation, competition amongst industries and businesses, the ever-increasing utilisation of technology, and general technical and structural changes in organisations have added to the shifts in the contemporary world of work (Calvo & Garcia, 2020). Workers face declining job security, employment vacancies, ever-evolving technology, and a responsibility to upskill and learn about changes in their work field (Rawat & Sharma, 2018). Companies are gradually demanding more flexible, adjustable, and resilient workers who can operate in a variety of contexts and who can manage challenging situations without relying on a traditional career path (Calvo & Garcia, 2020).

Finding or creating a job or employment is essential to an individual's career and psychological well-being (Coetzee et al., 2019). Technical skills and academic knowledge alone are insufficient to find employment (Potgieter & Coetzee, 2013). It has become essential for workers to psychologically (self-agency) adapt and respond in a resourceful manner to the pressures posed by an ever-evolving and turbulent career environment (Coetzee, 2019; Coetzee & Harry, 2015). It is becoming increasingly important that workers rely more on psychological capital and adaptability skills to make sure that they develop employability skills that allow them to perceive themselves as employable (Calvo & Garcia, 2020).

In the literature, Savickas and Porfeli (2012) made an empirical link between career adaptability and psychological capital. Studies led by Mohammed et al. (2019), Safavi and Bouzari (2019), and Coetzee et al. (2017) demonstrated and confirmed links between career adaptability and psychological capital. Rawat and Sharma (2018) demonstrated an association between psychological capital and employability constructs in their study. Ngoma

and Ntale (2016) observed in their research that psychological capital, social capital, and career identity assist people in dealing with employability challenges. In their study, Calvo and Garcia (2020) found that psychological capital is a precursor variable of employability skills and influences various employability skills such as teamwork, self-understanding, and self-regulation.

Coetzee et al. (2015) demonstrated positive correlations between the self-regulatory resources of career adaptability and career resilience and employability. Coetzee and Engelbrecht (2019) found a negative association between career adaptation and low perceived self-employability. The relationship between career adaptation concerns and high perceived employability proves that people participate in a secondary evaluation process through their employability attributes. Career adaptation affects through the employability attributes, to help people restore their autonomous functioning. Figure 2.4 shows the theoretical associations between self-perceived employability, career adaptability, and psychological capital.

Figure 2.4

A combined model of the theoretical relationships of self-perceived employability, career adaptability and psychological capital
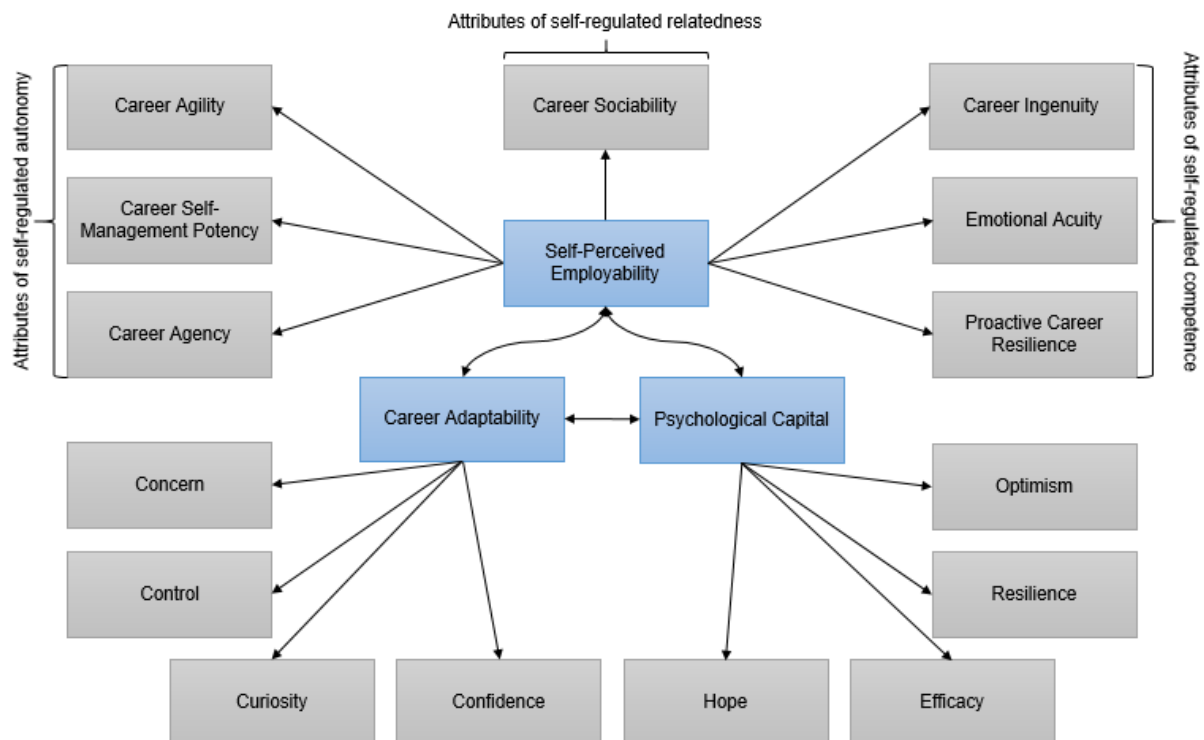
2.8. Variables influencing Self-Perceived Employability, Career Adaptability, and Psychological Capital

Personal milieu and socio-demographic affiliation (age, gender, race, home language), personal attributes (resilience, optimism, hope, employability attributes, etc.), experience (academic, occupation, and other interests), and early proficiency levels (cognitive, technical, and interpersonal skills) are altogether vital influences in establishing a person's occupational interests and competencies. Career counselling today is tested by the across-the-board alterations to the way of life of people and the evolution of technology (Maree & Beck, 2004).

This study identified the following demographic variables: gender, age, race, and home language. Home language is one variable that does not feature strongly in most research, but is included to examine potential differences within groups, such as race groups which could account for possible cultural differences.

In most research studies, the variables of gender and age are covered. There are mixed results on how gender influences the three main variables. On average, males score higher on self-perceived employability than women (Pitan & Muller, 2019; Potgieter, 2012; Qenani et al., 2014). Oosthuizen et al. (2021) also observed that male participants, compared to female participants, experienced more positive entrepreneurial and proactivity attributes of employability. For career adaptability, females scored lower in a study conducted by Hlaďo et al. (2019), whilst studies done by Coetzee and Harry (2015), Harry (2014), Harry and Coetzee (2013), and Peila-Schuster (2017) observed higher career adaptability scores amongst females compared to males. On the construct of psychological capital, most research studies did not find a significant association between gender and psychological capital.

Potgieter (2012) reports that various researchers found that age and employability are related. Age negatively correlates with employability (Rothwell & Arnold, 2005; Clarke & Patrickson, 2007). Age presented no conclusive result regarding how it related to career adaptability, as results varied among the research studies. Similarly, Avey et al. (2006), Luthans et al. (2007), Luthans and Youssef-Morgan (2017), and Okafor (2014) found a weak-to-no association between age and psychological capital. Race demonstrated an inconsistent result with employability studies. Studies such as Potgieter (2012) and Rothwell et al. (2009) did not find significant differences between race and employability. Researchers such as Bezuidenhout et al. (2019), Oosthuizen et al. (2021), and Qenani et al. (2014) indicated significant differences between racial groups when some or all of the subdimensions or primary constructs are correlated. Various studies observed significant differences between career adaptability and

its different subdimensions. Coetzee and Stolz (2015), Ferreira (2012), as cited in Harry (2014), and Tladinyane and Van der Merwe (2015) found significant results which differentiated between race groups. However, studies such as those of Coetzee et al. (2015) and Harry (2014) could not determine any significant difference between career adaptability and the various racial groups. For psychological capital, very few studies included race as a demographic variable. The results were mixed as Du Plessis and Barkhuizen (2012) observed that white participants scored higher on the subdimension of hope than black participants, while Okafor (2014) found that black participants scored higher on the factor of resilience compared to other racial groups.

Home language is one variable that did not get much attention in most research studies. It is possible that most countries outside of South Africa tend to lack a diversity of languages and cultures. However, in South Africa, only a handful of studies considered home language groupings a variable. A study led by Du Plessis and Barkhuizen (2012) observed significant differences amongst home language groups when correlated against psychological capital, where traditionally "black languages" scored higher in resilience than other home languages such as English and Afrikaans.

2.8.1. Implications for Industrial and Organisational Psychology, career counsellors and educational institutions

Rothman and Cilliers (2007), Van Vuuren (2010), and Van Zyl et al. (2016) describe IOP as an applied branch of psychology in which the scientific research is involved with the development and function of psychological processes, practices and theories and research within work-related contexts which supports organisational functioning, performance and economic well-being.

As emphasised before, new and existing workers face an increasingly fluid work environment. Constant changes in technology, the restructuring of organisations, competition, a drive for efficiency, and the tentative character of the social agreement between employer and employee drive this fluidity. Therefore, new and existing workers must develop the capacity to adapt to changes in their careers and develop more robust psychological capital and employability skills and attributes.

Career counsellors, educators, and industrial psychologists may find the self-perceived employability results of interest as helping clients to become more aware of their attitudes, skills, and behaviours may aid them in navigating their ability to stay employable and fulfilling

their psychological needs for autonomy, competence and relatedness through self-knowledge and active exploration (Coetzee, 2019). The self-perceived employability scale can be used for career development and guidance for those who want to shape their career and focus on the most pressing issues (Rothwell et al., 2009). The youth, or students, will take ownership of their employability if they understand how and why it is developed (Baker & Henson, 2010). Employability attribute enhancement should be taken on by industrial psychologists, HR practitioners, and career counsellors, as they can directly assist people in understanding, developing, and directing their employability skills through developing the tools needed to manage their employability (Potgieter, 2012).

In South Africa and internationally, psychological capital has not received much attention in research on employability. This research study will illuminate how essential psychological capital is to clarifying the perceived employability of students. Also, it will add to the current knowledge base regarding psychological capital and how it relates to self-perceived employability. The psychological capital model appears valuable in understanding and supporting students in their studies (Black et al., 2020) and helping them develop the skills to develop their employability and adaptability skills. An important implication of this study for theory and practice is that higher education institutions should consider developing student psychological resources to help them perceive themselves as vital contributors to the economy (Calvo & Garcia, 2020). Developing psychological capital will empower students with self-knowledge and an increased sense of willpower to adapt to and succeed in an ever-changing work environment (Ngoma & Ntale, 2016). Students must be empowered to build their psycho-social resources by way of inventive instruction, career counselling facilities, training and management, and career intervention programmes (Hamzah et al., 2021).

2.9.   Chapter summary

The constructs of self-perceived employability, career adaptability, and psychological capital were investigated in this chapter. Past scientific studies and theoretical associations between the constructs and subconstructs were examined and discussed. The following theoretical aims were achieved:
- Conceptualise employability, career adaptability, and psychological capital amongst non-degreed youth at an educational institution from a theoretical standpoint;
- Conceptualise the theoretical association between employability, career adaptability, and psychological capital amongst non-degreed youth at an educational institution in the scientific literature;

- Establish the role of the biographical variables such as age, gender, race, and home language on employability, career adaptability, and psychological capital amongst non-degreed youth at an educational institution.

Chapter Three presents the empirical study as a research article. The research article introduces the research rationale, followed by a brief literature study of the self-perceived employability, career adaptability, psychological capital constructs, and the research methodology. A discussion of the results follows and wraps up with an emphasis on the recommendations and evaluation of the study's limitations. Suggestions for future research are also presented.

Chapter Three: Research article

The relationship between employability, career adaptability, and psychological capital amongst non-degreed youth at an educational institution.

Abstract

Orientation: The world of work is advancing and dominated by the demands of the Fourth Industrial Revolution (4IR) and ever-faster technological developments. Employability, rather than just finding employment, is required today. Consequently, employees (but increasingly so the youth) must adapt and adjust their skills, knowledge, and behaviour to maintain employability in our contemporary work context. An adaptability mindset and a set of psycho-social career resources are needed to enable youths to sustain employment in a fluid work climate. To remain employable, people must adopt a protean career by adapting to their circumstances and updating their skills and knowledge to stay relevant in the 4IR work environment and contribute to their employer's success. Career adaptability is a critical skill linked to a person's ability to identify ideas to find or create employment opportunities. Due to the pressures of the 4IR, students and workers will experience stressors and pressure to find and maintain employment. Therefore, they may need to be equipped with psycho-social career resources to assist them in managing challenges and setbacks and adjusting their career to find employability.

Research Purpose: The study explored the relationship between employability, career adaptability, and psychological capital amongst non-degreed youth at an educational institution. The objectives of the study were as follows:

- To establish if there is a significant positive relationship between employability and career adaptability amongst non-degreed youth at an educational institution.
- To determine if a significant positive relationship exists between employability and psychological capital amongst non-degreed youth at an educational institution.
- To determine if a significant positive relationship exists between career adaptability and psychological capital amongst non-degreed youth at an educational institution.
- To determine if there is a statistically significant difference between employability and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.

- To determine if there is a statistically significant difference between career adaptability and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.
- To establish if there is a statistically significant difference between psychological capital and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.
- To offer recommendations for the practice and research of industrial and organisational psychology professionals and educational and counselling professionals regarding employability, career adaptability, and psychological capital and how it affects youth.

Motivation for the Study: The present-day work environment is volatile owing to the pressures of the 4IR. Therefore, there is an ever-increasing need to equip youths and new entry workers with the attributes that ensure employability and the know-how to flex their careers around the work environment demands. There is also a need to aid them in strengthening their psycho-social career resources to help them cope with changes in their career and to help them maintain employability. The researcher could not find research examining the association between employability, career adaptability, and psychological capital, especially among youth, and how they relate to these concepts.

Research Design, Approach, and Method: This study used a cross-sectional quantitative, non-experimental research approach to evaluate the interrelatedness of variables. A Biographical Questionnaire, Employability Attributes Scale (EAS), Career Adapt-Abilities Scale (CAAS), and Psychological Capital Questionnaire (PCQ-24) were utilised to gather data. A non-probability approach was followed to select the participants, using a convenience sampling method. There were 263 participants in the sample group. Descriptive statistics and techniques such as correlation statistics, t-tests, and tests for significant mean differences between the participant groups were used to analyse the data.

Main Findings: The results demonstrated a strong positive significant relationship between employability and career adaptability, employability and psychological capital, and career adaptability and psychological capital. The relationship between employability and career adaptability was more substantial than the relationship between employability and psychological capital. There was also statistical evidence of significant statistical differences at a demographic level.

Practical Implications and Contributions: The study results indicate that cultivating employability attributes and career adaptability, together with psychological support factors such as resilience and efficacy of youths in educational institutions, may strengthen youths' self-perceived employability and how well they adjust their careers to a changing labour environment. The findings also highlight educational institutions' vital role in navigating students towards fostering self-directed behaviour early on in their academic training through their curriculum. Within workplaces, industrial psychologists must also play an active role in developing young entry-level workers and assisting them in obtaining the required employability attributes and mindset to adjust their careers in a changeable 4IR work environment.

Contribution/Value-Add: The research is consequential in its usefulness as it contributes to the theoretical understanding of how employability, career adaptability, and psychological capital relate. It is also a study focusing on a South African view of this combination of variables and how professionals can use it to the advantage of South African youth.

Keywords: career adaptability, employability, psychological capital, psycho-social career resources, Fourth Industrial Revolution

3.1. Introduction

This article presents the backdrop to the study and a brief overview of the research literature. From there, the researcher outlined the research objectives and how this research study achieved these research objectives. It is followed by the data analysis of the research study and concluded with an integration of the data, recommendation and overview of possible limitations, and future directions for additional studies on this topic.

3.1.1. Key focus of the study

The current unemployment situation in South Africa, combined with the ever-changing work environment driven by the 4IR, requires understanding how self-perceived employability, career adaptability, and psychological capital are related and can be employed to address this employment crisis.

3.1.2. Background to the study

The world of work is evolving and dominated by the demands of the 4IR and STARA (Smart Technology, Artificial Intelligence, Robotics and Algorithms) (Oosthuizen, 2022). Due to growing demand, information spreads faster and more efficiently around the world (Maree, 2017). Consequently, employees – and even the youth – must consistently adapt and adjust their skills, knowledge, and behaviour to remain employable in our contemporary work contexts (Maree, 2017). Enabling youths to stay employed in an uncertain and unstable work climate requires an adaptability mindset and a set of psycho-social career resources (Coetzee, 2019; Hartung & Cadaret, 2017; Luthans, 2011).

Today, employability is essential, rather than just finding work (Maree, 2017). People must adapt or adopt a protean career to maintain employability and survive and flourish across all areas of life (Hartung & Cadaret, 2017; Maree, 2017). Protean careers are viewed in respect of how a worker adapts and flexes to the work environment and demands. People adapt to their situations by overhauling or redesigning themselves to maintain employability and avoid their skills and knowledge becoming obsolete or irrelevant over time (Clarke & Patrickson, 2007; Schreuder & Coetzee, 2016). Career adaptability is a vital skill associated with the ability to develop plans for obtaining or generating work opportunities. It has become a valid survival mechanism. Career resilience is also required to deal with constant difficulties and to bring about frequent career-linked changes (Maree, 2017).

Employees' focus is now on making themselves attractive to the labour market (Rothwell & Arnold, 2005) by developing employability skills that can add to an organisation's success (Black et al., 2020; Botha, 2021). Employability is an absolute concern to all students because the reason for attending an educational institution is to improve their chances of getting employed, rather than study for a specific field or subject (Botha, 2021; Cox & King, 2006; Xia et al., 2020). Given the unsettling nature of the 4IR, the reality is that students and workers alike will experience stress and pressure to find and maintain employment. According to Broad and Luthans (2020), they will have to overcome challenges such as changes in the workplace, depression, and anxiety. A possible implication of psychological capital in the context of employability and career adaptability is that students and workers can benefit from being cognitively equipped and have their psycho-social resources strengthened. Preparing students will allow them to cope with the challenges and setbacks that will present themselves and necessitates the appropriate adaptive reaction from the current student and future worker.

3.1.3. *Trends in the research literature*

Below is a summary of the researcher's main trends gathered from the scientific literature about self-perceived employability, career adaptability, and psychological capital.

3.1.3.1. Self-Perceived Employability

As a psycho-social construct (Coetzee & Engelbrecht, 2019), self-perceived employability is multifaceted (Rothwell et al., 2009) and has been studied and defined from numerous viewpoints (Coetzee, 2019). According to Coetzee and Engelbrecht (2019), employability represents the career-related *qualities* that aid an individual's adaptive cognition, behaviour, and affect. As a collective of attributes, employability is essential for creating, securing, and maintaining employment opportunities that present themselves – even when the individual is facing joblessness or dealing with the ramifications of the 4IR (Bezuidenhout, 2011; Coetzee, 2019). Oosthuizen et al. (2021) added that self-perceived employment is also a *perception* of one's capacities to gain and sustain a satisfying job and to have the know-how, understanding, competencies, experience, and personal qualities to progress independently within the labour market. This study treats self-perceived employability from individual and contextual perspectives (Coetzee, 2019). It includes psychological needs divided into three areas: autonomy, competence, and relatedness.

Research has found negative associations between low self-perceived employability and career adaptability as people evaluate job market changes that trigger inflexibility responses to restore autonomy. The individual also considers how many coping resources are available to restore their autonomous function through increased levels of self-perceived employability (Coetzee & Engelbrecht, 2019). In addition, research findings indicated that self-directed independence and proficiency characteristics explained the strongest link between self-perceived employability and career adaptability (Coetzee & Engelbrecht, 2019).

3.1.3.2. Career Adaptability

As an essential proficiency, career adaptability is associated with one's ability to produce plans for obtaining or creating work opportunities. It has grown into an indispensable means of survival (Maree, 2017). Hartung and Cadaret (2017) state that career

adjustability is needed as we need to adjust to survive and prosper in the work domain. It is a capacity to identify and utilise psycho-social resources to adjust oneself and career situations to accomplish career gratification and achievement. Employment in the time of the 4IR is fluid and therefore demands more self-knowledge, flexibility, and personal self-management in the context of an ambiguous and less-supportive social structure (Rottinghaus et al., 2017; Xia et al., 2020). It involves a person's active cognitive assessment of how the external environment affects the person's fit between personal interest, talent, abilities, and what employers require for employability, and to tailor accordingly to actively take part in the work role (Coetzee et al., 2015; Coetzee & Engelbrecht, 2019; Rottinghaus et al., 2017). Coetzee et al. (2015) established a positive association between career adaptability and employability competences and skills. In other research, Coetzee et al. (2017) demonstrated a link between career adaptability and psychological capital as a vital collection of psycho-social career capacities.

3.1.3.3. Psychological Capital

Luthans (2002), as cited in Görgens-Ekermans and Herbert (2013) and Black et al. (2020), identified four constructs that compose the core concept of psychological capital: hope, efficacy, resilience, and optimism (also referred to as HERO). As a result of the recent (and current) economic crisis, globalisation in various spheres of life, competition amongst businesses, technological evolution and use, and organisational changes, youth unemployment is a global phenomenon. The influences, as mentioned earlier, also demand that workers are more adaptable, resilient, and able to work in various contexts whilst overcoming obstacles in their careers (Calvo & Garcia, 2020). Research has found that psychological capital acts as a "storehouse" of psychological resources (Asbari et al., 2021). Psychological capital is currently underutilised but shows potential to be employed to strengthen the positive psychological resources of people (Broad & Luthans, 2020). Researchers demonstrated that psychological capital is vital for various work-related outcomes and is an essential personal resource that can affect an individual's experiences while adapting. Research indicated that factors such as resilience help workers deal with challenging situations by being more persistent (Zyberaj et al., 2022). Zyberaj et al. (2022) report that psychological capital boosts a worker's career adaptability and is consequently favourable for proactive career behaviour. Career-adaptable workers have improved coping capacities for handling unpredictable adjustments necessitating a changeable work environment.

3.1.4. Research objectives of the empirical study

This study aims to empirically explore the association between employability, career adaptability, and psychological capital amongst non-degreed youth at an educational institution. Furthermore, this study also aims to determine if differences are present between gender, age, race, and home language groups based on the three main variables and their different factors. The specific research aims for this empirical study was as follows:

- **Research aim 1:** To determine if there is a significant positive relationship between employability and career adaptability amongst non-degreed youth at an educational institution.

- **Research aim 2:** To determine if there is a significant positive relationship between employability and psychological capital amongst non-degreed youth at an educational institution.

- **Research aim 3:** To determine if there is a significant positive relationship between career adaptability and psychological capital amongst non-degreed youth at an educational institution.

- **Research aim 4:** To determine if there is a statistically significant difference between employability and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.

- **Research aim 5:** To determine if there is a statistically significant difference between career adaptability and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.

- **Research aim 6:** To determine if there is a statistically significant difference between psychological capital and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.

- **Research aim 7:** To provide recommendations for the practice and research of industrial and organisational psychology professionals as well as educational and counselling professionals regarding employability, career adaptability, and psychological capital and how they affect youth**.**

3.1.5. The potential value-add of the study

Although several studies investigated the links between self-perceived employability or employability and career adaptability, as well as career adaptability and psychological capital, the researcher found no research linking these concepts. The researcher's literature studies found no pertinent research studying the association between self-perceived employability,

career adaptability, and psychological capital. Considering a lack of research on these three variables, the study contributes to the theoretical, empirical, and practical knowledge base.

3.1.5.1. Potential value-add at a theoretical level

The study contributed theoretically to the determination of how employability, career adaptability, and psychological capital, as well as each variable's factors, are related. The findings may prove helpful in educational content compilation, career counselling, and career development. The results may also aid industrial psychologists in developing new entrants into their organisations. The focus can be on the worker's capacity to adapt skills and careers to remain skills-relevant. These newly acquired psycho-social capacities can also assist these workers in coping with career changes. This study may add understanding to employability, career adaptability, and psychological capital in a multi-cultural context. The research added additional information about the theoretical structure of the different variables' models and the validity of each of these models.

3.1.5.2. Potential value-add at an empirical level

The study offered empirical evidence supporting theoretical views of the associations between employability, career adaptability, and psychological capital and each of the variables' underlying factors. The results may provide strategies to educators, counsellors, career counsellors, and industrial psychologists to assist youth or entry workers to remain employable in a fluid work environment by strengthening their psycho-social career capacities. In addition, the differences highlighted by the various demographic groups for the three variables may assist in addressing the needs of these diverse groups.

3.1.5.3. Potential value-add at a practical level

Positive outcomes of this study include high-level practical measures to address the establishment and promotion of employability, career adaptability, and psychological capital of a diverse group of youth and new entrants to the work environment to allow them to adapt effectively to the effects of the 4IR, maintain employability, and strengthen their psycho-social career resources. The study provided improved insight and added to understanding the concepts of employability, career adaptability, and psychological capital for educators, counsellors, career counsellors, and industrial psychologists. The

proposals for future research are predicated on the outcomes of this study and guide future research for other researchers.

3.2. Research design

This section concentrates on the research design and addresses it in two sub-sections. The first sub-section addresses the research approach, followed by the research procedure.

3.2.1. Research approach

The concept of "research approach" refers to the planned strategies and research techniques that cover the steps, from the researcher's general assumptions to the more particular techniques of data gathering, analysis, and interpretation (Creswell, 2014). The researcher took a cross-sectional quantitative, non-experimental research approach in this study to evaluate the interrelatedness of variables (Babbie, 2021; Neuman, 1997). The quantitative approach seeks to examine demonstrable theories by examining the association between variables through the use of instruments to extract numerical data that a researcher can analyse through statistical procedures (Creswell, 2014). The researcher explored the empirical association between the variables through correlational statistical analysis (Salkind, 2012). Mean comparisons to determine significant differences in group means (Babbie, 2021) used independent sample t-Tests, One-way Analysis of Variance (ANOVA), and Welch Robust Tests of Equality of Means (Tredoux & Durrheim, 2008; Stindt, 2022). Confirmatory factor analysis tested the theoretical models (Hair et al., 2019). The reliability of each factor tested through confirmatory factor analysis was calculated using Cronbach alpha values (Hair et al., 2019).

3.2.2. Research method

The study's research method is covered in this section. It includes a breakdown of the research participants, three survey instruments, research procedures, and important ethical considerations.

3.2.2.1. Research participants

The descriptive statistics calculated for the participant sample indicated the distribution of the sample by gender, age, race, and home language. The study sample comprised

263 research participants (n = 263). The participant population comprised non-degreed first- and second-year students from one department at a higher education institution, comprising a student population of approximately 5000 (Oosthuizen, R. M., personal communication, 03 August 2021). Because the probability of selecting a single individual is unknown, the researcher applied a non-probability approach (Salkind, 2012) using a convenience sampling method. This sampling method is questioned by Babbie (2021); however, considering the context of this research study, it is suitable as the target population is the focus of the research question and is representative of other youths of a similar higher educational background (Babbie, 2021).

The gender profile skews towards females (80.2%) rather than males, who comprised 19.4% of the sample group. This trend aligns with the general Higher Educational Institutional trend, which shows that more females enrol than males (Department of Higher Education and Training, 2020). In terms of age, the most regularly occurring age was 20. The largest age group was 19 to 24 (31.6%), followed by 25 to 30 (28.2%), older than 35 years (20.5%), and the smallest group of 31 to 35 years (19.8%). The bulk of the research participants was African (73.8%), followed by White (13.7%), Coloured (6.8%), Indian (4.6%), and Other (1.1%) participants. The latter category includes other racial groups that do not fit the other four broad racial categories. The most represented home language groups were isiZulu (22.8%), English (19.4%), Sepedi (11.4%), and Afrikaans (8.4%). Considering the broad demographics of the educational institution itself, the demographics achieved in this study are relatively similar (University of South Africa, n.d). Table 3.1 outlines the demographic profile of the research sample.

Table 3.1
Demographic profile of the research sample (n = 263)

Category	Frequency	Percentage	Cumulative Percentage
Gender			
Female	211	80.2%	80.2%
Male	51	19.4%	99.6&
Other	1	.4%	100%
Valid Total	263	100%	
Age			
19 to 24	83	31.6%	31.6%
25 to 30	74	28.2%	59.8%
31 to 35	52	19.8%	79.6%
Older than 35	54	20.5%	100%%
Valid Total	263	100%	
Home Language			
isiZulu	60	22.8%	22.8%
English	51	19.4%	42.2%
Sepedi	30	11.4%	53.6%
Setswana	25	9.5%	63.1%
Afrikaans	22	8.4%	71.5%
isiXhosa	21	8.0%	79.5%
Sesotho	16	6.1%	85.6%
Xitsonga	14	5.3%	90.9%
siSwati	13	4.9%	95.8%
isiNdebele	5	1.9%	97.7%
Tshivenda	5	1.9%	99.6%
Other	1	.4%	100%
Valid Total	263	100%	
Racial Group			
Black	194	73.8%	73.8%
White	36	13.7%	87.5%
Coloured	18	6.8%	94.3%
Indian	12	4.6%	98.9%
Other	3	1.1%	100%
Valid Total	263	100%	

3.2.2.2. Measuring instruments

This section examines the measuring instruments. It describes the measuring instruments themselves, what they assess, and their validity and reliability. The study included the following measurement instruments:

3.2.2.2.1. Biographical questionnaire

Demographic variables such as gender, age, home language, and racial groupings were collected from the study sample using a biographical questionnaire section at the start of the online survey. For ethical compliance and to comply with the Protection of

Personal Information (POPI) Act 4 of 2013, no identifiable or unused variable information was collected electronically.

3.2.2.2.2. Employability Attributes Scale (EAS)

Self-Perceived Employability Attributes were gauged using the subjectively rated Employability Attributes Scale (EAS). Coetzee (2019) indicated that the measure is multifactorial and contains 51 items and seven subscales, namely: career agility (13 items), Career self-management potency (7 items), cultural ingenuity (7 items), emotional acuity (7 items), proactive career resilience (8 items), career agency (5 items), and career sociability (4 items). The participants were presented with a seven-point Likert-type scale which ranges from "definitely disagree" (1) to "strongly agree" (7). Previous studies reported verified reliability and validity in a South African context. Internal consistency reliability coefficients (Cronbach's alpha) ranged between .71 for self-efficacy and .91 for cultural competency (Coetzee et al., 2016). In a 2019 study, the EAS achieved an internal consistency validity of .97 (Coetzee, 2019). Oosthuizen et al. (2021) reported a Cronbach's alpha coefficient for the EAS and the sub-dimensions, ranging between an acceptable .78 and .90.

3.2.2.2.3. Career Adapt-Ability Scale (CAAS)

Savickas and Porfeli created the Career Adapt-Ability Scale (CAAS) that measured career adaptability in this research study (Coetzee et al., 2017). The CAAS is a self-ranking measure and consists of 24 questions and four equally weighted subscales: concern, control, curiosity, and confidence. A five-point Likert-type scale, ranging from "not strong" (1) to "strongest" (5), is employed for the individual's response to every question (Savickas & Porfeli, 2012). Coetzee and Harry (2015) indicated that in prior studies, the measure's reliability (internal consistency) Cronbach's alpha coefficients are as follows: concern (.76), control (.70), curiosity (.81), confidence (.83), and overall career adaptability scale (.91). A study by Coetzee et al. (2017) found an internal consistency ranging between .83 (control) and .90 (confidence). Zyberaj et al. (2022) reported a Cronbach's alpha of .92 in their study.

3.2.2.2.4. Psychological Capital Questionnaire (PCQ)

Developed by Fred Luthans (Black et al., 2020), the Psychological Capital Questionnaire (PCQ-24) was used to assess psychological capital. The PCQ-24 comprises four similarly loaded subscales: hope, optimism, self-efficacy, and resilience. Every subscale comprises six questions each, with response options which range from "strongly disagree" (1) to "strongly agree" (6) (Avey et al., 2009). According to Görgens-Ekermans and Herbert (2013), earlier studies reported an internal consistency score of between .72 and .80 for hope; .69 and .79 for optimism; .75 and .85 for self-efficacy; and .66 and .72 for resilience. Zyberaj et al. (2022) and Daswati et al. (2022) reported internal consistency of .88 in their respective studies.

3.2.2.2.5. Research procedure and ethical considerations

The study took place within the limits of the higher educational institution's stipulated ethical requirements and procedures. Before conducting the study, the researcher attained ethical clearance from the educational institution's Research Ethics Review Committee (RERC) to perform the study (Addendum A). The educational institution's Research Permission Sub-Committee (RPSC) (Addendum B) provided full approval to use the educational institution's Information, Communication and Technology (ICT) department to distribute the surveys to the identified population groups electronically. Together with the RPSC certification requirements, to ensure data confidentiality, all steps of the educational institution's standard operating procedures document, which lays out the responsibilities of each party, including those of the ICT department, as gatekeepers closely followed. Furthermore, the educational institution tasked the researcher's supervisor to request surveys and anonymised data to be released.

The biographical questionnaire, EAS, CAAS, and PCQ-24 were electronically disseminated to the target participants through the university's ICT department. To maintain anonymity and to ensure that all participation is voluntary, the researcher did not have access to the contact detail or identities of the participants.

The survey introduction explained the research purpose, procedures, and potential benefits. It also assured that the researcher would maintain confidentiality and outlined the participant's rights to voluntary participation and how withdrawal from the survey would be guaranteed. All the participants voluntarily provided consent before they could

proceed with the survey. All information was treated with the utmost confidentiality. The researcher (Addendum C) and statistician (Addendum D) signed confidentiality agreements to maintain confidentiality and to assure each other that the research would be conducted with integrity.

Because the probability of selecting a single individual is unknown, the researcher applied a non-probability method (Salkind, 2012), using a convenience sampling technique that targets students representing non-degreed youth within their first or second year of study. This method is apt as the results can be generalised to most youth of similar educational backgrounds (Babbie, 2021). Data were extracted, anonymised, and adjusted to the IBM Statistical Package for the Social Sciences (SPSS) version 28 format by the ICT department before being handed over to the researcher and statistician for statistical analysis. The ICT department will keep the completed surveys on the educational institution's data server for five years.

3.2.3. Data analyses

The study is quantitative, which implies using numerical data to collect information about the identified variables. Descriptive and inferential statistical procedures and techniques allowed for data processing and analysis (Babbie, 2021; Hair et al., 2019). The data was processed in consultation with an independent statistician utilising SPSS version 28. Figure 3.1 provides a visual overview of the data analysis process.

Figure 3.1

Summary of the data analysis process
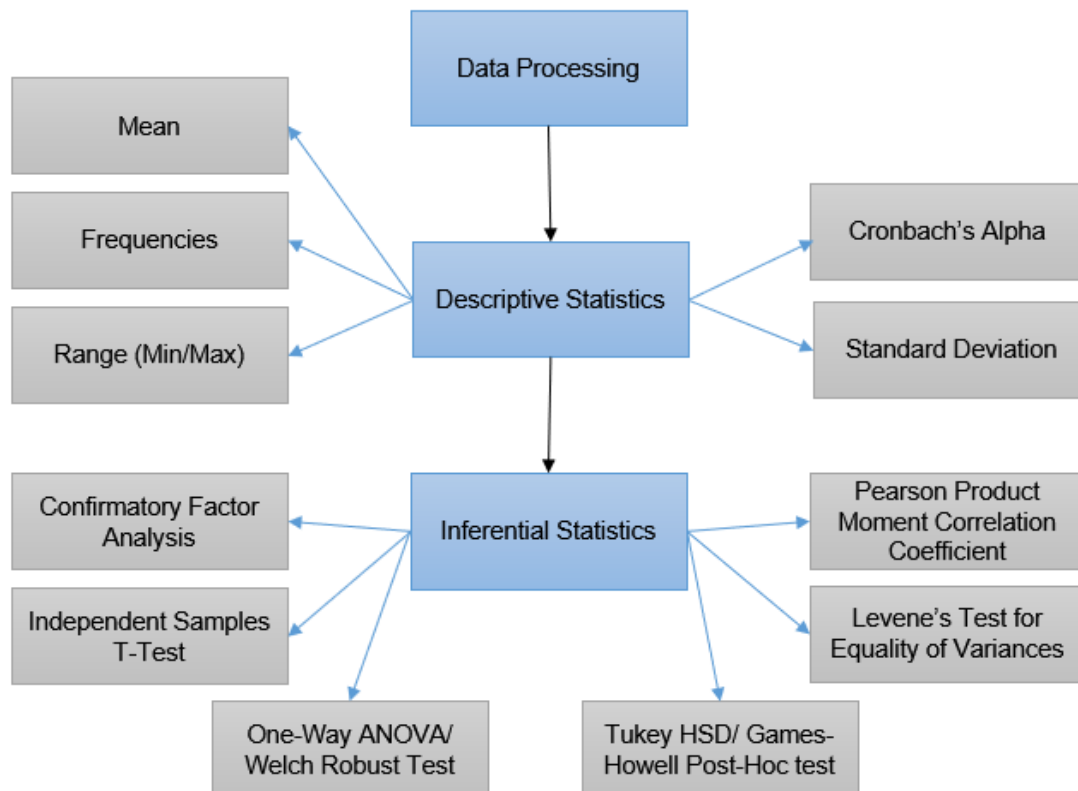
3.2.3.1. Data processing

The collected electronic data for the study were screened, and the educational institution's ICT department cleared any personal data before handing it over to the researcher and statistician. The final data set contained 263 complete responses, considered satisfactory for data analysis purposes (Hair et al., 2019).

3.2.3.2. Descriptive statistics

Descriptive statistics are a summary of calculations that detail the attributes and degree of variables in a sample group. It is, therefore, a summary of sample observations (Babbie, 2021; Hamzah et al., 2021). Descriptive statistics such as mean, standard deviation, frequency, and range were calculated to investigate the demographics and qualities of the sample. It also gives depth to inferential statistics where differences in specific demographic groups are investigated (Salkind, 2012). Mean, or arithmetic average, is the aggregate of scores divided by the number of scores. Standard deviation refers to the degree of dispersion, the average variation around the mean (Hair, 2019;

Tredoux & Durrheim, 2008). Frequency indicates the number of times a given score appears in a dataset (Salkind, 2012). Range refers to the distance between the top (maximum) and bottom (minimum) of the dataset or distribution (Tredoux & Durrheim, 2008). The calculated Cronbach's coefficients alpha established the internal consistency (reliability) of responses to the different scale items of the measurement instruments (Hair, 2019; Salkind, 2012; Tredoux & Durrheim, 2008).

3.2.3.3. Inferential statistics

Inferential statistics are statistical calculations aiming to make interpretations regarding the greater population from which the sample measurements were drawn (Babbie, 2021). They also assist in making decisions about whether the results are statistically significant to reject a null hypothesis when it is, in effect, true (Salkind, 2012).

The following inferential statistical techniques were utilised in this research study:

1. A Confirmatory Factor Analysis (CFA) measured the input of each measurement instrument scale item and calculated how satisfactorily the scale assesses a concept (reliability) (Hair et al., 2019).
2. The Pearson product-moment correlation coefficient established and described relationships between the study variables (Hamzah et al., 2021). The resultant correlation influences the magnitude and direction of linear relationships between the study variables (Neuman, 1997; Tredoux & Durrheim, 2008).
3. Making assumptions about population parameters requires the assumption that the shape of the distribution of the population is normal and that the variance is homogenous. Levene's Test for Equality of Variances confirmed the homogeneity of variance (Tredoux & Durrheim, 2008).
4. The independent samples t-test determined the mean differences between the two independent sample groups. An independent samples t-test calculated differences between the gender groups in the analysis of the variables (Tredoux & Durrheim, 2008).
5. One-way ANOVA calculated the mean-variance distribution differences in two or more demographic sample groups in respect of gender, age, race, and home language (Babbie, 2021). This technique was used where the requirement for homogeneity of the variance has been met (Hair et al., 2019; Stindt, 2022). Where it has not been met, the Welch Robust Test was implemented to test independent samples with unequal variances (Derrick et al., 2016).

6. The Tukey HSD test (for significant differences calculated with the ANOVA test) or Games-Howell Post-Hoc test (for significant differences calculated with the Welch Robust test) determined where differences are between sample groups on the various variables (Stindt, 2022; Tredoux & Durrheim, 2008).

3.2.4. Level of significance

The significance level signifies the likelihood that a detected empirical relationship could be ascribed to a sampling error. For example, a relationship is significant at the .05 level if the probability of it being only a function of a sampling error is no more than 5 out of 100 (Babbie, 2021). Generally, three significance levels are used: $p < .05$, $p < .01$, and $p < .001$. Most researchers use the significance level of $p < .05$ to test a hypothesis that provides 95% confidence in the accepted results. This research study used a significance level of $p < .05$. The null hypothesis is rejected, and results are considered significant when a test of significance results in a p-value lower than the chosen level of significance (Babbie, 2021; Salkind, 2012; Tredoux & Durrheim, 2008).

3.3. Results

This section deals with the research survey outcomes. The confirmatory factor analysis of the measurement instruments is discussed first. This is followed by a discussion on the reliability analysis. Following the reliability analysis, the discussion continues with descriptive statistics of the variables and correlation statistics on how the variables relate to each other, ending with the testing of significant mean differences between the four demographic categories of the different variables.

3.3.1. Confirmatory Factor Analysis (CFA)

The Confirmatory Factor Analysis (CFA) investigated the model's validity and whether an association exists between the studied variables and their underlying items. Knowledge of the theory was used to assume the relationship pattern based on theoretical deduction, and then to test the model statistically. The first step is to ensure that the parameter estimates are statistically significant (p-value < .05). After the parameter estimates were confirmed to be statistically significant, the degree of model fit was calculated. This model fit uses goodness-of-fit indices to determine this degree of fit (Stindt, 2022; Suhr, 2006). The goodness-of-fit indices cut-offs listed in Table 3.2 act as broad rules of thumb. The theoretical models are

appropriate when the goodness-of-fit indices reflect a reasonable or adequate model fit by being close to the cut-off (Hair et al., 2019; Stindt, 2022).

Table 3.2
Goodness of fit indices

Index	Good model fit cut-off (n > 250)
Degrees of Freedom (CMIN/df)	< 3.00
Goodness-of-Fit Index (GFI)	> .90
Comparative Fit Index (CFI)	> .90
Standardised Root Mean Residual (SRMR)	< .08
Root Mean Square Error of Approximation (RMSEA)	< .10

(Author's own work)

Table 3.3 lists the results of the CFA of the factor structures. Given the above cut-offs, all CFA calculations indicate the factor structures' reasonable validity. A level of significance was achieved after item 13, *"When I have a setback at work, I have trouble recovering from it, moving on",* for resilience, and two items – item 20, *"If something can go wrong for me work-wise, it will"* and item 23, *"In this job, things never work out the way I want them to"* – for optimism were removed. The remaining items were utilised in the further analysis as the resultant structure was conceptually meaningful and interpretable.

Table 3.3

Confirmatory Factor Analysis (CFA)

	Parameters	$\chi 2$ (df,p)	CMIN/df	SRMR	CFI	RMSEA
Career Agility	All Significant	164.285 (64, .000)	2.567	.0489	.934	.077
Career Self-Management Potency	All Significant	27.770 (12, .006)	2.314	.0262	.985	.071
Cultural Ingenuity	All Significant	43.009 (13, .000)	3.308	.0344	.967	.094
Emotional Acuity	All Significant	44.296 (11, .000)	4.027	.0437	.952	.107
Proactive Career Resilience	All Significant	49.767 (19, .000)	2.619	.0336	.970	.079
Career Agency	All Significant	7.299 (4, .121)	1.825	.0223	.994	.056
Career Sociability	All Significant	4.664 (1, .031)	4.664	.0139	.991	.118
Concern	All Significant	3.417 (8, .000)	3.802	.0427	.960	.103
Control	All Significant	2.793 (7, .004)	2.970	.0264	.980	.087
Curiosity	All Significant	27.378 (8, .001)	3.422	.0334	.972	.096
Confidence	All Significant	24.666 (8, .002)	3.083	.0232	.985	.089
Efficacy	All Significant	34.187 (9, .000)	3.799	.0334	.964	.103
Hope	All Significant	22.692 (9, .007)	2.521	.0395	.972	.076
Resilience	All Significant (1 item removed)	9.6699 (5, .085)	1.934	.0332	.981	.060
Optimism	All Significant (2 items removed)	.209 (2, .901)	.105	.0050	1.000	.000

Note: $\chi 2$ = chi-square; df = degrees of freedom; p = significance level; CMIN/df = minimum discrepancy function by degrees of freedom devided; SRMR = standardised root-mean-square residual; CFI = comparative fit index; RMSEA = root-mean square error of approximation

3.3.2. *Modification indices*

In some structures, a Modification Index (MI) was used to indicate that two items from the same concept are highly related. It consequently opens pathways between them to correlate with each other when the MI is high enough (with a value of >10). MI values greater than ten were included in the factor structure, as this indicates a link between specific items that would improve the model-fit by allowing those two items to be linked. When deciding if two items should be linked, first, the higher MI value should be considered and whether it will make sense from a theoretical point of view. Standardised estimates are also considered when assessing the factor structure's model-fit and validity. Standardised estimates of less than .4 were considered for exclusion, as they indicate that the item adds no sufficient benefit to the factor structure (Hair et al., 2019; Stindt, 2022). The following pairs of items were covaried due to a high MI value:

3.3.2.1. Employability Attributes Scale (EAS)

- **Career agility:** Item 5, *"I enjoy discovering original solutions to tasks",* and Item 10, *"I feel changes at work or in my studies have positive implications".*
- **Career self-management potency (two pairs covaried)**: Item 14, *"I know what I want to accomplish in my career",* and Item 15, *"I know what I must do to make a success of my career"*, as well as Item 15, *"I know what I must do to make a success of my career"* and Item 16 *"I know what skills I need to be successful in my career".*
- **Cultural ingenuity:** Item 22, *"I can easily initiate and maintain relationships with people from different cultures",* and Item 26, *"I change my non-verbal behaviour in different cultural circumstances".*
- **Emotional acuity (three pairs covaried)**: Item 31, *"I know how to control my own emotions"* and Item 32, *"I find it easy to disarm an emotionally explosive situation"*; Item 32, *"I find it easy to disarm an emotionally explosive situation"* and Item 33 *"It is easy for me to identify the emotions of others"*; as well as between Item 33 *"It is easy for me to identify the emotions of others"* and Item 34 *"I generally know what emotions I am feeling".*
- **Proactive career resilience:** Item 41, *"I continuously look into new business or career opportunities",* and Item 42, *"I can generally identify a good opportunity before other people can".*
- **Career agency:** Item 44, "*When I achieve something, it is because of my own effort",* and Item 46, *"I like to make my own decisions".*

- **Career sociability:** Item 50, *"I have built a network of friendships with people that can advance my career",* and Item 51, *"I can use my networks to find new job opportunities".*

3.3.2.2. Career Adapt-Ability Scale (CAAS)

- **Career concern:** Item 1, *"Thinking about what my future will be like",* and Item 5, *"Becoming aware of the educational and vocational choices that I must make".*
- **Career control (two pairs covaried):** Item 7, *"Keeping upbeat",* and Item 8, *"Making decisions by myself"*, as well as between Item 8, *"Making decisions by myself",* and Item 9, *"Taking responsibility for my actions".*
- **Career curiosity:** Item 13, *"Exploring my surroundings"* and Item 14*, "Looking for opportunities to grow as a person".*
- **Career confidence:** Item 23, *"Solving problems",* and Item 24*, "Taking care to do things well".*

3.3.2.3. Psychological Capital Questionnaire (PCQ-24)

- **Resilience:** Item 13 (reversed) was found to be statistically insignificant (β = −.322, SE = .166, p = .053) and was therefore removed from the factor structure for resilience.
- **Optimism:** Item 23 (reversed) was found to be statistically insignificant (β = −.067, SE = .141, p = .632) and was removed from the factor structure for optimism. The model was reanalysed, and the results were reviewed. It was found that Item 20 (reversed) had a standardised loading (β) of -.146, which is below the prerequisite level of .4 (Hair et al., 2019). It was also removed from the factor structure for optimism.

Note: β= estimated loading of the factor; SE = Standard Error of the Estimate; p = significance level

3.3.3. Reliability analysis

The reliability of each factor tested through the CFA was tested by calculating each factor's Cronbach alpha value. This Cronbach alpha value ensured that the measuring instruments applied in this study would produce consistent results (Hair et al., 2019; Tredoux & Durrheim,

2008). To be deemed reliable, the Cronbach alpha value ought to be more than .7, although a value of .6 can be within acceptable limits for exploratory cases (Hair et al., 2019; Stindt, 2022).

3.3.3.1. Reliability analysis: Self-Perceived Employability (EAS)

In this study, the calculated Cronbach's alpha coefficient for the EAS was .96 for the total instrument, matching the findings of Coetzee (2019). The sub-factors ranged between .78 (career sociability) and .91 (career agility), which are similar to the results of Oosthuizen et al. (2021).

3.3.3.2. Reliability analysis: Career Adaptability (CAAS)

The calculated internal consistency was .95 for this study, while the reliability of the subscales was as follows: concern (.83), control (.86), curiosity (.86), and confidence (.92). These calculated Cronbach's alpha coefficients are similar to those found in the study of Coetzee et al. (2017).

3.3.3.3. Reliability analysis: Psychological Capital (PCQ-24)

The PCQ-24's calculated Cronbach's alpha was .91. The internal consistency for the subscales was .87 (efficacy), .83 (hope), .75 after the removal of one item (resilience), and .75 after the removal of two items (optimism). The three reverse-scoring items negatively influenced the instrument's internal consistency. The results of this study differ from those reported by Görgens-Ekermans and Herbert (2013), Zyberaj et al. (2022), and Daswati et al. (2022).

All the factor reliability scores indicated acceptable internal reliability. All the factors were used in further analysis. Table 3.4 summarises all the factors' Cronbach's alpha calculations.

Table 3.4

Summary of all factors' Cronbach's alpha calculations

Factor	Cronbach alpha	Number of items
Career Agility	.911	13
Career Self-Management Potency	.898	7
Cultural Ingenuity	.889	7
Emotional Acuity	.851	7
Proactive Career Resilience	.885	8
Career Agency	.845	5
Career Sociability	.788	4
Self-Perceived Employability Attributes	.966	51
Concern	.831	6
Control	.860	6
Curiosity	.863	6
Confidence	.927	6
Career Adaptability	.952	27
Efficacy	.873	6
Hope	.829	6
Resilience	.745	5
Optimism	.754	4
Psychological Capital	.914	21

(Author's own work)

3.3.4. Factor scores

The descriptive statistics were calculated for the factor scores after the factor structures were found valid through CFA and determined to be reliable using Cronbach's Alpha values. The factor scores provide a summary statistic to summarise the average level of agreement of the items that comprise each factor (Stindt, 2022). At measurement, the Likert scales of the EAS ranged between "Definitely disagree" (1) and "Strongly agree" (7); the CAAS between "Not strong" (1) and "Strongest" (5); and the PCQ-24 from "Strongly disagree" (1) to "Strongly agree" (6). The measured scores were standardised to indicate a score out of 7 to allow

comparisons between the factors. Table 3.5 displays the valid responses, lowest and highest-rated answers, mean score, and standard deviation for every sub-score.

Table 3.5
Factor means and standard deviations

	N	Min	Max	Mean (M)	Std. Deviation (SD)
Career Agility	263	1	7	5.6423	1.0093
Career Self-Management Potency	263	1	7	5.4139	1.23043
Cultural Ingenuity	263	1	7	5.3900	1.16646
Emotional Acuity	263	1	7	5.3330	1.14232
Proactive Career Resilience	263	1	7	5.1987	1.1153
Career Agency	263	1	7	5.8814	1.08293
Career Sociability	263	1	7	4.4591	1.45692
Self-Perceived Employability	263	1	7	5.3312	.92663
Concern	263	1	7	5.4347	1.0827
Control	263	1	7	5.4062	1.1444
Curiosity	263	1	7	5.1965	1.13472
Confidence	263	1	7	5.2167	1.23789
Career Adaptability	263	1	7	5.3135	1.01015
Efficacy	263	1	7	5.7725	1.04007
Hope	263	1	7	5.6635	.99377
Resilience	263	1	7	5.5384	1.03023
Optimism	263	1	7	5.5694	1.08212
Psychological Capital	263	1	7	5.6359	.85291

(Author's own work)

The standard deviation for career sociability was by far the highest (SD = 1.46). A high standard deviation suggests that the responses for this variable were the most dispersed around the mean, suggesting a more significant variability in scores (Salkind, 2012) compared to other variables such as psychological capital (SD = .85) and self-perceived employability (SD = .93), where the standard deviations were the lowest.

From an investigation of the means, three notable thematic trends are emerging. The first theme hinges on the sample group's confidence in their ability to set challenging targets, be

independent decision-makers, and thrive through original problem-solving processes. The mean averages were the highest for career agency ($M = 5.88$) and efficacy ($M = 5.77$). The standard deviation was also fairly narrowly dispersed around the mean ($SD = 1.08$ and $SD = 1.04$, respectively), indicating that the answers tended to trend narrower towards the mean.

The second theme indicated high mean score for psychological capital's efficacy ($M = 5.77$), hope ($M = 5.66$), resilience ($M = 5.54$), and optimism ($M = 5.57$). The standard deviation for all four variables was also lower than other variables ($SD = 1.04$; .93; 1.03; 1.08, respectively). Career sociability was a notable variable measuring the lowest mean average compared to the other measured variables ($M = 4.46$) and the most widely dispersed responses around the mean ($SD = 1.46$).

3.3.5. Correlation statistics

The Pearson product-moment correlation coefficient calculated the direction and magnitude of the association between two variables (Hamzah et al., 2021; Tredoux & Durrheim, 2008). The relationships between the EAS and its seven variables, the CAAS and its four variables, and the PCQ-24 and its four variables, were investigated to satisfy the first three hypotheses. Denoted by "r", correlation scores range between -1.00 and +1.00 and can take any value between the two extremes. A positive correlation shows that variables change in the same direction, while a negative correlation shows that one variable will go up and the other down in the other direction (Salkind, 2012). The variables were standardised by transforming each measure's measuring units to the same unit of measure (i.e.1, the lowest unit and 7, the highest) to make the correlation coefficients comparable. The obtained coefficients are called beta coefficients (β) (Tredoux & Durrheim, 2008). Table 3.6 outlines the effect size interpretations for this study's correlation statistics, as proposed by Cohen (1992).

Table 3.6
Effect size indexes for correlation interpretation

Value of r (positive or negative)	Effect size
.000 < | r | < .299	Small effect
.300 < | r | < .499	Medium effect
.500 < | r | < 1.000	Large effect

Note: r = Product moment correlation coefficient

The bivariate correlation analysis findings, indicating correlations between the measured variables, are indicated in Table 3.7.

Table 3.7

Bivariate correlation analysis between all the measured variables

Variables	Career Self-Management Potency	Cultural Ingenuity	Emotional Acuity	Proactive Career Resilience	Career Agency	Career Sociability	Self-Perceived Employability	Concern	Control	Curiosity	Confidence	Career Adaptability Scale	Efficacy	Hope	Resilience	Optimism	Psychological Capital
Career Agility	.756**	.619**	.653**	.694**	.600**	.400**	.835**	.498**	.536**	.581**	.634**	.643**	.543**	.452**	.456**	.365**	.550**
Career Self-Management Potency	-	.627**	.607**	.698**	.578**	.456**	.846**	.516**	.496**	.525**	.584**	.605**	.530**	.478**	.387**	.430**	.554**
Cultural Ingenuity		-	.657**	.587**	.543**	.469**	.808**	.446**	.413**	.418**	.512**	.511**	.450**	.336**	.279**	.305**	.416**
Emotional Acuity			-	.679**	.542**	.493**	.829**	.401**	.459**	.489**	.569**	.549**	.452**	.432**	.367**	.411**	.505**
Proactive Career Resilience				-	.585**	.492**	.846**	.551**	.547**	.619**	.665**	.680**	.608**	.517**	.466**	.461**	.623**
Career Agency					-	.279**	.726**	.484**	.498**	.477**	.484**	.553**	.391**	.320**	.340**	.293**	.408**
Career Sociability						-	.676**	.301**	.287**	.402**	.394**	.396**	.404**	.430**	.294**	.363**	.452**
Self-Perceived Employability							-	.569**	.574**	.628**	.686**	.702**	.606**	.536**	.462**	.475**	.631**
Concern								-	.722**	.632**	.590**	.831**	.451**	.407**	.274**	.404**	.467**
Control									-	.734**	.722**	.904**	.445**	.421**	.449**	.463**	.541**
Curiosity										-	.764**	.892**	.467**	.491**	.474**	.414**	.560**
Confidence											-	.884**	.592**	.558**	.488**	.413**	.621**
Career Adaptability Scale												-	.559**	.537**	.483**	.482**	.626**
Efficacy													-	.652**	.516**	.548**	.824**
Hope														-	.575**	.632**	.864**
Resilience															-	.500**	.785**
Optimism																-	.819**

** Correlation is significant at the .01 level (2-tailed).

The relationships between all variables were statistically significant at the $p < .01$ (1%), 2-tailed level. All statistically significant relationships were in a positive direction. The correlations range from $r = .274$ (small practical effect size) to $r = .904$ (large practical effect size). Below is an outline of the results for correlations with either a large or small effect.

As reflected in Figure 3.2, there were significant relationships between the three main variables:

- Self-perceived employability and career adaptability ($r = .702$, large practical effect, $p < .01$), explaining 49.28% of the variance.
- Self-perceived employability and psychological capital ($r = .631$, large practical effect, $p < .01$), explaining 39.82% of the variance.
- Career adaptability and psychological capital ($r = .626$, large practical effect, $p < .01$), explaining 39.18% of the variance.

Figure 3.2
Relationships between the three main variables
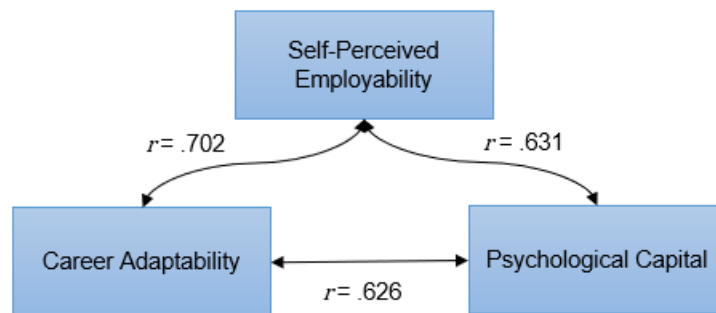
The factors of the EAS presented with significant relationships as follows:
- Self-perceived employability and career agility ($r = .835$, large practical effect, $p < .01$)
- Self-perceived employability and career self-management potency ($r = .846$, large practical effect, $p < .01$)
- Self-perceived employability and cultural ingenuity ($r = .808$, large practical effect, $p < .01$)
- Self-perceived employability and emotional acuity ($r = .829$, large practical effect, $p < .01$)
- Self-perceived employability and proactive career resilience ($r = .846$, large practical effect, $p < .01$)
- Self-perceived employability and career agency ($r = .726$, large practical effect, $p < .01$)
- Self-perceived employability and career sociability ($r = .676$, large practical effect, $p < .01$)
- Career agility and self-management potency ($r = .756$, large practical effect, $p < .01$)
- Career agility and cultural ingenuity ($r = .619$, large practical effect, $p < .01$)

- Career agility and emotional acuity ($r = .653$, large practical effect, $p < .01$)
- Career agility and proactive career resilience ($r = .694$, large practical effect, $p < .01$)
- Career agility and career agency ($r = .600$, large practical effect, $p < .01$)
- Career agility and self-management potency ($r = .756$, large practical effect, $p < .01$)
- Career self-management potency and cultural ingenuity ($r = .627$, large practical effect, $p < .01$)
- Career self-management potency and emotional acuity ($r = .607$, large practical effect, $p < .01$)
- Career self-management potency and proactive career resilience ($r = .698$, large practical effect, $p < .01$)
- Career self-management potency and career agency ($r = .578$, large practical effect, $p < .01$)
- Cultural ingenuity and emotional acuity ($r = .657$, large practical effect, $p < .01$)
- Cultural ingenuity and proactive career resilience ($r = .587$, large practical effect, $p < .01$)
- Cultural ingenuity and career agency ($r = .543$, large practical effect, $p < .01$)
- Emotional acuity and proactive career resilience ($r = .679$, large practical effect, $p < .01$)
- Emotional acuity and career agency ($r = .542$, large practical effect, $p < .01$)
- Proactive career resilience and career agency ($r = .585$, large practical effect, $p < .01$)

Self-perceived employability presented with significant relationships on the following factors of the CAAS:

- Career agility and career adaptability ($r = .643$, large practical effect, $p < .01$)
- Career agility and control ($r = .536$, large practical effect, $p < .01$)
- Career agility and curiosity ($r = .581$, large practical effect, $p < .01$)
- Career agility and confidence ($r = .634$, large practical effect, $p < .01$)
- Career self-management potency and career adaptability ($r = .605$, large practical effect, $p < .01$)
- Career self-management potency and concern ($r = .516$, large practical effect, $p < .01$)
- Career self-management potency and curiosity ($r = .525$, large practical effect, $p < .01$)
- Career self-management potency and confidence ($r = .584$, large practical effect, $p < .01$)
- Cultural ingenuity and career adaptability ($r = .511$, large practical effect, $p < .01$)
- Cultural ingenuity and confidence ($r = .569$, large practical effect, $p < .01$)
- Emotional acuity and career adaptability ($r = .549$, large practical effect, $p < .01$)
- Emotional acuity and confidence ($r = .665$, large practical effect, $p < .01$)
- Proactive career resilience and career adaptability ($r = .680$, large practical effect, $p < .01$)

- Proactive career resilience and concern ($r = .551$, large practical effect, $p < .01$)
- Proactive career resilience and control ($r = .547$, large practical effect, $p < .01$)
- Proactive career resilience and curiosity ($r = .619$, large practical effect, $p < .01$)
- Proactive career resilience and confidence ($r = .665$, large practical effect, $p < .01$)
- Career agency and career adaptability ($r = .553$, large practical effect, $p < .01$)

Self-perceived employability factors presented significant relationships with the following factors of the PCQ-24:
- Career agility and psychological capital ($r = .550$, large practical effect, $p < .01$)
- Career agility and efficacy ($r = .543$, large practical effect, $p < .01$)
- Career self-management potency and psychological capital ($r = .554$, large practical effect, $p < .01$)
- Career self-management potency and efficacy ($r = .530$, large practical effect, $p < .01$)
- Emotional acuity and psychological capital ($r = .505$, large practical effect, $p < .01$)
- Proactive career resilience and psychological capital ($r = .623$, large practical effect, $p < .01$)
- Proactive career resilience and efficacy ($r = .608$, large practical effect, $p < .01$)
- Proactive career resilience and hope ($r = .517$, large practical effect, $p < .01$)

The factors of the CAAS presented significant relationships as follows:
- Career adaptability and concern ($r = .831$, large practical effect, $p < .01$)
- Career adaptability and control ($r = .904$, large practical effect, $p < .01$)
- Career adaptability and curiosity ($r = .892$, large practical effect, $p < .01$)
- Career adaptability and confidence ($r = .884$, large practical effect, $p < .01$)
- Concern and control ($r = .722$, large practical effect, $p < .01$)
- Concern and curiosity ($r = .632$, large practical effect, $p < .01$)
- Concern and confidence ($r = .590$, large practical effect, $p < .01$)
- Control and curiosity ($r = .734$, large practical effect, $p < .01$)
- Control and confidence ($r = .722$, large practical effect, $p < .01$)
- Curiosity and confidence ($r = .764$, large practical effect, $p < .01$)

Career adaptability factors presented with significant relationships on the following factors of the PCQ-24:
- Career adaptability and efficacy ($r = .559$, large practical effect, $p < .01$)
- Career adaptability and hope ($r = .537$, large practical effect, $p < .01$)

- Control and psychological capital ($r = .541$, large practical effect, $p < .01$)
- Curiosity and psychological capital ($r = .560$, large practical effect, $p < .01$)
- Confidence and psychological capital ($r = .621$, large practical effect, $p < .01$)
- Confidence and efficacy ($r = .592$, large practical effect, $p < .01$)
- Confidence and hope ($r = .558$, large practical effect, $p < .01$)

The factors of the PCQ-24 presented with significant relationships as follows:
- Psychological capital and efficacy ($r = .824$, large practical effect, $p < .01$)
- Psychological capital and hope ($r = .864$, large practical effect, $p < .01$)
- Psychological capital and resilience ($r = .785$, large practical effect, $p < .01$)
- Psychological capital and optimism ($r = .819$, large practical effect, $p < .01$)
- Efficacy and hope ($r = .652$, large practical effect, $p < .01$)
- Efficacy and resilience ($r = .516$, large practical effect, $p < .01$)
- Efficacy and optimism ($r = .548$, large practical effect, $p < .01$)
- Hope and resilience ($r = .575$, large practical effect, $p < .01$)
- Hope and optimism ($r = .632$, large practical effect, $p < .01$)
- Resilience and optimism ($r = .500$, large practical effect, $p < .01$)

The following variables demonstrated significant relationships but small practical effects:
- Cultural ingenuity and resilience ($r = .279$, small practical effect, $p < .01$)
- Career agency and career sociability ($r = .279$, small practical effect, $p < .01$)
- Career agency and optimism ($r = .293$, small practical effect, $p < .01$)
- Career sociability and control ($r = .287$, small practical effect, $p < .01$)
- Career sociability and resilience ($r = .294$, small practical effect, $p > .01$)
- Concern and resilience ($r = .274$, small practical effect, $p < .01$)

There were three notable trends regarding the average correlations of career sociability, resilience, and optimism. Career sociability presented a correlation range between .279 (small practical effect) for career agency and .493 (medium practical effect) for emotional acuity. The average correlation bar for self-perceived employability is .395 for all the factors. Similarly, resilience and optimism also scored between .274 (small practical effect) (concern) and .488 (medium practical effect) (confidence) and .293 (small practical effect) (career agency) and .482 (medium practical effect) (career adaptability) respectively, excluding the factors for the PCQ-24. The average correlation with other factors, excluding the PCQ-24, is .401 for

resilience and .419 for optimism. Career sociability, resilience, and optimism appear to be factors that can stand fairly independently.

3.3.6. Tests for significant mean differences

3.3.6.1. Two group analyses: t-test

The next stage of the data analysis was to ascertain whether the average factor scores differed based on the two-group variable of gender. An independent sample t-test determined statistically significant differences between male and female participants (Hair et al., 2019; Stindt, 2022). One respondent indicated "other" (i.e. neither male nor female) for gender and was excluded from the comparison as there was only one observation. Table 3.8 lists the independent samples test result for gender, and Table 3.9 the group statistics for gender. The results suggest no significant differences in the average factor scores between male and female participants for all factors, apart from for *concern* (t = -2.075, df = 260, p = .039), where the female respondents had a significantly higher score of 5.5174 compared to the male respondents with an average score of 5.1797. This result hints at females' higher ability to be mindful, involved, and planful for a vocational future. It suggests that females have a more planful attitude toward their goals.

Table 3.8

Independent samples test for the gender category

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | | |
		F	Sig (p).	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
						Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
Career Agility	Equal variances assumed	.019	.889	.797	260	.213	.426	.1206	.1514	-.1774	.4187
	Equal variances not assumed			.77	73.164	.222	.444	.1206	.1566	-.1914	.4327
Career Self-Management Potency	Equal variances assumed	.259	.612	.727	260	.234	.468	.1364	.1877	-.2332	.5061
	Equal variances not assumed			.69	71.79	.246	.492	.1364	.1977	-.2577	.5305
Cultural Ingenuity	Equal variances assumed	3.003	.084	-1.142	260	.127	.254	-.2025	.1772	-.5515	.1465
	Equal variances not assumed			-1.057	69.892	.147	.294	-.2025	.1916	-.5847	.1797
Emotional Acuity	Equal variances assumed	1.73	.242	.205	260	.419	.838	.0356	.1739	-.3069	.378
	Equal variances not assumed			.191	7.61	.424	.849	.0356	.1861	-.3356	.4067
Proactive Career Resilience	Equal variances assumed	1.47	.226	.904	260	.183	.367	.1534	.1696	-.1806	.4874
	Equal variances not assumed			.847	7.749	.2	.4	.1534	.1812	-.2079	.5147
Career Agency	Equal variances assumed	.167	.683	-.523	260	.301	.601	-.0852	.1628	-.4058	.2354
	Equal variances not assumed			-.515	74.645	.304	.608	-.0852	.1654	-.4148	.2443
Career Sociability	Equal variances assumed	1.094	.297	.314	260	.377	.754	.0709	.2257	-.3735	.5153
	Equal variances not assumed			.294	7.843	.385	.769	.0709	.2407	-.4091	.5509
Self-Perceived Employability	Equal variances assumed	3.188	.075	.236	260	.407	.814	.0327	.1389	-.2408	.3063
	Equal variances not assumed			.218	69.872	.414	.828	.0327	.1502	-.2669	.3324
Concern	Equal variances assumed	.145	.704	-2.075	260	.019	.039	-.3376	.1627	-.658	-.0173
	Equal variances not assumed			-2.013	73.462	.024	.048	-.3376	.1677	-.6718	-.0035
Control	Equal variances assumed	2.329	.128	-.523	260	.301	.601	-.0911	.174	-.4337	.2515
	Equal variances not assumed			-.565	83.976	.287	.573	-.0911	.1611	-.4115	.2294
Curiosity	Equal variances assumed	.766	.382	-1.082	260	.14	.28	-.1867	.1726	-.5267	.1532
	Equal variances not assumed			-1.094	77.076	.139	.277	-.1867	.1707	-.5266	.1531
Confidence	Equal variances assumed	2.77	.097	-1.035	260	.151	.302	-.1958	.1892	-.5682	.1767
	Equal variances not assumed			-1.081	8.226	.142	.283	-.1958	.1812	-.5563	.1647
Career Adaptability Scale	Equal variances assumed	.46	.498	-1.334	260	.092	.184	-.2028	.1521	-.5023	.0967
	Equal variances not assumed			-1.34	76.483	.092	.184	-.2028	.1513	-.5042	.0986
Efficacy	Equal variances assumed	4.575	.033	-1.328	260	.093	.185	-.2068	.1557	-.5133	.0998
	Equal variances not assumed			-1.133	64.972	.131	.262	-.2068	.1826	-.5714	.1578
Hope	Equal variances assumed	.155	.694	-.395	260	.347	.694	-.0588	.1489	-.352	.2345
	Equal variances not assumed			-.384	73.703	.351	.702	-.0588	.153	-.3637	.2462
Resilience	Equal variances assumed	0	.986	1.236	260	.109	.218	.1913	.1548	-.1135	.4961
	Equal variances not assumed			1.279	79.316	.102	.205	.1913	.1496	-.1064	.489
Optimism	Equal variances assumed	.712	.4	-.548	260	.292	.584	-.0896	.1635	-.4115	.2324
	Equal variances not assumed			-.515	71.094	.304	.608	-.0896	.1738	-.4361	.257
Psychological Capital	Equal variances assumed	.842	.36	-.325	260	.373	.745	-.0409	.1258	-.2886	.2067
	Equal variances not assumed			-.304	7.654	.381	.762	-.0409	.1345	-.3092	.2273

(Author's own work)

Table 3.9
Group statistics for the gender category

	Gender	N	Mean	Std. Deviation	Std. Error Mean	Cohen's D
Career Agility	Male	51	5.7572	1.0139	.142	.9701
	Female	211	5.6365	.9593	.066	
Career Self-Management Potency	Male	51	5.5406	1.2865	.1801	1.2031
	Female	211	5.4042	1.1824	.0814	
Cultural Ingenuity	Male	51	5.2437	1.2559	.1759	1.1359
	Female	211	5.4462	1.1054	.0761	
Emotional Acuity	Male	51	5.3782	1.2165	.1703	1.1146
	Female	211	5.3426	1.0889	.075	
Proactive Career Resilience	Male	51	5.3382	1.1836	.1657	1.0871
	Female	211	5.1848	1.0628	.0732	
Career Agency	Male	51	5.8314	1.0654	.1492	1.0434
	Female	211	5.9166	1.0381	.0715	
Career Sociability	Male	51	4.5294	1.5721	.2201	1.4464
	Female	211	4.4585	1.4148	.0974	
Self-Perceived Employability	Male	51	5.3741	.9848	.1379	.8903
	Female	211	5.3413	.8663	.0596	
Concern	Male	51	5.1797	1.0847	.1519	1.0428
	Female	211	5.5174	1.0325	.0711	
Control	Male	51	5.3497	1.0051	.1408	1.1151
	Female	211	5.4408	1.1397	.0785	
Curiosity	Male	51	5.0621	1.0898	.1526	1.1064
	Female	211	5.2488	1.1102	.0764	
Confidence	Male	51	5.0752	1.1442	.1602	1.2122
	Female	211	5.2709	1.2278	.0845	
Career Adaptability scale	Male	51	5.1667	.9683	.1356	.9746
	Female	211	5.3695	.9761	.0672	
Efficacy	Male	51	5.6242	1.2197	.1708	.9977
	Female	211	5.831	.9371	.0645	
Hope	Male	51	5.634	.9888	.1385	.9543
	Female	211	5.6927	.9459	.0651	
Resilience	Male	51	5.7098	.9477	.1327	.9921
	Female	211	5.5185	1.0024	.069	
Optimism	Male	51	5.5147	1.134	.1588	1.0479
	Female	211	5.6043	1.0263	.0707	
Psychological Capital	Male	51	5.6207	.8792	.1231	.8061
	Female	211	5.6616	.7877	.0542	

(Author's own work)

3.3.6.2. Analysis of variance

An analysis of variance (ANOVA) tests the differences in the means between two or more participant groups and the influence of more than one independent variable in a research design. ANOVA aims to test for a set of *possible differences* rather than *a difference* itself. Therefore, ANOVA tests for an effect. A significant effect exists when at least one of the comparisons between groups is significant (Tredoux & Durrheim, 2008). A one-way ANOVA investigates the existence of a significant difference in each factor for each demographic category. There are four main stages when assessing the results of a one-way ANOVA (Hair et al., 2019; Tredoux & Durrheim, 2008). Figure 3.3 presents the stages of determining a one-way ANOVA result.

Figure 3.3
Stages for assessing significant mean differences
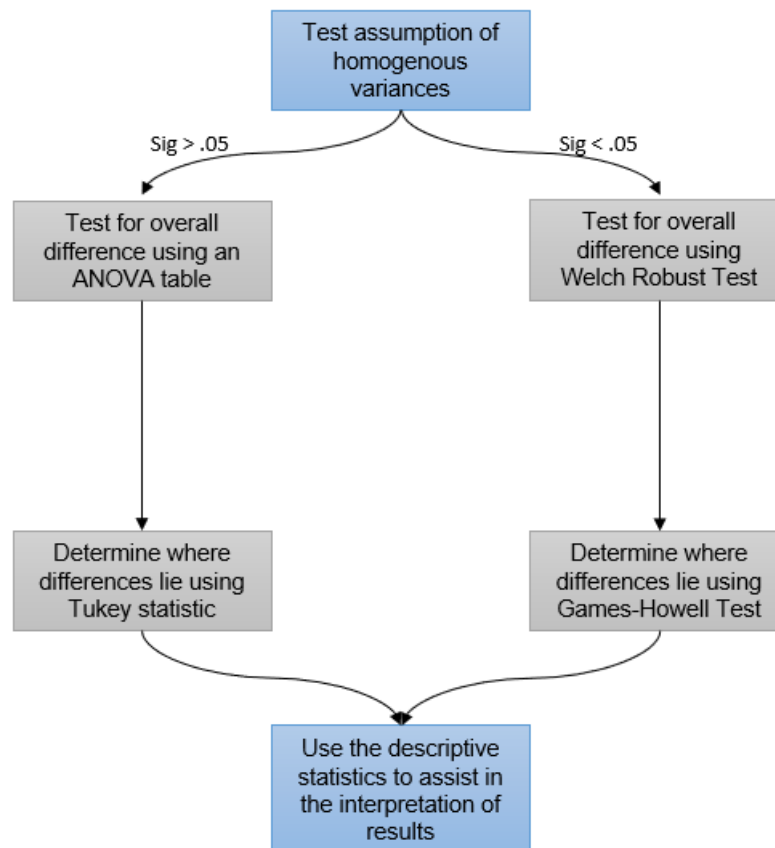
- **Stage 1:** Test the assumption of homogenous variance. Where the result is insignificant ($p > .05$), the ANOVA table is used to assess the presence of an overall difference between groups. When the assumption of homogenous variance result was significant ($p < .05$), the Welch Robust test assessed the general difference between groups.

- **Stage 2:** Dependent on the results of the first stage, either the ANOVA table or the Welch Robust test assesses whether there is an overall difference in the average factor scores per category. Regardless of the test used, where the result was significant ($p < .05$), it indicated an overall difference in the factor score.

- **Stage 3:** For this stage, either the Tukey HSD test or the Games-Howell Post-Hoc test determines where the differences lie between factors. These tests inspected each combination of the categories for any significant differences ($p < .05$).

- **Stage 4:** After determining the mean differences, descriptive statistics were used to aid in interpreting the differences through the provision of the mean scores per category (Hair et al., 2019; Stindt, 2022).

3.3.6.2.1. Test for significant mean differences for the age category

The first step was to assess whether the variances of a single variable are equal (homogenous) across several groups to test for significant mean differences for the age category. Levene's Test for Equality of Variances was used for this analysis. Considering the significance results based on the mean, where a result greater than .05 is obtained, the assumption of homogeneity of the variance would have been met. A significance smaller than .05 would indicate that equal variances are not assumed (Hair et al., 2019; Stindt, 2022; Tredoux & Durrheim, 2008). Table 3.10 presents the results for the tests of homogeneity of variances for the age category.

Table 3.10
Test of homogeneity of variances for the age category

	Levene Statistic	df1	df2	Sig (p).
Career Agility	.14	3	259	.936
Career Self-Management Potency	.768	3	259	.513
Cultural Ingenuity	.316	3	259	.814
Emotional Acuity	.664	3	259	.575
Proactive Career Resilience	1.312	3	259	.271
Career Agency	.394	3	259	.758
Career Sociability	1.945	3	259	.123
Self-Perceived Employability	.152	3	259	.928
Concern	.811	3	259	.489
Control	.887	3	259	.449
Curiosity	2.832	3	259	.039
Confidence	1.271	3	259	.285
Career Adaptability Scale	1.476	3	259	.221
Efficacy	1.658	3	259	.176
Hope	.358	3	259	.784
Resilience	1.457	3	259	.227
Optimism	1.615	3	259	.186
Psychological Capital	1.907	3	259	.129

(Author's own work)

The results suggest that for the curiosity variable, the significance was .039. The result is less than a significance level of .05, which violates the assumption of equal variances. This variable cannot be included in the following step to test for the overall difference in the factor scores using the ANOVA table. The variable was, however, tested through the Welch Robust Tests of Equality of Means. For the one-way ANOVA and Welch Robust Test, a significance score of less than .05 indicated an overall difference in a factor score. Table 3.11 reveals the one-way ANOVA results for the age category. Table 3.12 indicates the result of the Welch Robust Test for the curiosity variable. The results found to be significant were further analysed in the third step to determine where the differences lie (Stindt, 2022).

Table 3.11

One-way ANOVA for the age category

		Sum of Squares	df	Mean Square	F	Sig. (p)
Career Agility	Between Groups	9.864	3	3.288	3.313	.021
	Within Groups	257.034	259	.992		
	Total	266.898	262			
Career Self-Management Potency	Between Groups	23.179	3	7.726	5.358	.001
	Within Groups	373.479	259	1.442		
	Total	396.658	262			
Cultural Ingenuity	Between Groups	4.255	3	1.418	1.043	.374
	Within Groups	352.231	259	1.36		
	Total	356.486	262			
Emotional Acuity	Between Groups	7.753	3	2.584	2.003	.114
	Within Groups	334.129	259	1.29		
	Total	341.882	262			
Proactive Career Resilience	Between Groups	7.457	3	2.486	2.022	.111
	Within Groups	318.444	259	1.23		
	Total	325.901	262			
Career Agency	Between Groups	1.718	3	.573	.486	.693
	Within Groups	305.54	259	1.18		
	Total	307.259	262			
Career Sociability	Between Groups	8.204	3	2.735	1.293	.277
	Within Groups	547.919	259	2.116		
	Total	556.123	262			
Self-Perceived Employability	Between Groups	5.119	3	1.706	2.01	.113
	Within Groups	219.846	259	.849		
	Total	224.965	262			
Concern	Between Groups	1.534	3	.511	.433	.729
	Within Groups	305.596	259	1.18		
	Total	307.129	262			
Control	Between Groups	1.025	3	.342	.259	.855
	Within Groups	342.106	259	1.321		
	Total	343.131	262			
Confidence	Between Groups	6.357	3	2.119	1.389	.247
	Within Groups	395.123	259	1.526		
	Total	401.48	262			
Career Adaptability Scale	Between Groups	.908	3	.303	.294	.829
	Within Groups	266.435	259	1.029		
	Total	267.343	262			
Efficacy	Between Groups	8.743	3	2.914	2.748	.043
	Within Groups	274.673	259	1.061		
	Total	283.416	262			
Hope	Between Groups	2.058	3	.686	.692	.558
	Within Groups	256.69	259	.991		
	Total	258.747	262			
Resilience	Between Groups	9.116	3	3.039	2.926	.034
	Within Groups	268.966	259	1.038		
	Total	278.082	262			
Optimism	Between Groups	4.22	3	1.407	1.204	.309
	Within Groups	302.576	259	1.168		
	Total	306.796	262			
Psychological Capital	Between Groups	4.91	3	1.637	2.283	.080
	Within Groups	185.684	259	.717		
	Total	190.594	262			

(Author's own work)

Table 3.12

Welch Robust test of equality means for the age category

	Statistic *	df1	df2	Sig. (p)
Curiosity	.61	3	136.373	.61

* Asymptotically F distributed.

Using the one-way ANOVA test, there was a statistically significant difference according to age at the 5% level ($p < .05$) for the mean score of Career Agility ($F = 3.313$, $df = 3$, $p = .021$), Career self-management potency ($F = 5.358$, $df = 3$, $p = .001$), Efficacy ($F = 2.748$, $df = 3$, $p = .043$), and Resilience ($F = 2.926$, $df = 3$, $p = .0034$). The Welch Robust Test did not produce any significant results.

The third step required the Tukey HSD test (for significant differences calculated with the ANOVA test) or the Games-Howell Post-Hoc test (for significant differences calculated with the Welch Robust test) to determine the differences between the factors. These tests inspected each combination of the categories for any significant differences ($p < .05$). After the differences were determined, descriptive statistics were used to aid in interpreting the differences by providing the mean scores per category (Stindt, 2022). These statistics are summarised in Table 3.14. Table 3.13 presents the multiple comparison results for the age category.

The Tukey HSD test was applied to calculate differences between the age groups for the factors of career agility, career self-management potency, efficacy, resilience, and psychological capital. For career agility, there were differences between the 19-to-24-year-old group and those older than 35 ($p = .011$). The respondents older than 35 demonstrated a significantly higher score (M = 5.9644, SD = 1.0962) than those of the 19-to-24-year-old group ($M = 5.4208$, $SD = .92817$). Differences were observed between the 19-to-24-year-old group, 15-to-30-year-old group and group of 35 years and older participants ($p = 0,001$) for career self-management potency. The 35 years and older group scored the highest average score ($M = 5.796$, $SD = .16329$) compared to the 19-to-24-year-old group, which scored the lowest ($M = 5.0052$, $SD = .14143$) and 25-30-year-old groups who scored the second lowest ($M = 5.529$, $SD = 1.3159$).

The 19-to-24-year-old group and those older than 35 demonstrated significant differences in efficacy ($p = .046$). The average mean score for the 19 to 24 age group was much lower ($M = 5.5783$, $SD = 1.07236$) than those of the 35 and older group ($M =$

6.0494, SD = 1.02823), who scored quite high on the adjusted 7-point Likert scale. The 19-to-24-year-olds and those older than 35 (p = .027) also differed on the resilience variable. The 19-to-24-year-old group scored lower on resilience (M = 5.3952, SD = 1.07612) compared to those of the higher average scoring 35 years and older group (M = 5.8963, SD = 1.00994). Similarly, the 35 and older group showed a significant difference compared to the 19-to-24-year-old group (p = .048) on psychological capital. The 35 and older group presented with a higher mean score (M = 5.8799, SD = .93175) than the younger 19-to-24-year-old group (M = 5.4946; SD = .9038).

Overall, the trend of the results suggests that younger participants demonstrate lower career agility, career self-management potency, perceptions of self-efficacy, and resilience compared to older participants, who cannot be considered youth by our earlier definition.

Table 3.13

Multiple comparisons for the age category

Dependent Variable	(I) Age category	(J) Age category	Mean Difference (I-J)	Std. Error	Sig. (p)	95% Confidence Interval	
						Lower Bound	Upper Bound
Career Agility	19 – 24 years old	25 – 30 years old	-.26115	.15927	.358	-.673	.1507
		31 – 35 years old	-.18427	.17619	.723	-.6398	.2713
		Older than 35 years old	-.54363*	.17417	.011	-.994	-.0933
	25 – 30 years old	19 – 24 years old	.26115	.15927	.358	-.1507	.673
		31 – 35 years old	.07688	.18027	.974	-.3892	.543
		Older than 35 years old	-.28247	.17829	.389	-.7435	.1786
	31 – 35 years old	19 – 24 years old	.18427	.17619	.723	-.2713	.6398
		25 – 30 years old	-.07688	.18027	.974	-.543	.3892
		Older than 35 years old	-.35936	.19355	.25	-.8598	.1411
	Older than 35 years old	19 – 24 years old	.54363*	.17417	.011	.0933	.994
		25 – 30 years old	.28247	.17829	.389	-.1786	.7435
		31 – 35 years old	.35936	.19355	.25	-.1411	.8598
Career Self-Management Potency	19 – 24 years old	25 – 30 years old	-.52379*	.19199	.034	-1.0202	-.0273
		31 – 35 years old	-.50033	.21238	.088	-1.0495	.0488
		Older than 35 years old	-.79113*	.20995	.001	-1.334	-.2483
	25 – 30 years old	19 – 24 years old	.52379*	.19199	.034	.0273	1.0202
		31 – 35 years old	.02346	.2173	1	-.5384	.5853
		Older than 35 years old	-.26734	.21492	.6	-.8231	.2884
	31 – 35 years old	19 – 24 years old	.50033	.21238	.088	-.0488	1.0495
		25 – 30 years old	-.02346	.2173	1	-.5853	.5384
		Older than 35 years old	-.2908	.23331	.598	-.8941	.3125
	Older than 35 years old	19 – 24 years old	.79113*	.20995	.001	.2483	1.334
		25 – 30 years old	.26734	.21492	.6	-.2884	.8231
		31 – 35 years old	.2908	.23331	.598	-.3125	.8941

* The mean difference is significant at the .05 level.

Table 3.13

Multiple comparisons for the age category (continued)

Efficacy	19 – 24 years old	25 – 30 years old	-.11313	.16465	.902	-.5389	.3126
		31 – 35 years old	-.33194	.18213	.265	-.8029	.139
		Older than 35 years old	-.47107*	.18005	.046	-.9366	-.0055
	25 – 30 years old	19 – 24 years old	.11313	.16465	.902	-.3126	.5389
		31 – 35 years old	-.21881	.18635	.644	-.7007	.263
		Older than 35 years old	-.35794	.18431	.213	-.8345	.1186
	31 – 35 years old	19 – 24 years old	.33194	.18213	.265	-.139	.8029
		25 – 30 years old	.21881	.18635	.644	-.263	.7007
		Older than 35 years old	-.13913	.20008	.899	-.6565	.3782
	Older than 35 years old	19 – 24 years old	.47107*	.18005	.046	.0055	.9366
		25 – 30 years old	.35794	.18431	.213	-.1186	.8345
		31 – 35 years old	.13913	.20008	.899	-.3782	.6565
Resilience	19 – 24 years old	25 – 30 years old	-.10212	.16293	.923	-.5234	.3192
		31 – 35 years old	-.05867	.18023	.988	-.5247	.4074
		Older than 35 years old	-.50112*	.17817	.027	-.9618	-.0404
	25 – 30 years old	19 – 24 years old	.10212	.16293	.923	-.3192	.5234
		31 – 35 years old	.04345	.1844	.995	-.4334	.5203
		Older than 35 years old	-.399	.18239	.129	-.8706	.0726
	31 – 35 years old	19 – 24 years old	.05867	.18023	.988	-.4074	.5247
		25 – 30 years old	-.04345	.1844	.995	-.5203	.4334
		Older than 35 years old	-.44245	.19799	.117	-.9544	.0695
	Older than 35 years old	19 – 24 years old	.50112*	.17817	.027	.0404	.9618
		25 – 30 years old	.399	.18239	.129	-.0726	.8706
		31 – 35 years old	.44245	.19799	.117	-.0695	.9544
Psychological Capital	19 – 24 years old	25 – 30 years old	-.119	.13537	.816	-.469	.231
		31 – 35 years old	-.14528	.14975	.767	-.5325	.2419
		Older than 35 years old	-.38531*	.14803	.048	-.7681	-.0025
	25 – 30 years old	19 – 24 years old	.119	.13537	.816	-.231	.469
		31 – 35 years old	-.02628	.15322	.998	-.4225	.3699
		Older than 35 years old	-.26631	.15154	.296	-.6582	.1255
	31 – 35 years old	19 – 24 years old	.14528	.14975	.767	-.2419	.5325
		25 – 30 years old	.02628	.15322	.998	-.3699	.4225
		Older than 35 years old	-.24003	.16451	.464	-.6654	.1854
	Older than 35 years old	19 – 24 years old	.38531*	.14803	.048	.0025	.7681
		25 – 30 years old	.26631	.15154	.296	-.1255	.6582
		31 – 35 years old	.24003	.16451	.464	-.1854	.6654

* The mean difference is significant at the .05 level.

Table 3.14

Descriptive calculations for the age category

		N	Mean (M)	Std. Deviation (SD)	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Career Agility	19 – 24 years old	83	5.4208	.92817	.10188	5.2181	5.6234	3.08	7
	25 – 30 years old	74	5.6819	1.00371	.11668	5.4494	5.9145	2.62	7
	31 – 35 years old	52	5.605	.9818	.13615	5.3317	5.8784	2.69	6.92
	Older than 35 years old	54	5.9644	1.09621	.14918	5.6652	6.2636	1	7
	Total	263	5.6423	1.0093	.06224	5.5197	5.7648	1	7
Career Self-Management Potency	19 – 24 years old	83	5.0052	1.28851	.14143	4.7238	5.2865	2	7
	25 – 30 years old	74	5.529	1.13198	.13159	5.2667	5.7912	3	7
	31 – 35 years old	52	5.5055	1.15035	.15952	5.1852	5.8258	1.14	7
	Older than 35 years old	54	5.7963	1.19992	.16329	5.4688	6.1238	1	7
	Total	263	5.4139	1.23043	.07587	5.2645	5.5633	1	7
Efficacy	19 – 24 years old	83	5.5783	1.07236	.11771	5.3442	5.8125	1.83	7
	25 – 30 years old	74	5.6914	1.141	.13264	5.4271	5.9558	2	7
	31 – 35 years old	52	5.9103	.75801	.10512	5.6992	6.1213	4	7
	Older than 35 years old	54	6.0494	1.02823	.13992	5.7687	6.33	1	7
	Total	263	5.7725	1.04007	.06413	5.6462	5.8988	1	7
Resilience	19 – 24 years old	83	5.3952	1.07612	.11812	5.1602	5.6302	1	7
	25 – 30 years old	74	5.4973	1.0835	.12595	5.2463	5.7483	2	7
	31 – 35 years old	52	5.4538	.81948	.11364	5.2257	5.682	3.4	6.8
	Older than 35 years old	54	5.8963	1.00994	.13744	5.6206	6.172	1	7
	Total	263	5.5384	1.03023	.06353	5.4133	5.6635	1	7
Psychological Capital	19 – 24 years old	83	5.4946	.9038	.09921	5.2973	5.692	1.5	7
	25 – 30 years old	74	5.6136	.89371	.10389	5.4066	5.8207	2.7	7
	31 – 35 years old	52	5.6399	.53104	.07364	5.4921	5.7877	4.32	6.53
	Older than 35 years old	54	5.8799	.93175	.1268	5.6256	6.1343	1	7
	Total	263	5.6359	.85291	.05259	5.5324	5.7395	1	7

(Author's own work)

3.3.6.2.2. Test for significant mean differences for the race category

The same steps and techniques were followed to test for significant mean differences for race groups as for age. The first step was to apply Levene's Test for Equality of Variances. Results with a p-value equal to or greater than .05 indicated that the mean variances are homogenous, and results with a p-value equal to or smaller than .05 indicated that equal variances could not be assumed (Hair et al., 2019; Stindt, 2022; Tredoux & Durrheim, 2008). Table 3.15 presents the results for the tests of homogeneity of variances for the race category.

Table 3.15
Test for homogeneity of variances for the race category

	Levene Statistic	df1	df2	Sig.
Career Agility	6.188	3	259	<001
Career Self-Management Potency	.53	3	259	.662
Cultural Ingenuity	2.942	3	259	.034
Emotional Acuity	5.318	3	259	.001
Proactive Career Resilience	1.732	3	259	.161
Career Agency	5.69	3	259	<001
Career Sociability	3.139	3	259	.026
Self-Perceived Employability	5.986	3	259	<001
Concern	4.436	3	259	.005
Control	1.166	3	259	.323
Curiosity	1.521	3	259	.209
Confidence	2.182	3	259	.091
Career Adaptability Scale	3.23	3	259	.023
Efficacy	4.246	3	259	.006
Hope	1.722	3	259	.163
Resilience	1.364	3	259	.254
Optimism	4.839	3	259	.003
Psychological Capital	2.485	3	259	.061

(Author's own work)

The Levene's Test for Equality of Variances indicated that the following factors violated the assumption of equal variances, as their respective significance scores were below a significance level of .05 ($p < .05$):

- Career agility ($p = < .001$)
- Cultural ingenuity ($p = .034$)
- Emotional acuity ($p = .001$)
- Career agency ($p = < .001$)
- Career sociability ($p = .026$)
- Self-perceived employability ($p = < .001$)
- Concern ($p = .005$)
- Career adaptability ($p = .023$)
- Efficacy ($p = .006$)
- Optimism ($p = .003$)

In the second step, the Welch Robust Tests of Equality of Means determined the existence of significant differences in factor scores on the race category that scored smaller than the $p < .05$ significance level with Levene's Test for Equality of Variances (Stindt, 2022). Table 3.17 lists the Welch Robust Tests of Equality of Means results for the race category. The remainder of the factors that scored above a significance level of .05 was tested using the one-way ANOVA test. The results are presented in Table 3.16.

Table 3.16
One-way ANOVA for the race category

		Sum of Squares	df	Mean Square	F	Sig (p).
Career Self-Management Potency	Between Groups	2.432	3	.811		
	Within Groups	394.226	259	1.522	.533	.66
	Total	396.658	262			
Proactive Career Resilience	Between Groups	4.358	3	1.453		
	Within Groups	321.543	259	1.241	1.17	.322
	Total	325.901	262			
Control	Between Groups	4.778	3	1.593		
	Within Groups	338.353	259	1.306	1.219	.303
	Total	343.131	262			
Curiosity	Between Groups	6.671	3	2.224		
	Within Groups	33.679	259	1.277	1.742	.159
	Total	337.35	262			
Confidence	Between Groups	16.592	3	5.531		
	Within Groups	384.887	259	1.486	3.722	.012
	Total	401.48	262			
Hope	Between Groups	3.411	3	1.137		
	Within Groups	255.337	259	.986	1.153	.328
	Total	258.747	262			
Resilience	Between Groups	12.241	3	4.08		
	Within Groups	265.841	259	1.026	3.975	.009
	Total	278.082	262			
Psychological Capital	Between Groups	2.761	3	.92		
	Within Groups	187.833	259	.725	1.269	.285
	Total	190.594	262			

(Author's own work)

Table 3.17
Welch Robust tests of equality of means for the race category

	Statistic *	df1	df2	Sig. (p)
Career Agility	2.866	3	37.488	.049
Cultural Ingenuity	1.884	3	35.917	.15
Emotional Acuity	1.285	3	37.235	.294
Career Agency	4.345	3	38.307	.01
Career Sociability	2.219	3	36.307	.103
Self-Perceived Employability	3.068	3	37.892	.039
Concern	1.155	3	36.219	.34
Career Adaptability Scale	2.159	3	36.79	.109
Efficacy	2.847	3	36.699	.051
Optimism	1.284	3	35.792	.295

* Asymptotically F distributed.

Statistically significant one-way ANOVA test results revealed differences between the different surveyed racial groupings on the mean scores for confidence (F = 3.722; df = 3; p = .012) and resilience (F = 3.975; df = 3; p = .009). This is significant at the 5% significance level (p < .05). The Welch Robust Test revealed statistically significant differences at the 5% (p < .05) significance level between the different surveyed racial groups on the mean scores of career agility (Statistic = 2.866; df = 3; p = .049), career agency (Statistic = 4.345; df = 3; p = .01), and self-perceived employability (Statistic = 3.068; df = 3; p = .039).

The Tukey HSD test for significant differences calculated factor means that resulted from the ANOVA and Games-Howell Post-Hoc tests for significant differences. The factor means from the Welch Robust test was applied for the third step to determine the differences between the factors. Table 3.18 presents the results of the multiple comparisons for the race category. All the scores are significant at a 5% significance level (p < .05). Descriptive statistics listed in Table 3.19 were utilised to assist with interpreting the differences by providing mean scores per category (Stindt, 2022).

Due to their smaller sample sizes and to ensure statistical integrity, the Indian and "other" groups were combined. The Games-Howell Post-Hoc test revealed that for Career Agency, the mean scores of the black (M = 5.8196, SD = 1.07666) and coloured (M = 6.4333, SD = .6695) participants differed significantly at the p < .05 level (p = .009), where the mean of the coloured participants measured higher than that of the black participants. There was a significant difference between coloured (M = 5.7572; SD = .60719) and white participants' (M = 5.2279; SD = .715) mean scores for self-perceived employability (p = .034). The white participant group scored a lower mean compared to the coloured participants.

For the confidence factor, the Tukey HSD results indicated a significant mean score difference (p = .006) at the p < .05 level between black (M = 5.1237; SD = 1.22104) and coloured participants (M = 6.1204; SD = .83589). It is seen that the coloured participant group had a considerably higher mean score than the black participants in the sample group. The black participants (M = 5.4155; SD = 1.01551) and white participants (M = 5.9278; SD = .78871) differed significantly at the p < .05 level (p = .029), where the white participants scored higher on average than the black participants of the sample group.

Overall, the trend of the results suggests differences between racial groups on factors that affect the psycho-social strengths (such as confidence and resilience) that people rely on to cope with challenges they face with their employability prospects. How participants see their ability to set their targets, make their own decisions, and cope with challenges (career agency) also differs between racial groups. Finally, the general perception of how employable the different groups see themselves also differs. All the significant differences involved the black participant group and never the Indian/other participant group.

Table 3.18

Multiple comparisons for the race category

Dependent Variable		(I) Race category	(J) Race category	Mean Difference (I-J)	Std. Error	Sig (p).	95% Confidence Interval	
							Lower Bound	Upper Bound
Career Agency	Games-Howell	Black	Coloured	-.61375*	.17572	.009	-1.0958	-.1317
			Indian/Other	.23292	.43955	.95	-1.0349	1.5007
			White	-.24152	.1677	.48	-.6856	.2026
		Coloured	Black	.61375*	.17572	.009	.1317	1.0958
			Indian/Other	.84667	.46057	.289	-.4571	2.1504
			White	.37222	.21691	.328	-.207	.9514
		Indian/Other	Black	-.23292	.43955	.95	-1.5007	1.0349
			Coloured	-.84667	.46057	.289	-2.1504	.4571
			White	-.47444	.45757	.731	-1.772	.8231
		White	Black	.24152	.1677	.48	-.2026	.6856
			Coloured	-.37222	.21691	.328	-.9514	.207
			Indian/Other	.47444	.45757	.731	-.8231	1.772
Self-Perceived Employability	Games-Howell	Black	Coloured	-.42973	.15745	.053	-.8631	.0036
			Indian/Other	.21069	.41398	.956	-.985	1.4064
			White	.09957	.13605	.884	-.2602	.4594
		Coloured	Black	.42973	.15745	.053	-.0036	.8631
			Indian/Other	.64042	.43307	.47	-.5875	1.8683
			White	.52930*	.18623	.034	.0299	1.0287
		Indian/Other	Black	-.21069	.41398	.956	-1.4064	.985
			Coloured	-.64042	.43307	.47	-1.8683	.5875
			White	-.11112	.42575	.994	-1.3257	1.1034
		White	Black	-.09957	.13605	.884	-.4594	.2602
			Coloured	-.52930*	.18623	.034	-1.0287	-.0299
			Indian/Other	.11112	.42575	.994	-1.1034	1.3257
Confidence	Tukey HSD	Black	Coloured	-.99666*	.30036	.006	-1.7733	-.22
			Indian/Other	-.04296	.3267	.999	-.8877	.8018
			White	-.16333	.22122	.882	-.7354	.4087
		Coloured	Black	.99666*	.30036	.006	.22	1.7733
			Indian/Other	.9537	.42618	.116	-.1483	2.0557
			White	.83333	.35191	.086	-.0766	1.7433
		Indian/Other	Black	.04296	.3267	.999	-.8018	.8877
			Coloured	-.9537	.42618	.116	-2.0557	.1483
			White	-.12037	.37463	.989	-1.0891	.8483
		White	Black	.16333	.22122	.882	-.4087	.7354
			Coloured	-.83333	.35191	.086	-1.7433	.0766
			Indian/Other	.12037	.37463	.989	-.8483	1.0891

* The mean difference is significant at the .05 level.

Note: The Indian and "other" categories are grouped due to their smaller sample sizes

Table 3.18

Multiple comparisons for the race category (continued)

Resilience	Tukey HSD	Black	Coloured	-.57342	.24963	.101	-1.2189	.0721
			Indian/Other	-.23787	.27151	.817	-.9399	.4642
			White	-.51231*	.18385	.029	-.9877	-.0369
		Coloured	Black	.57342	.24963	.101	-.0721	1.2189
			Indian/Other	.33556	.35419	.779	-.5803	1.2514
			White	.06111	.29246	.997	-.6951	.8174
		Indian/Other	Black	.23787	.27151	.817	-.4642	.9399
			Coloured	-.33556	.35419	.779	-1.2514	.5803
			White	-.27444	.31135	.814	-1.0795	.5306
		White	Black	.51231*	.18385	.029	.0369	.9877
			Coloured	-.06111	.29246	.997	-.8174	.6951
			Indian/Other	.27444	.31135	.814	-.5306	1.0795

* The mean difference is significant at the .05 level.
Note: The Indian and "other" categories are grouped due to their smaller sample sizes

Table 3.19

Descriptive calculations for the race category

		N	Mean (M)	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Career Agency	Black	194	5.8196	1.07666	.0773	5.6671	5.972	1.4	7
	Coloured	18	6.4333	.6695	.1578	6.1004	6.7663	4.8	7
	Indian/Other	15	5.5867	1.67582	.4327	4.6586	6.5147	1	7
	White	36	6.0611	.89292	.14882	5.759	6.3632	3.6	7
	Total	263	5.8814	1.08293	.06678	5.7499	6.0129	1	7
Self-Perceived Employability	Black	194	5.3274	.91442	.06565	5.1979	5.4569	2.18	7
	Coloured	18	5.7572	.60719	.14311	5.4552	6.0591	4.35	6.52
	Indian/Other	15	5.1167	1.58303	.40874	4.2401	5.9934	1	6.95
	White	36	5.2279	.715	.11917	4.9859	5.4698	3.45	6.41
	Total	263	5.3312	.92663	.05714	5.2187	5.4437	1	7
Confidence	Black	194	5.1237	1.22104	.08767	4.9508	5.2966	2	7
	Coloured	18	6.1204	.83589	.19702	5.7047	6.536	4.5	7
	Indian/Other	15	5.1667	1.65831	.42817	4.2483	6.085	1	7
	White	36	5.287	1.15581	.19263	4.896	5.6781	2.67	7
	Total	263	5.2167	1.23789	.07633	5.0664	5.367	1	7
Resilience	Black	194	5.4155	1.01551	.07291	5.2717	5.5593	1	7
	Coloured	18	5.9889	.86629	.20419	5.5581	6.4197	4.4	7
	Indian/Other	15	5.6533	1.5184	.39205	4.8125	6.4942	1	7
	White	36	5.9278	.78871	.13145	5.6609	6.1946	4	7
	Total	263	5.5384	1.03023	.06353	5.4133	5.6635	1	7

(Author's own work)

3.3.6.2.3. Test for significant mean differences for the home language category

To test for significant mean differences for the home language category, the Levene's Test for Equality of Variances indicated career agility (p = .005), proactive career resilience (p = .044), career agency (p = .021), and self-perceived employability (p = .024) to score below the significance level of .05. These factors, therefore, violate the assumption that equal mean variances cannot be assumed (Hair et al., 2019; Stindt, 2022; Tredoux & Durrheim, 2008). Table 3.20 lists the results of Levene's Test for Equality of Variances.

Table 3.20
Tests of homogeneity of variances for the home language category

	Levene Statistic	df1	df2	Sig.
Career Agility	3.211	6	256	.005
Career Self-Management Potency	1.513	6	256	.174
Cultural Ingenuity	1.233	6	256	.29
Emotional Acuity	1.876	6	256	.085
Proactive Career Resilience	2.192	6	256	.044
Career Agency	2.541	6	256	.021
Career Sociability	.538	6	256	.779
Self-Perceived Employability	2.47	6	256	.024
Concern	1.029	6	256	.407
Control	1.309	6	256	.253
Curiosity	.805	6	256	.567
Confidence	.745	6	256	.614
Career Adaptability Scale	1.163	6	256	.326
Efficacy	2.008	6	256	.065
Hope	1.249	6	256	.282
Resilience	1.91	6	256	.08
Optimism	1.125	6	256	.348
Psychological Capital	1.307	6	256	.254

(Author's own work)

The second step was to test for significant mean differences. The factors that scored less than the significance level of .05 on Levene's Test for Equality of Variances tested for significant mean differences employing the Welch Robust Test of Equality of Means for the home language category. The one-way ANOVA test assessed the remaining factors (Stindt, 2022). Table 3.21 lists the results for the one-way ANOVA test, and Table 3.22 includes the results for the Welch Robust Tests of Equality of Means.

Table 3.21
One-way ANOVA for the home language category

		Sum of Squares	df	Mean Square	F	Sig. (p)
Career Self-Management Potency	Between Groups	9.031	6	1.505	.994	.43
	Within Groups	387.626	256	1.514		
	Total	396.658	262			
Cultural Ingenuity	Between Groups	12.265	6	2.044	1.52	.172
	Within Groups	344.222	256	1.345		
	Total	356.486	262			
Emotional Acuity	Between Groups	12.55	6	2.092	1.626	.14
	Within Groups	329.332	256	1.286		
	Total	341.882	262			
Career Sociability	Between Groups	2.429	6	.405	.187	.98
	Within Groups	553.694	256	2.163		
	Total	556.123	262			
Concern	Between Groups	1.774	6	1.796	1.551	.162
	Within Groups	296.355	256	1.158		
	Total	307.129	262			
Control	Between Groups	7.73	6	1.288	.983	.437
	Within Groups	335.401	256	1.31		
	Total	343.131	262			
Curiosity	Between Groups	3.744	6	.624	.479	.824
	Within Groups	333.606	256	1.303		
	Total	337.35	262			
Confidence	Between Groups	15.2	6	2.533	1.679	.126
	Within Groups	386.28	256	1.509		
	Total	401.48	262			
Career Adaptability scale	Between Groups	5.727	6	.955	.934	.471
	Within Groups	261.616	256	1.022		
	Total	267.343	262			
Efficacy	Between Groups	5.953	6	.992	.915	.484
	Within Groups	277.462	256	1.084		
	Total	283.416	262			
Hope	Between Groups	4.004	6	.667	.671	.674
	Within Groups	254.744	256	.995		
	Total	258.747	262			
Resilience	Between Groups	23.08	6	3.847	3.862	.001
	Within Groups	255.002	256	.996		
	Total	278.082	262			
Optimism	Between Groups	5.299	6	.883	.75	.61
	Within Groups	301.497	256	1.178		
	Total	306.796	262			
Psychological Capital	Between Groups	4.276	6	.713	.979	.44
	Within Groups	186.317	256	.728		
	Total	190.594	262			

(Author's own work)

Table 3.22

Welch Robust test of equality of means for the home language category

	Statistic *	df1	df2	Sig (p).
Career Agility	3.015	6	93.115	.01
Proactive Career Resilience	1.11	6	91.368	.363
Career Agency	2.39	6	92.401	.034
Self-Perceived Employability	1.354	6	92.159	.242

* Asymptotically F distributed.

The one-way ANOVA test showed a statistically significant mean difference for resilience between the home language groups (F = 3.862, df = 6, p = .001). The Welch Robust Test of Equality of Means revealed statistically significant differences in the mean scores of career agility (Statistic = 3.015, df = 6, p = .01) and career agency (Statistic = 2.39, df = 6, p = .034). All the results listed are significant at the p < .05 level.

The Games-Howell Post-Hoc test for significant differences was applied to the resultant factor means calculated with the Welch Robust Tests of Equality of Means (Stindt, 2022). Table 3.23, Table 3.24, and Table 3.25 indicate where the differences lie within the home language category. There was a significant mean difference between the isiZulu (M = 5.3731, SD = 1.05451) and Sepedi (M = 6.0333, SD = .71269) participants on the career agility factor (p = .013). The Sepedi home language participants scored significantly higher than the isiZulu participants. Similarly, on the career agency factor, the Sepedi (M = 6.12, SD = .82479) home language participants scored a significantly higher mean score than isiZulu (M = 5.4467, SD = 1.20021) home language participants (p = .039). All the scores are significant at a p < .05 significance level.

The Tukey HSD test for significant differences was utilised to calculate where differences lie in the means calculated by the one-way ANOVA test for the different home language participants within a particular factor (Stindt, 2022). The results are outlined in Table 3.26. There were significant differences between the English (M = 6.051, SD = .69724), isiZulu (M = 5.21, SD = 1.23202), Sepedi (M = 5.3267, SD = .98469), and other home language participants *(M = 5.4704, SD = 1.07399).* The significance difference between English and isiZulu was calculated to be at p < .001, English and Sepedi at p = .029, and English and other home language participants p < .049 – all measured against a significance level of p < .05. The English home language

participants presented the highest mean score on resilience, whereas the isiZulu participants scored the lowest mean score.

The overall trend for home language participants suggests that isiZulu participants score lower than other home language groups on career agility, career agency, and resilience, indicating less active participation in decision-making that affects adaptation to changing circumstances. It also appears that these participants perceive themselves as somewhat lower in capacity to cope with challenging targets and make decisions independently. This observation is also in line with a comparatively lower score on resilience. The English home language participants scored higher on average on resilience as a psychosocial strength compared to other home language groups.

Table 3.23

Multiple comparisons for the home language category (career agility)

Dependent Variable		(I) Home Language	(J) Home Language	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Career Agility	Games-Howell	Afrikaans	English	.31914	.21436	.75	-.3386	.9769
			isiXhosa	.20796	.24614	.978	-.5557	.9716
			isiZulu	.56748	.21248	.127	-.0843	1.2193
			Sepedi	-.09277	.20867	.999	-.7377	.5521
			Setswana	.01441	.22977	1	-.6947	.7235
			Other	.48472	.23359	.38	-.2273	1.1967
		English	Afrikaans	-.31914	.21436	.75	-.9769	.3386
			isiXhosa	-.11118	.23089	.999	-.8246	.6023
			isiZulu	.24834	.1946	.861	-.3364	.8331
			Sepedi	-.41192	.19044	.328	-.9888	.1649
			Setswana	-.30474	.21336	.784	-.9566	.3471
			Other	.16558	.21746	.988	-.4887	.8199
		isiXhosa	Afrikaans	-.20796	.24614	.978	-.9716	.5557
			English	.11118	.23089	.999	-.6023	.8246
			isiZulu	.35952	.22914	.702	-.3487	1.0677
			Sepedi	-.30073	.22561	.832	-1.0024	.4009
			Setswana	-.19355	.24526	.985	-.9528	.5657
			Other	.27676	.24884	.922	-.4858	1.0393
		isiZulu	Afrikaans	-.56748	.21248	.127	-1.2193	.0843
			English	-.24834	.1946	.861	-.8331	.3364
			isiXhosa	-.35952	.22914	.702	-1.0677	.3487
			Sepedi	-.66026*	.18832	.013	-1.2298	-.0907
			Setswana	-.55308	.21146	.14	-1.1989	.0927
			Other	-.08276	.2156	1	-.7309	.5654
		Sepedi	Afrikaans	.09277	.20867	.999	-.5521	.7377
			English	.41192	.19044	.328	-.1649	.9888
			isiXhosa	.30073	.22561	.832	-.4009	1.0024
			isiZulu	.66026*	.18832	.013	.0907	1.2298
			Setswana	.10718	.20764	.998	-.5315	.7458
			Other	.57749	.21186	.105	-.0629	1.2179
		Setswana	Afrikaans	-.01441	.22977	1	-.7235	.6947
			English	.30474	.21336	.784	-.3471	.9566
			isiXhosa	.19355	.24526	.985	-.5657	.9528
			isiZulu	.55308	.21146	.14	-.0927	1.1989
			Sepedi	-.10718	.20764	.998	-.7458	.5315
			Other	.47031	.23267	.411	-.2367	1.1773
		Other	Afrikaans	-.48472	.23359	.38	-1.1967	.2273
			English	-.16558	.21746	.988	-.8199	.4887
			isiXhosa	-.27676	.24884	.922	-1.0393	.4858
			isiZulu	.08276	.2156	1	-.5654	.7309
			Sepedi	-.57749	.21186	.105	-1.2179	.0629
			Setswana	-.47031	.23267	.411	-1.1773	.2367

Note: The "Other" home languages group consists of Sesotho, Xitsonga, siSwati, isiNdebele and Tshivenda. Collectively these home languages present 20.5% of the whole sample

Table 3.24

Multiple comparisons for the home language category (career agency)

Dependent Variable		(I) Home Language	(J) Home Language	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Career Agency	Games-Howell	Afrikaans	English	.15419	.24288	.995	-.5992	.9076
			isiXhosa	.171	.26996	.995	-.6661	1.0081
			isiZulu	.76242	.25487	.062	-.0224	1.5472
			Sepedi	.08909	.25224	1	-.6922	.8704
			Setswana	.22509	.27858	.983	-.635	1.0852
			Other	.38316	.26535	.775	-.4309	1.1972
		English	Afrikaans	-.15419	.24288	.995	-.9076	.5992
			isiXhosa	.01681	.22354	1	-.674	.7077
			isiZulu	.60824	.20506	.055	-.0078	1.2243
			Sepedi	-.0651	.20179	1	-.6781	.5479
			Setswana	.0709	.23388	1	-.6487	.7906
			Other	.22898	.21796	.941	-.4271	.885
		isiXhosa	Afrikaans	-.171	.26996	.995	-1.0081	.6661
			English	-.01681	.22354	1	-.7077	.674
			isiZulu	.59143	.23651	.181	-.1341	1.317
			Sepedi	-.0819	.23367	1	-.8041	.6403
			Setswana	.0541	.26188	1	-.7548	.863
			Other	.21217	.24777	.977	-.5455	.9699
		isiZulu	Afrikaans	-.76242	.25487	.062	-1.5472	.0224
			English	-.60824	.20506	.055	-1.2243	.0078
			isiXhosa	-.59143	.23651	.181	-1.317	.1341
			Sepedi	-.67333*	.21607	.039	-1.327	-.0197
			Setswana	-.53733	.2463	.322	-1.2905	.2159
			Other	-.37926	.23124	.657	-1.0739	.3154
		Sepedi	Afrikaans	-.08909	.25224	1	-.8704	.6922
			English	.0651	.20179	1	-.5479	.6781
			isiXhosa	.0819	.23367	1	-.6403	.8041
			isiZulu	.67333*	.21607	.039	.0197	1.327
			Setswana	.136	.24358	.998	-.6136	.8856
			Other	.29407	.22834	.856	-.3966	.9848
		Setswana	Afrikaans	-.22509	.27858	.983	-1.0852	.635
			English	-.0709	.23388	1	-.7906	.6487
			isiXhosa	-.0541	.26188	1	-.863	.7548
			isiZulu	.53733	.2463	.322	-.2159	1.2905
			Sepedi	-.136	.24358	.998	-.8856	.6136
			Other	.15807	.25714	.996	-.6262	.9423
		Other	Afrikaans	-.38316	.26535	.775	-1.1972	.4309
			English	-.22898	.21796	.941	-.885	.4271
			isiXhosa	-.21217	.24777	.977	-.9699	.5455
			isiZulu	.37926	.23124	.657	-.3154	1.0739
			Sepedi	-.29407	.22834	.856	-.9848	.3966
			Setswana	-.15807	.25714	.996	-.9423	.6262

Note: The "Other" home languages group consists of Sesotho, Xitsonga, siSwati, isiNdebele and Tshivenda. Collectively these home languages present 20.5% of the whole sample

Table 3.25

Multiple comparisons for the home language category (resilience)

Dependent Variable		(I) Home Language	(J) Home Language	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Resilience	Tukey HSD	Afrikaans	English	-.26007	.25458	.949	-1.0167	.4965
			isiXhosa	.35281	.30448	.909	-.5521	1.2577
			isiZulu	.58091	.24875	.231	-.1584	1.3202
			Sepedi	.46424	.28014	.645	-.3683	1.2968
			Setswana	.24691	.29176	.98	-.6202	1.114
			Other	.32054	.25244	.865	-.4297	1.0708
		English	Afrikaans	.26007	.25458	.949	-.4965	1.0167
			isiXhosa	.61289	.25878	.216	-.1562	1.382
			isiZulu	.84098*	.19009	<.001	.2761	1.4059
			Sepedi	.72431*	.22964	.029	.0418	1.4068
			Setswana	.50698	.24367	.367	-.2172	1.2312
			Other	.58061*	.19488	.049	.0014	1.1598
		isiXhosa	Afrikaans	-.35281	.30448	.909	-1.2577	.5521
			English	-.61289	.25878	.216	-1.382	.1562
			isiZulu	.2281	.25305	.972	-.524	.9802
			Sepedi	.11143	.28397	1	-.7325	.9554
			Setswana	-.1059	.29543	1	-.9839	.7721
			Other	-.03228	.25667	1	-.7951	.7305
		isiZulu	Afrikaans	-.58091	.24875	.231	-1.3202	.1584
			English	-.84098*	.19009	<.001	-1.4059	-.2761
			isiXhosa	-.2281	.25305	.972	-.9802	.524
			Sepedi	-.11667	.22317	.999	-.7799	.5466
			Setswana	-.334	.23758	.798	-1.0401	.3721
			Other	-.26037	.18721	.806	-.8168	.296
		Sepedi	Afrikaans	-.46424	.28014	.645	-1.2968	.3683
			English	-.72431*	.22964	.029	-1.4068	-.0418
			isiXhosa	-.11143	.28397	1	-.9554	.7325
			isiZulu	.11667	.22317	.999	-.5466	.7799
			Setswana	-.21733	.27027	.984	-1.0206	.5859
			Other	-.1437	.22727	.996	-.8191	.5317
		Setswana	Afrikaans	-.24691	.29176	.98	-1.114	.6202
			English	-.50698	.24367	.367	-1.2312	.2172
			isiXhosa	.1059	.29543	1	-.7721	.9839
			isiZulu	.334	.23758	.798	-.3721	1.0401
			Sepedi	.21733	.27027	.984	-.5859	1.0206
			Other	.07363	.24143	1	-.6439	.7912
		Other	Afrikaans	-.32054	.25244	.865	-1.0708	.4297
			English	-.58061*	.19488	.049	-1.1598	-.0014
			isiXhosa	.03228	.25667	1	-.7305	.7951
			isiZulu	.26037	.18721	.806	-.296	.8168
			Sepedi	.1437	.22727	.996	-.5317	.8191
			Setswana	-.07363	.24143	1	-.7912	.6439

Note: The "Other" home languages group consists of Sesotho, Xitsonga, siSwati, isiNdebele and Tshivenda. Collectively these home languages present 20.5% of the whole sample

Table 3.26

Descriptive calculations for the home languages category

		N	Mean (M)	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Career Agility	Afrikaans	22	5.9406	.76517	.16313	5.6013	6.2798	4.31	6.92
	English	51	5.6214	.99309	.13906	5.3421	5.9007	2.62	7
	isiXhosa	21	5.7326	.84462	.18431	5.3481	6.1171	4.08	6.92
	isiZulu	60	5.3731	1.05451	.13614	5.1007	5.6455	2.69	6.92
	Sepedi	30	6.0333	.71269	.13012	5.7672	6.2995	4.54	7
	Setswana	25	5.9262	.80906	.16181	5.5922	6.2601	4	7
	Other	54	5.4558	1.22858	.16719	5.1205	5.7912	1	7
	Total	263	5.6423	1.0093	.06224	5.5197	5.7648	1	7
Career Agency	Afrikaans	22	6.2091	.94914	.20236	5.7883	6.6299	3.6	7
	English	51	6.0549	.95923	.13432	5.7851	6.3247	3.8	7
	isiXhosa	21	6.0381	.81883	.17868	5.6654	6.4108	4	7
	isiZulu	60	5.4467	1.20021	.15495	5.1366	5.7567	1.4	7
	Sepedi	30	6.12	.82479	.15059	5.812	6.428	3.8	7
	Setswana	25	5.984	.95729	.19146	5.5889	6.3791	4.2	7
	Other	54	5.8259	1.26135	.17165	5.4816	6.1702	1	7
	Total	263	5.8814	1.08293	.06678	5.7499	6.0129	1	7
Resilience	Afrikaans	22	5.7909	.8451	.18018	5.4162	6.1656	4	7
	English	51	6.051	.69724	.09763	5.8549	6.2471	4.6	7
	isiXhosa	21	5.4381	.8237	.17975	5.0632	5.813	3.4	6.6
	isiZulu	60	5.21	1.23202	.15905	4.8917	5.5283	1	7
	Sepedi	30	5.3267	.98469	.17978	4.959	5.6944	3	6.8
	Setswana	25	5.544	.98577	.19715	5.1371	5.9509	2.4	6.6
	Other	54	5.4704	1.07399	.14615	5.1772	5.7635	1	7
	Total	263	5.5384	1.03023	.06353	5.4133	5.6635	1	7

Note: The "Other" home languages group consists of Sesotho, Xitsonga, siSwati, isiNdebele and Tshivenda. Collectively these home languages present 20.5% of the whole sample

3.4. Research hypothesis decisions

Table 3.27 summarises the empirical aims, research hypothesis conclusions, and supportive evidence for each.

Table 3.27
Research hypothesis conclusions

Empirical Aim	Research Aim		Research Hypothesis	Supportive Evidence
To determine if a significant positive relationship exists between employability and career adaptability amongst non-degreed youth at an educational institution.	1	H01	There is no significant positive relationship between employability and career adaptability amongst non-degreed youth at an educational institution.	No
		Ha1	There is a significant positive relationship between employability and career adaptability amongst non-degreed youth at an educational institution.	Yes: Correlations
To determine if a significant positive relationship exists between employability and psychological capital amongst non-degreed youth at an educational institution.	2	H02	There is no significant positive relationship between employability and psychological capital amongst non-degreed youth at an educational institution.	No
		Ha2	There is a significant positive relationship between employability and psychological capital amongst non-degreed youth at an educational institution.	Yes: Correlations
To determine if a significant positive relationship exists between career adaptability and psychological capital amongst non-degreed youth at an educational institution.	3	H03	There is no significant positive relationship between career adaptability and psychological capital amongst non-degreed youth at an educational institution.	No
		Ha3	There is a significant positive relationship between career adaptability and psychological capital amongst non-degreed youth at an educational institution.	Yes: Correlations
To determine if there is a statistically significant difference between employability and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.	4	H04	There is no statistically significant difference between employability and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.	No
		Ha4	There is a statistically significant difference between employability and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.	Yes, some support: Test for significant mean differences

Table 3.27
Research hypothesis conclusions (continued)

To determine if there is a statistically significant difference between career adaptability and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.	5	H05	There is no statistically significant difference between career adaptability and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.	No
		Ha5	There is a statistically significant difference between career adaptability and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.	Yes, some support: Test for significant mean differences
To determine if there is a statistically significant difference between psychological capital and (a) gender, (b) age, (c) race and (d) home language amongst non-degreed youth at an educational institution.	6	H06	There is no statistically significant difference between psychological capital and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.	No
		Ha6	There is a statistically significant difference between psychological capital and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.	Yes, some support: Test for significant mean differences

Note: H0 = Null Hypothesis; Ha = Alternative Hypothesis

3.5. Integration and discussion

This section incorporates and examines the results with reference to each of the listed empirical research aims. The discussion will first present the demographic profile and test each of the six research hypotheses through a discussion.

3.5.1. Demographic profile of the sample and frequencies

The acquired demographic background information indicated that the sample consisted primarily of black females between 19 and 24 years, followed by 25-to-30-year-olds. The dominant home language groups were isiZulu, English, Sepedi, Setswana, Afrikaans, and isiXhosa. All participants were enrolled for a first- or second-year degree study at an educational institution.

3.5.2. Research aim 1: Relationship between Self-perceived Employability and Career Adaptability

The first hypothesis is *H1: "There is a significant positive relationship between employability and career adaptability amongst non-degreed youth at an educational institution".*

To test this hypothesis, the Pearson Product Moment Coefficient investigated the association between employability and career adaptability and each variable's factor's relationships amongst themselves. The main variables of self-perceived employability and career adaptability resulted in an overall correlation of .702, explaining 49.28% of the variance. Bezuidenhout (2011) and Coetzee (2019) demonstrated that employability is a collection of attributes needed to heighten the possibility of creating, obtaining, and maintaining employment opportunities. Coetzee and Engelbrecht (2019) also emphasise that these attributes support employability through *adaptive* cognition, behaviour, and affect. Career adaptability relates to a person's readiness to adjust to changes in the environment and to rely on adaptive competencies and motivation by depending on adaptability resources such as concern, control, curiosity, and confidence. There are strong overlapping themes involving *adaptation* – involving how one thinks (cognition), acts (behaviour), and feels (affect) to optimally adjust to changes and opportunities in one's employment situation when the definition of each is qualitatively inspected. Consistent with this study, Coetzee et al. (2015) observed a positive relationship between career adaptability and employability, whilst Coetzee and Engelbrecht (2019) established a negative association between low perceived employability and career adaptation.

Investigating the factors more closely reveals that career adaptability and confidence correlate the most with career agility, career self-management potency, career ingenuity, emotional acuity, proactive career resilience, and career agency. As a factor, proactive career resilience correlates with all four factors of career adaptability of concern (3.36% variance), control (29.92% variance), curiosity (38.31% variance), confidence (44.22% variance), and career adaptability itself (46.24% variance). According to Coetzee (2019) and Coetzee et al. (2015), proactive career resilience points to the temperament that allows a supportive degree of expectancy and modification to changeable situations, flexibility, self-confidence, and competence – irrespective of a person's career conditions. Considering this explanation, a theme of career adaptability and confidence emerges fairly strongly and seems to explain the correlation between career adaptability and the confidence factor. Savickas and Porfeli (2012) explained that confidence stands for a person's self-belief in finding solutions to career problems and overcoming career obstacles – in other words, it demonstrates resilience. Coetzee et al. (2015) support this finding and demonstrate in their research that there are positive links between career resilience and career adaptability.

The association between career adaptation confidence and career resilience proves that self-belief in one's abilities to solve career challenges and remain hardy (regardless of setbacks) is essential in people's ability to obtain and maintain employability flexibly. As Qenani et al. (2014) suggested, career adaptation through one's employability attributes aids in the re-establishment of a person's autonomous functioning.

Conclusion: Hypothesis 1 is supported. There was a strong positive correlation between employability and career adaptability ($r = .702$, $p < .01$).

3.5.3. Research aim 2: Relationship between Self-perceived Employability and Psychological Capital

The second hypothesis is *H2: "There is a significant positive relationship between employability and psychological capital amongst non-degreed youth at an educational institution".*

The Pearson Product Moment Coefficient assessed the association between employability and psychological capital and the variable's factor's relationships among themselves. Overall, the main variables of self-perceived employability and psychological capital resulted in an overall correlation of .631, explaining 39.82% of the variance between them. As defined earlier by Bezuidenhout (2011) and Coetzee (2019), employability consists of attributes that enhance

the chance of creating, obtaining, and sustaining employment opportunities. More importantly, in the light of psychological capital, these attributes support employability through adaptive cognition, behaviour, and affect. Luthans and Youssef-Morgan (2017) describe psychological capital as a constructive psychological condition of growth, which is considered as possessing self-confidence (self-efficacy) to carry out and commit needed effort to be successful at a challenging task; react positively (optimism) about prospering now and in future; to push forward or redirect paths when required towards goals to succeed (hope); and, when affected by setbacks, to bounce back and even better (resiliency) to accomplish success. According to Avey et al. (2010), psychological capital is primarily cognitive. It characterises a person's optimistic appraisal of circumstances in addition to the possibility of success centred on driven determination and perseverance (Görgens-Ekermans & Herbert, 2013). From these explanations, there appears to be a link between the positive appraisal of how one assesses a career situation and how one cognitively, behaviourally, and emotionally adjusts through the support of one's employability attributes and psycho-social career capacities. As confirmation of this study's results, Rawat and Sharma (2018) also demonstrated an association between the concepts of psychological capital and their definition of employability. In their study, Calvo and Garcia (2020) found that psychological capital is a precursor variable of employability skills and influences various employability *skills* such as teamwork, self-knowledge, and self-management.

A closer investigation of the factor correlations revealed a positive association. It explained the variance between psychological capital and career agility (3.25%), career self-management potency (3.69%), emotional acuity (25.50%), and proactive career resilience (38.81%). There are also positive associations between efficacy, career agility, and career self-management potency. Proactive career resilience demonstrates the strongest association with psychological capital and, to a slightly lesser extent, with efficacy ($r = .608$), which relates to confidence (Luthans & Youssef-Morgan, 2017). There is a theme of *positive expectations* that a person can expect and adapt to a changeable career scene and do so in a self-confident and competent manner when each definition is qualitatively inspected. Here we can therefore identify a link between psychological capital as a whole (albeit not as strong as career adaptability) and efficacy with proactive career resilience, as supported by the statistical results.

Another theme is efficacy and its positive association with career agility and career self-management potency. Career agility and career self-management potency also demonstrated a strong relationship ($r = .756$) of the employability factors, demonstrating a strong degree of relatedness. Efficacy is the *belief* in one's capacity to activate the needed motivating force,

mental resources, and courses of action to perform a particular task successfully in a specific context (Avey et al., 2009; Black et al., 2020). Career agility points to the responsibility one takes for one's decisions; to take an active part in one's career that results in future and independently starting measures in an effort to adjust to changes in one's situations through means of improving one's knowledge and skills (Coetzee et al., 2015; Potgieter & Coetzee, 2013). Career self-management potency points to one's inherent independent motivation and capacity to support employability by virtue of ongoing learning opportunities, career planning, and management endeavours to chase one's career goals (Coetzee et al., 2015; Coetzee & Engelbrecht, 2019; Potgieter & Coetzee, 2013). Considering all three explanations, the researcher can combine them through the "active autonomous efficacy" concept. The three definitions overlap in various degrees in that they suggest that a person needs to be self-motivated and take active independent action and responsibility for one's career. To do so, one needs to be confident that one can do so. These overlaps also confirm the positive statistical relationship between these factors, specifically career agility and self-management potency.

Conclusion: Hypothesis 2 is supported. There was a strong positive correlation between employability and psychological capital (r = .631, p < .01). This correlation is, however, somewhat weaker than the correlation between employability and career adaptability.

3.5.4. Research aim 3: Relationship between Career Adaptability and Psychological Capital

The third hypothesis is *H3: "There is a significant positive relationship between career adaptability and psychological capital amongst non-degreed youth at an educational institution".*

The Pearson Product Moment Coefficient assessed the relationship between career adaptability and psychological capital, in addition to each variable's factor's relationships. The main variables of career adaptability and psychological capital resulted in an overall correlation of .626, explaining 39.18% of the variance between them. This relationship is also the weakest of the three associations between the three main variables. In literature, Savickas and Porfeli (2012) empirically associated career adaptability and psychological capital. Coetzee et al. (2017), Mohammed et al. (2019), and Safavi and Bouzari (2019) also demonstrated and confirmed links between career adaptability and psychological capital.

Confidence demonstrated positive associations with hope and efficacy when considering career adaptability and psychological capital factors. There appears to be some overlap of the themes of each when the three definitions are qualitatively inspected. *Confidence* and *efficacy* both refer to self-belief in employing one's motivation and cognitive abilities to actively solve a career problem (Avey et al., 2009; Black et al., 2020; Savickas & Porfeli, 2012). Luthans (2011) and Luthans and Youssef (2007) described *Hope* as a constructive, motivational condition centred on an effective targeted force and plans to live up to goals. Hope is self-initiated goal-directed motivations and behaviour driven by self-agency and planfulness. By implication, one can reason that by being motivated to take action, one also has the self-belief in one's abilities to take action to meet career goals. These overlaps can therefore explain the positive association between hope and efficacy ($r = .652$), hope and confidence ($r = .558$), and efficacy and confidence ($r = .592$).

Conclusion: Hypothesis 3 is supported. There was a strong positive correlation between career adaptability and psychological capital ($r = .626$, $p < .01$).

Figure 3.4 visually represents the relationship between employability, career adaptability, and psychological capital.

Figure 3.4
Relationships between the three main variables
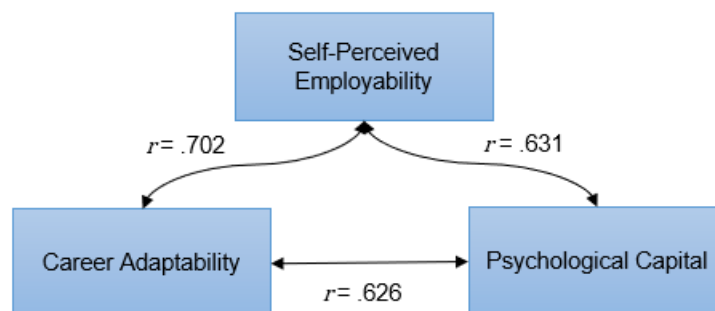
3.5.5. Research aim 4: Demographic variable differences for Employability

The fourth hypothesis is *H4: "There is a statistically significant difference between employability and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution"*.

In line with the studies conducted by Bezuidenhout et al. (2019), Botha (2021) and Rothwell et al. (2009), the researcher poses the likelihood that membership in a specific gender group

is not a reliable predictor of self-perceived employability. To support this statement, the researcher used tests for significant mean differences. The results found no statistically significant difference between the genders (a) on employability.

The hypothesis is, however, partially supported for age (b). Although the researcher could not find significant differences between age groups for employability, the 19-to-24-year-old group and individuals older than 35 demonstrated statistically significant differences in *career agility*, where the more senior group scored a higher average mean. Differences were found between 19-to-24-year-olds, 25-to-30-year-olds, and the 35 and older group on *career self-management potency*. The youngest group scored the lowest average mean, and the older group had the highest average mean score. The results suggest, by definition, that the older group is more inclined (due to experience) to independently take active responsibility and planful action for their existing careers and to initiate steps to improve their knowledge and skills to make themselves more employable (Coetzee et al., 2015; Coetzee & Engelbrecht, 2019; Potgieter & Coetzee, 2013). The younger groups are still at the beginning of their careers and, according to Potgieter (2012), may find it challenging to plan for their careers as they have a stereotypical perception that they may lack practical experience.

The available evidence also partially supports the hypothesis for race (c). There was a statistically significant difference for *employability* between coloured and "other" racial group participants, where the coloured group scored a notably higher average mean. This finding aligns with Qenani et al. (2014) and Oosthuizen et al. (2021), who reported statistically significant mean differences between racial groups and the self-perceived employability attributes. However, the latter indicated this was especially the case between black and white groups, where the former rated higher than the latter on average.

For *career agency,* there was a statistically significant difference between black and coloured participants, where coloured participants scored a higher average mean. *Career agility* also showed a statistically significant difference for racial groups in general, but on deeper investigation, there were no significant differences between the specified groups. There was no specific research found that could also support these findings. However, the differences between the racial groups can speculatively be explained by an observation made by Potgieter (2012). This researcher highlighted that South Africa has a macroeconomic influence on the employability of certain racial groups through the Black Economic Empowerment (BEE) policy, which results in different racial demands and, therefore, perceptions of employability. According to Maree (2017), due to the macroeconomic situation in South Africa, job seekers

may become discouraged as they are also increasingly plagued by inequality and unemployment.

For home language (d), the hypothesis is also partly supported. A statistically significant distinction was established between isiZulu and Sepedi participants on *career agility*, where Sepedi speakers scored a higher average mean. Again, there was no supportive evidence by other researchers to reference. One can speculate that there may be a cultural influence regarding how different cultural groups perceive their role and actions needed in career development.

3.5.6. Research aim 5: Demographic variable differences for Career Adaptability

The fifth hypothesis is *H5: There is a statistically significant difference between career adaptability and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.*

According to the study results, there is partial support for this hypothesis based on gender (a), but only on the *concern* factor of career adaptability. The female respondents scored a higher average mean compared to males. This result hints that females demonstrated a greater capacity to be mindful, involved, and planful for a vocational future than male participants. It suggests a more planning-orientated attitude amongst females toward what they would like to accomplish. For career adaptability, the researcher could determine any statistically significant distinction between males and females. This outcome is congruent with similar results of Chen et al. (2020) and Coetzee et al. (2015).

For age (b), the study could not find any statistically significant differences between age groups for career adaptability. Similarly, Hakiki et al. (2020) could not determine any significant age differences in career adaptability among the youth they conducted their study on, nor could Coetzee et al. (2015) determine significant associations between age and career adaptability.

For race (c), statistical evidence can partially support the hypothesis. There was a statistically significant difference between the racial groups in the study for *confidence*, where the coloured participants scored a notably higher mean average than black participants. There was no supportive evidence from other researchers to support this finding. One can speculate that the result may make sense in South Africa's macroeconomic environment, high unemployment rate, and perception that people may not have the skill or experience to adapt their careers to

change in the environment. This situation disproportionally affects black South Africans, with 38.6% unemployment, compared to coloured participants at 25.9% (Maree, 2017; Statistics South Africa, 2022).

For home language (d), no statistically significant differences were detected between home language groups. There was no meaningful research found from other researchers that could be used to support this finding. The researcher, therefore, posits that home language is not a strong predictor of a person's career adaptability.

3.5.7. Research aim 6: Demographic variable differences for Psychological Capital

The last hypothesis is *H6: "There is a statistically significant difference between psychological capital and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution".*

The current research does not support the hypothesis for gender (a), as no statistically significant differences could be found between male and female research participants. This result is consistent with Avey et al. (2006) and Du Plessis and Barkhuizen (2012), who also found no statistical difference between psychological capital and gender. This study also observed similar results to those of Dirzyte and Patapas (2022), where there was no statistically significant relationship between gender and self-efficacy, hope, resilience, optimism, or psychological capital. Luthans and Youssef-Morgan (2017) also asserted in their research article that many studies find weak relationships between gender and psychological capital.

Luthans and Youssef-Morgan (2017) asserted that numerous studies find weak relationships between age and psychological capital. In contrast to Luthans and Youssef-Morgan and the studies of Avey et al. (2006), as well as Okafor (2014), who found no links between age (b) and psychological capital, this research study observed significant differences between age groups and *psychological capital*. These differences were more specifically between 19-to-24-year-old participants and older than 35-year-old participants, who scored a higher mean average in comparison. The same groups also presented statistically significant differences in *efficacy* and *resilience*. This result can be interpreted as indicating that one's psychological capital develops with age, especially with self-belief in one's abilities, as there were opportunities to test those abilities in work environments.

Furthermore, as one matures, one learns to become more resilient and find ways to bounce back and persist with one's career goals in the face of setbacks. Therefore, the hypothesis is supported for age and psychological capital. The hypothesis is partly supported for race (c) and psychological capital. Consistent with Okafor's (2014) research, this study also found significant differences in resilience between black and white participants. However, this study found that the white participants scored a higher average mean than the black participants. Again, it can be speculated that this result could be the result of South Africa's unemployment situation, as outlined in Statistics South Africa's Quarterly Labour Survey (2022).

Given that this study took place during part-lockdown due to the COVID-19 pandemic, from the results, one can deduce that the resilience of black students may have been tested more compared to other racial groups, as they may have more career-related worries. This assumption is because this group is statistically more affected by joblessness, inequality, and socio-economic problems, and scored much lower on resilience in this study than other racial groups (Maree, 2017; Zyberaj et al., 2022). Other researchers, such as Du Plessis and Barkhuizen (2012), found statistically significant differences for race groups, specifically between black and white participants, where white participants scored higher on hope and efficacy. This finding could not be replicated in this study.

Finally, the hypothesis is also supported for home language (d). The results of this study determined that there are significant statistical differences between English, isiZulu, Sepedi, and "other" home language groups, with English scoring higher compared to the traditional African languages on *resilience*. These findings are partly consistent with Du Plessis and Barkhuizen's (2012) conclusions, except that the highest-scoring home language group was Afrikaans. Again, it can be hypothesised that, when considering the macro-economic and employment situation of South Africa, the traditionally black population may be the group worst affected.

3.5.8. Observed trends

Whilst the research analysis focused on answering the six research objectives, some notable trends emerged that did not fit the six research questions. The first trend deals with career sociability, followed by confidence and efficacy, factors dealing with resilience, career agility, and agency.

Career sociability refers to a person's need for interpersonal connection by creating and upholding satisfying social relationships that can be leveraged to advance a person's career

(Bezuidenhout, 2011; Coetzee & Engelbrecht, 2019; Potgieter & Coetzee, 2013). In this study, career sociability presented a correlation coefficient ranging between .279 (small practical effect) for career agency and .493 (medium practical effect) for emotional acuity. The average correlation apart from self-perceived employability is .395 for all the factors. The mean score overall for career sociability is also the lowest at 4.4591. Being the only factor that measured an element of interpersonal relatedness, this factor stood out as not linking with any of the other analysed factors, apart from the employability of which it forms part of a composite score. The researcher also noticed a similar pattern in the research conducted by Coetzee (2019). Therefore, the researcher posits that career sociability or related acts as a standalone mediator but does not have strong links to competency, autonomy, or emotional state. It merely acts as a method to enable a particular outcome.

It was also noted that a theme emerged of confidence and efficacy. These factors overlap and therefore emerge as factors that repeatedly result as significant. From there, it appeared that self-belief in one's skills and abilities and the necessary motivation to make things happen are vital in driving one's employability and career adaptability.

Another theme that emerged was that of resilience and proactive career resilience. Although these two factors do not show a strong correlation with each other, qualitatively, they address the need to have the temperament to foresee possible changes and to adapt and flex to one's career circumstances – therefore allowing one to bounce back from possible or experienced setbacks. Finally, there was also the theme of career agility and career agency, which requires a person to take responsibility independently for decisions made regarding one's career and to initiate the needed planning, career management, and upskilling to meet one's changing career circumstances.

3.6.   Conclusions: Implications for practice

This research study provides insights for educators, corporations, industrial psychologists, and career counsellors to emphasise or adjust their practices and content material to research that has been empirically investigated and supported by statistical outcomes. The research results suggest that developing youth in educational institutions' employability attributes, career adaptability factors, and psychological support factors such as resilience and efficacy may strengthen their self-perceived employability and how well they adjust their careers to a changing labour environment. Perceived employability is changeable over time, and as people's self-concepts evolve, their career needs change and the nature of their jobs continuously evolves (Coetzee & Engelbrecht, 2019).

Given the context of the 4IR and that STARA (Oosthuizen, 2022) could force workers out of certain occupations, there is a need to adjust our current educational systems and ways of career development to create graduates that are ready for an ever-changing world of work.

A trend of career agility and career agency highlights the critical role that educational institutions have in steering students on the way to cultivating self-managing behaviour early on in their academic studies (Qenani, 2014). As part of their curriculum, educators can incorporate strengthening students' psychosocial resources to cope with the challenges and setbacks that will present themselves and necessitate the appropriate adaptive reaction from the current student and future worker (Broad & Luthans, 2020). Considering that many careers could become protean (Coetzee & Roythorne-Jacobs, 2012), it may be in future workers' interest to foster entrepreneurial skills and instil a habit of continuous learning and upskilling (Maree, 2017). The same applies to counsellors and career counsellors who should adopt a framework for counselling youth on how to build the capability to self-sufficiently manage and sustain their employability (Coetzee, 2019). In counselling, youth, especially those from more resource-scarce areas, should be made aware of how their skills, behaviour and attitudes will aid them in navigating their employability and how they can adapt to changes in their work situation – helping them to become more career resilient (Maree, 2017). As highlighted by Oosthuizen (2022), South Africa's educational situation is currently not supportive of training future workers for the needs and demands (including skills, behaviour and emotionally-wise) of the 4IR, and will have to enjoy top priority at the government level.

Industrial psychologists could be challenged to timely answer what the influence of STARA on future workers will be and what technology will be the next disruptor (Oosthuizen, 2022). Younger workers with limited life and occupational know-how may also require supportive involvement more than, for example, workers in their middle- to late-adulthood stages (Coetzee, 2019). Industrial psychologists will have to play an active role in developing young entry-level workers and assist them in acquiring the necessary employability attributes and mindset to adjust their careers when their work environment changes. The assistance that industrial psychologists can offer is the development of resilience and efficacy, as well as the development of agility and adaptability to help young workers to cope with the ever-changing nature of work through training programmes, counselling sessions, talent analytics, and talent management and development (Oosthuizen, 2022).

According to Broad and Luthans (2020), they will have to overcome challenges such as changes in the workplace, depression, anxiety and so forth. A possible implication of psychological capital in the context of employability and career adaptability is that students

and workers can benefit from being cognitively equipped and have their psychosocial resources strengthened to cope with the challenges and setbacks that will present themselves and which necessitate the appropriate adaptive reaction from the current student and future worker.

3.7. Limitations of the study and recommendations for future research

Although the study aimed to investigate how self-perceived employability, career adaptability, and psychological capital relate to each other amongst non-degreed youth through a cross-sectional study method, a longitudinal study is proposed to investigate the shifts in perceived employability, career adaptability, and psychological capital over time, given the influence of technological advancement and what the possible causal links may be. Furthermore, the study's cross-sectional design restricts causal interpretations and does not allow for solid confidence in the analysis (Babbie, 2021; Coetzee & Engelbrecht, 2019; Salkind, 2012).

This study utilised a convenience sample strategy, implying that the results cannot be applied to all populations. The sample and its demographic profile were restricted to a South African setting and specific to first- and second-year students within one department at a higher educational institution. The results are, consequently, not directly applicable to other contexts (Neuman, 1997; Salkind, 2012). When applying the recommendations and results of this study to different contexts, caution should be applied (Salkind, 2012). Replication studies are recommended for other countries and job-related settings with a wider representation of age, gender, race groups, home language, and educational levels.

Lastly, it should be considered that this study was carried out during the COVID-19 pandemic in South Africa, when a period of partial lockdown was in effect. It is, therefore, possible that the impact of the pandemic may have influenced the participants' response patterns. The results may need to be considered with this background in mind.

3.8. Chapter summary

Significant points of the scientific literature review and the findings that informed the study were presented in this chapter. It also outlined the research approach and method, such as the sample group description, the measuring instruments, the data-gathering procedure, and the ethical concerns. The six hypotheses that would form the basis of the study were outlined. Following this, the data analysis process was discussed step-by-step, resulting in a final integration of the data and discussion of each of the six hypotheses. It concluded with an

overview of the recommendations for practice, an overview of the limitation of this study, and suggestions for further research.

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Chapter Four: Research study conclusions, limitations, and recommendations

Chapter Four summarises the conclusions, limitations, and recommendations from the literature review and empirical study. The research study explored the relationship between employability, career adaptability, and psychological capital amongst non-degreed youth at an educational institution, specifically within a higher educational setting.

4.1. Conclusions

The conclusions from the literature review and the research study's empirical findings are outlined below.

4.1.1. Conclusions relating to the literature review

The literature review aimed to hypothesise and investigate associations between employability, career adaptability, and psychological capital. Furthermore, the literature review aimed to determine whether there is a link between the three main variables and the four demographic categories of gender, age, race, and home language. The literature study derived conclusions for each specific aim.

4.1.1.1. Research aim 1: To conceptualise Employability, Career Adaptability, and Psychological Capital amongst non-degreed youth at an educational institution from a theoretical perspective.

Chapters One and Two aimed to conceptualise the three principal variables: employability, career adaptability, and psychological capital.

4.1.1.1.1. Conclusions about Employability

Employability tends to be inconsistently and vaguely defined (Rossier et al., 2012). Definitions tend to focus on an external locus of control where a person is at the mercy of the work environment. In most cases, however, definitions of employability point to a person's propensity to keep a job or competence (Botha, 2021; Cox & King, 2006; Harvey, 2010) in a fluid work environment (Cox & King, 2006). According to Oosthuizen et al. (2021), self-perceived employment signifies how a person views employability and the ability to gain and keep satisfying work, grow knowledge and insight, competency,

practical knowledge, and characteristics to progress independently within the labour market.

This study views employability as a collection of *attributes* needed to increase the chances of creating, securing, and maintaining employment opportunities (Coetzee et al., 2016), even during joblessness (Bezuidenhout, 2011). It characterises the career-related qualities facilitating a worker's adaptive cognition, conduct, and emotions. (Bezuidenhout, 2011; Coetzee, 2019). It includes psychological needs divided into three categories: psychological needs of autonomy, competence, and relatedness. These categories comprise career self-management, cultural competence, self-efficacy, career resilience, sociability, entrepreneurial orientation, proactivity, and emotional literacy (Coetzee, 2019).

4.1.1.1.2. Conclusions about Career Adaptability

Career adaptability is a vital psycho-social resource that allows people to cope with vague career-development tasks (Savickas & Porfeli, 2012; Tien & Wang, 2017). It is a vital survival mechanism (Maree, 2017) in the time of 4IR, allowing flexibility, self-insight, and self-management (Rottinghaus et al., 2017; Xia et al., 2020). Career adaptability concerns a cognitive evaluation of how well the changes in the external environment match the person's interest, talent, capacity, and employer demands (Coetzee et al., 2015; Coetzee & Engelbrecht, 2019; Rottinghaus et al., 2017). This evaluation facilitates a search for job opportunities and the creation of different courses of action to tailor oneself to ideal work contexts and to take part constructively in work roles (Coetzee et al., 2015).

According to Xia et al. (2020), career concern, control, curiosity, and confidence collectively create career adaptability resources. Career concern is an attitude and competence in planning behaviours where one prepares to cope with anticipated workplace changes. Career control points toward the degree to which one feels personally in charge of deciding on career-related matters. Career curiosity refers to the need one feels to explore and experiment to gain first-hand knowledge and skills. Finally, career confidence indicates the self-conviction one has to overcome challenges and solve career problems (Coetzee & Harry, 2015; Santilli et al., 2017; Savickas, 2012; Xia et al., 2020).

4.1.1.1.3. Conclusions about Psychological Capital

Psychological capital is a higher-class collection of strengths and positive capacities (Calvo & Garcia, 2020; Görgens-Ekermans & Herbert, 2013) of a cognitive nature (Avey et al., 2010). The 4IR requires that workers are more adaptable, resilient, and able to work in various contexts whilst overcoming setbacks in their careers (Calvo & Garcia, 2020). Therefore, psychological capital is a supply of psychological resources (Asbari et al., 2021). It characterises the person's evaluation of his or her situation and the possibility of accomplishment based on their motivated determination and persistence (Görgens-Ekermans & Herbert, 2013). Luthans and Youssef-Morgan (2017, p. 340) defined the psychological resources of psychological capital as:

> *"an individual's positive psychological state of development, characterised by (1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering towards goals, and when necessary, redirecting paths to goals (hope) to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resiliency) to attain success".*

4.1.1.2. Research aim 2: To conceptualise the theoretical relationship between Employability, Career Adaptability, and Psychological Capital amongst non-degreed youth at an educational institution from literature.

Youth unemployment is a challenging consequence of 4IR, especially when entering the labour pool after leaving school or qualifying in a specific field of study. Workers have to shift from student to employee and adapt to the requirements of the contemporary protean workplace (Coetzee, 2019; Coetzee & Esterhuizen, 2010; Coetzee & Roythorne-Jacobs, 2012) by being work-ready employable and capable of maintaining employability (Potgieter & Coetzee, 2013) through being flexible, adaptable, and resilient (Calvo & Garcia, 2020). Coetzee et al. (2019) posit that employment is needed for a person's psychological well-being. Workers depend on their psychological capital and adaptability skills to strengthen their employability skills that enforce a perception of being employable (Calvo & Garcia, 2020). They must adapt psychologically and act resourcefully to the inflicted stress of a fluid work environment (Coetzee, 2019; Coetzee & Harry, 2015).

Various studies illustrated theoretical associations between employability, career adaptability, and psychological capital. Savickas and Porfeli (2012) empirically linked career adaptability and psychological capital. Coetzee et al. (2017), Mohammed et al. (2019), and Safavi and Bouzari (2019) confirmed associations between career adaptability and psychological capital. Rawat and Sharma (2018) found an association between psychological capital and employability. Ngoma and Ntale (2016) determined that psychological capital, social capital, and career identity aid in addressing employability challenges. Psychological capital was determined to be a foundational variable for employability skillfulness, affecting skills such as teamwork, self-knowledge, and self-management (Calvo & Garcia, 2020). A study by Coetzee and Engelbrecht (2019) and Coetzee et al. (2015) illustrated a positive link between career adaptation, perceived self-employability, and skills. The attributes of self-regulated competence described a link between self-perceived employability and career adaptability. In other research, Coetzee et al. (2017) established an association between career adaptability and psychological capital as an essential collection of psycho-social career capacities. According to Mohammed et al. (2019), psychological capital resources propel career adaptability. This adaptability results from the psycho-social resources of psychological capital directing a person's emotional state towards positivity.

4.1.1.3. Research Aim 3: Determine the role played by biographical variables (a) gender, (b) age, (c) race, and (d) home language on Employability, Career Adaptability, and Psychological Capital amongst non-degreed youth at an educational institution.

4.1.1.3.1. Employability

a)   Gender

Research findings on how gender influences employability vary. Various studies established that females have lower employability than males (Potgieter, 2012), while Pitan and Muller (2019) and Qenani et al. (2014) confirmed the opposite. Oosthuizen et al. (2021) explained that male participants demonstrated more positive entrepreneurial and proactivity employability characteristics than females. Monteiro et al. (2016) reported that male and female students view their employability similarly after obtaining a master's degree; however, when working experience is considered, females rated themselves lower in terms of employability. Bezuidenhout et al. (2019) and Botha (2021)

reported no significant statistical difference between males and females concerning self-perceived employability.

b)   Age

Potgieter (2012) states that several researchers found that age and employability were related. It is reported that Clarke and Patrickson (2007) and Rothwell and Arnold (2005) established that age and employability are negatively associated, but that perceived employability hit the highest point at the early-to-mid career period when a worker accrued work experience and achievements. Workers at the beginning (Bezuidenhout et al., 2019) and towards the end of their careers (Potgieter, 2012) discover that they need to become used to rapid transformations in the world of work. At both age stages, workers find it harder to find employment – younger workers due to a stereotypical lack of experience and older workers due to them not keeping up with change (Potgieter, 2012).

c)   Race

Research results about the association between racial influence and employability are inconsistent, as stated by Potgieter (2012) and Rothwell et al. (2009). Researchers such as Potgieter (2012) and Rothwell et al. (2009) observed no differences that were statistically significant, in contrast with researchers such as Bezuidenhout (2019), Oosthuizen et al. (2021) and Qenani et al. (2014), established statistically significant differences between race and employability – or aspects thereof.

d)   Home language

No explicit South African or international research could be found on how home language (and, by implication, cultural groups) influences a worker's employability.

4.1.1.3.2. Career Adaptability

a)   Gender

Research investigating gender's influence on career adaptability is inconclusive and inconsistent. Hlaďo et al. (2019) determined that females scored lower on career

adaptability than males, possibly due to how genders are socialised on how much control they have over their lives. Coetzee and Harry (2015), Harry and Coetzee (2013), Harry (2014) and Peila-Schuster (2017), however, established the opposite in their respective studies. Coetzee et al. (2015), Rottinghaus, and Hirschi, as reported by Chen et al. (2020), could not establish any statistically significant correlation between gender and career adaptability.

b)   Age

From the literature review, most researchers agree that there is a significant statistical link between age and career adaptability. However, there are others, such as Coetzee et al. (2015), Hakiki et al. (2020) and Rossier et al. (2012), who cannot confirm such a link. Ismail et al. (2016) found a positive association between age and career adaptability in addition to the graduateness and self-esteem of students. The strength of the latter variable affects the career adaptability of younger adults. Tladinyane and Van Der Merwe (2015) confirmed a significant difference between younger and older participants, especially in the areas of career concern where being challenged influenced a more optimistic view of younger participants' career future. Zacher (2014) determined that career concern is negatively associated with age. In contrast, career control is positively associated with age, demonstrating an initial confusion about career information as a younger worker and a gradual sense of control developing with maturity and experience.

c)   Race

Many studies, such as Coetzee and Stolz (2015) and Tladinyane and Van Der Merwe (2015), established a significant difference between race, career adaptability, and sub-dimensions. Black participants tended to score higher than white participants. Conversely, Coetzee et al. (2015) and Harry (2014) could not establish a statistically significant link between racial groupings and career adaptability.

d)   Home language

No South African research could be found on how home language (and, by implication, cultural groups) influences a worker's career adaptability. Rossier et al. (2012) concluded from their study about career adaptability that the results from English speakers in the United States were similar to those obtained from a survey of Swiss

French-speaking people. It should be noted that every study assessment was modified for cultural meanings and phrases (Rottinghaus et al., 2017).

4.1.1.3.3. Psychological Capital

a)   Gender

Luthans and Youssef-Morgan (2017) stated that numerous studies found weak associations between gender and psychological capital. Avey et al. (2006), Dirzyte and Patapas (2022) and Du Plessis and Barkhuizen (2012) confirmed no statistical relationships between gender and psychological capital. However, Rawat and Sharma (2018) reported a significant mean score difference between males and females, where the former scored higher on hope and self-efficacy than the latter. Okafor (2014) established a higher score for females than males on psychological capital.

b)   Age

Luthans and Youssef-Morgan (2017) stated that most studies found weak associations between age and psychological capital. Studies such as Luthans et al. (2007), Avey et al. (2006), and Okafor (2014) also determined that age and psychological capital have no association with each other. Dirzyte and Patapas (2022), however, found a relationship between age and the component of resilience.

c)   Race

The studies the researcher consulted all found statistically significant differences between race groups for psychological capital but no consensus on the pattern of these differences. Du Plessis and Barkhuizen (2012) found that white participants scored higher on hope and efficacy, while Okafor (2014) determined that black participants scored higher on resilience.

d)   Home language

One research study by Du Plessis and Barkhuizen (2012) determined a statistically significant difference between South African home languages. Traditionally, black languages scored significantly higher in resilience than Afrikaans speakers.

4.1.1.4. Research aim 4: To formulate recommendations for Industrial Psychology practices and career counsellors for future research based on the literature findings of this research concerning Employability, Career Adaptability, and Psychological Capital.

Due to the changeable nature of work and how organisations reorganise, the research may be of importance to career counsellors, educators, and industrial psychologists, as it may assist them in preparing and aiding current and future workers for career development and 4IR (Rothwell et al., 2009). Self-perceived employability may help to make current and future workers more self-aware and to take ownership of their attitudes, skills, and conduct by fulfilling the workers' psychological needs for autonomy, competence, and relatedness (Baker & Henson, 2010; Coetzee, 2019). Industrial psychologists, HR practitioners, and career counsellors can enhance workers' employability attributes and skills by teaching them the needed skills to remain employable (Potgieter, 2012).

As research was scant, there is a need for more research on the influence of psychological capital on employability in South Africa. Furthermore, research can also aid in how psychological capital can most effectively be employed to enhance the employability of workers. Considering the disruptive nature of 4IR, workers and students alike will experience stress, depression, and anxiety (Broad & Luthans, 2020). They, therefore, will need to be cognitively equipped and have their psychological resources strengthened through self-knowledge to cope with constant adaptation to remain employable (Ngoma & Ntale, 2016). This can be done through creative instruction methods, career counselling facilities, training and management, and career intervention courses/plans (Hamzah et al., 2021).

4.1.1. Conclusion relating to the empirical study

The empirical study aimed to accomplish the following:
- Determine the empirical relationship between employability, career adaptability, and psychological capital as manifested in a sample of non-degreed youth at an educational institution. To test this relationship, research hypotheses H01, Ha1, H02, Ha2, H03, and Ha3 were empirically tested.
- Ascertain whether non-degreed youth at an educational institution from various demographic groups: (a) gender, (b) age, (c) race, and (d) home language demonstrate any significant differences amongst the main and subscales of the employability, career

adaptability, and psychological capital measures. To address this research aim, research hypotheses H04, Ha4, H05, Ha5, H06, and Ha6 were empirically tested.

- Formulate recommendations for industrial psychology practices, career counsellors, and practitioners based on the empirical findings of this research concerning employability, career adaptability, and psychological capital.

The conclusion is that the null hypotheses H01, H02, and H03 are rejected because no statistical support could be found for these hypotheses. Ha1, Ha2, and Ha3 indicated statistical support indicating relationships between employability, career adaptability, and psychological capital. H04, H05, and H06 are similarly rejected and could not be statistically supported. Ha4, Ha5, and Ha6 indicated part to full statistical support for differences between the genders, age groups, racial- and home language groups and the variables of employability, career adaptability, and psychological capital.

4.1.1.1. Research aim 1: To determine if there is a significant positive relationship between Employability and Career Adaptability amongst non-degreed youth at an educational institution.

The research study results supported Ha1: "*There is a significant positive relationship between employability and career adaptability amongst non-degreed youth at an educational institution*". The statistical analysis indicated a strong positive correlation between employability and career adaptability ($r = .702$, $p < .01$). This finding agrees with Coetzee et al. (2015) and Coetzee and Engelbrecht (2019), which determined a similar conclusion.

4.1.1.2. Research aim 2: To determine if there is a significant positive relationship between Employability and Psychological Capital amongst non-degreed youth at an educational institution.

Statistical evidence from this study supports Ha2: "*There is a significant positive relationship between employability and psychological capital amongst non-degreed youth at an educational institution*". The statistical analysis suggested a strong positive association between employability and psychological capital ($r = .631$, $p < .01$). This specific correlation is weaker than the association between employability and career adaptability. This observation also agrees with Rawat and Sharma (2018), who established an association between psychological capital and employability. Calvo and Garcia (2020) demonstrated that psychological capital is required to develop

employability skills such as self-management, teamwork, and self-knowledge. Ngoma and Ntale (2016) found that psychological capital, social capital and career identity, help people to cope with employability challenges.

4.1.1.3. Research aim 3: To determine if there is a significant positive relationship between Career Adaptability and Psychological Capital amongst non-degreed youth at an educational institution.

This study's results supported Ha3: "*There is a significant positive relationship between career adaptability and psychological capital amongst non-degreed youth at an educational institution*". There was a strong positive correlation between career adaptability and psychological capital (r = .626, p < .01). This association is also the weakest of the three correlations among the three main variables. Other studies, such as Coetzee et al. (2017), Mohammed et al. (2019) and Safavi and Bouzari (2019), illustrated an association between career adaptability and psychological capital. From the scientific research literature, Savickas and Porfeli (2012) also noted theoretical associations between career adaptability and psychological capital.

4.1.1.4. Research aim 4: To determine if there is a statistically significant difference between Employability and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.

Results from this study offered evidence that partly supports Ha4: *"There is a statistically significant difference between employability and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution"*. Similar to the studies of Bezuidenhout et al. (2019), Botha (2021) and Rothwell et al. (2009), this study could not ascertain a statistically significant difference between the genders (a) on the employability variable. The statistical analysis, however, partly supports the age (b) hypothesis. There were differences between older and younger groups for the sub-factors of career agility and career self-management potency but not for employability as a variable. The lower scores of the younger sample compared to the older participants are explained by Potgieter (2012) that they may be at the start of their careers and may find it hard to plan a career due to a stereotypical view that they lack practical experience.

The evidence also partly supports the hypothesis for race (c). This finding is broadly consistent with Qenani et al. (2014) and Oosthuizen et al. (2021). These researchers

reported statistically significant differences in the mean scores between racial groups and self-perceived employability attributes. However, the studies mentioned above do not agree on which and how racial groups differ. There is also partial support for the hypothesis based on home language. The results also indicated a significant statistical difference between Sepedi and isiZulu participants on career agility. There was no supporting literature available to substantiate this finding.

4.1.1.5. Research aim 5: To determine if there is a statistically significant difference between Career Adaptability and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.

Some evidence from this study partly supports Ha5: *"There is a statistically significant difference between career adaptability, and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution".* There was only support for the concern factor of adaptability when statistically analysed for the influence of gender (a). For career adaptability as a stand-alone variable, the researcher could not establish any statistically significant difference between males and females. This result resembles the findings of Chen et al. (2020) and Coetzee et al. (2015).

This study could not establish statistically significant differences between age (b) groups for career adaptability. Similarly, Coetzee et al. (2015) and Hakiki et al. (2020) could also not confirm a link between age and career adaptability. Statistical evidence partially supports the hypothesis for racial (c) groups – especially for the confidence factor. There was no explicit supportive research evidence by other researchers to support this finding or a hypothetical link between career adaptability and race. The hypothesis is not supported for home language (d), nor is there any meaningful research in the literature on how home language could influence career adaptability.

4.1.1.6. Research aim 6: To determine if there is a statistically significant difference between Psychological Capital and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution.

The statistical analysis partly supports Ha6: "*There is a statistically significant difference between psychological capital and (a) gender, (b) age, (c) race, and (d) home language amongst non-degreed youth at an educational institution".* The study results do not

support the hypothesis for gender (a), as no gender differences could be determined. This result agrees with the study outcomes of Avey et al. (2006) and Du Plessis and Barkhuizen (2012), who found a similar result. It was also asserted by Luthans and Youssef-Morgan (2017) that various studies established a weak association between gender and psychological capital. Similarly, Avey et al. (2006), Luthans and Youssef-Morgan (2017), and Okafor (2014) indicated a weak relationship between age (b) and psychological capital. However, in contrast, this study established significant differences between age groups and psychological capital, especially in younger and older groups.

The analysis partly supports the hypothesis for race (c). There was a significant statistical difference between racial groups for the resilience sub-scale, similar to that found by Okafor (2014), although the specific groups and direction of the difference could not be replicated. The statistics also part-support home language (d), where there were significant differences between home languages on resilience. This result is similar to that of Du Plessis and Barkhuizen (2012), except that the higher-scoring home language group differed.

4.1.2. Conclusion relating to the central hypothesis

The central hypothesis is as follows: "*A positive relationship exists between employability, career adaptability, and psychological capital amongst non-degreed youth at an educational institution*". The literature and empirical evidence provided support for the central hypothesis. The relationships between employability, career adaptability, and psychological capital are illustrated in Figure 4.1.

Figure 4.1

The relationship between employability, career adaptability, and psychological capital
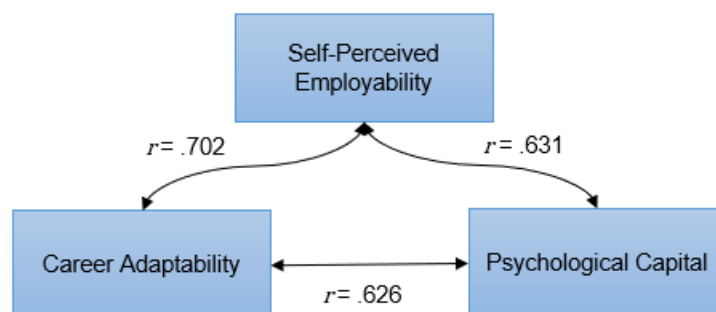
4.1.3. Conclusions relating to contributions to the field of Industrial and Organisational Psychology

Although there was an existing body of knowledge addressing employability, career adaptability, and psychological capital from various points of view, none could be found dealing with how these three variables relate to each other. In addition, little research addressing this relationship combination and demographic influences was available from a South African demographic perspective. As indicated earlier, the definition of what employability entails is not consistent. Therefore, this study related employability from an attribution perspective (Coetzee, 2019) to career adaptability and psychological capital. This study could aid with further definition refinement to match the demands of 4IR and STARA (Oosthuizen, 2022) and how our educational system can be adjusted accordingly to prepare future workers. This study also suggests how youth employability can be improved by developing their psycho-social strengths and career adaptability mindset.

This study also highlights the challenge industrial psychologists face in actively preparing young entry-level workers for 4IR and STARA and assisting them (and existing workers) in acquiring the necessary employability attributes and mindset to adjust their careers when their work environment changes. They are expected to keep up and learn to work with technological change and development, remain psycho-socially resilient to challenges that will threaten their employment prospects, and develop a self-directed, continuous learning mindset allowing their skills and knowledge to remain current (Black et al., 2020; Schreuder & Coetzee, 2016; Oosthuizen, 2022). Assistance can take many forms, such as training, counselling, and talent management and development, to name a few (Oosthuizen, 2022). Part of this assistance is to aid workers in dealing with workplace depression, anxiety, and other challenges (Broad & Luthans, 2020). Industrial psychologists will have to play an active role in finding effective ways to strengthen workers' cognitive and psycho-social resources to effectively deal with obstacles and setbacks in the contemporary world of work. Doing so will allow young entry workers to find work that allows them to work competently, work to confirm their self-worth and develop a sense that they belong to society and are not being left behind (Schreuder & Coetzee, 2016).

Furthermore, psychological capital studies focus predominantly on academic performance and how employees use their psycho-social strengths to cope with employment and setbacks. This study attempted to determine how it relates to employability – specifically, the attributes of employability as positioned by Coetzee (2019). Finally, the study added further insight into

how the different demographic influences within a South African context influence the three primary variables.

4.2. Limitations of the study

Brief overviews of the literature review and empirical study are outlined in the following sections.

4.2.1. Limitations of the literature review

This study researched employability, career adaptability, and psychological capital to determine how they inter-variably relate. There was no explicit research available to compare this study to. As indicated earlier, employability was either vaguely defined or not defined. Various studies dealt with employability, but they dealt with it from different perspectives. Some studies addressed employability as an outcome, and others from a skill and competency perspective.

In some studies, career adaptability and psychological capital were also measured with instruments other than the CAAS and PCQ-24, which may influence the results of the substructures. Consequently, where measurement instruments were involved, each was different as they measured other focus areas of employability. For this study, the researcher decided on measuring attributes, as the approach linked more appropriately with career adaptability and psychological capital attributes.

From a South African perspective, but especially regarding the three primary variables, there is not much research on which to base this study. Most studies are from outside of the country. Therefore, the results are muddied by the influences of culture and macroeconomic impacts, and one must be cautious of a direct comparison to South African results.

4.2.2. Limitations of the empirical study

The study sought to establish how self-perceived employability, career adaptability, and psychological capital are associated with a group of non-degreed youth. The researcher used a cross-sectional study to assess how this relationship occurs at a specific time (Babbie, 2021). Cross-sectional design studies limit how causal inferences can be determined and therefore do not allow a high degree of confidence in analysis (Babbie, 2021; Coetzee & Engelbrecht, 2019; Salkind, 2012). Nonetheless, granted more time, a longitudinal study

would have been better recommended, as it would have allowed the investigation of the changes in association and demographic influence that may occur over time in perceived employability, career adaptability, and psychological capital as technology advances.

The study results cannot be generalised to all local or international populations due to the use of a convenience sample strategy. The demographic sample was concentrated on South African first- and second-year students within one department at a higher educational institution (Neuman, 1997; Salkind, 2012). Finally, the study occurred during the partial lockdown phase of the COVID-19 pandemic in South Africa, which may have impacted the participants' response patterns.

4.3. Recommendations

The following section will present recommendations regarding the studied variables, suggestions for industrial and organisational psychology, and recommendations for future research.

4.3.1. Recommendations regarding Employability, Career Adaptability, and Psychological Capital

Employability, career adaptability, and psychological capital were framed in the context of 4IR and STARA (Oosthuizen, 2022). The 4IR and STARA will force workers from many occupational fields to adapt to technological evolution, resulting in entering and existing workers adopting a career adaptability mindset to remain employable (Coetzee, 2019; Hartung & Cadaret, 2017; Luthans, 2011, Oosthuizen, 2022). To stay employable, workers must adapt to the changing demands of industries and employers by adjusting their skills, knowledge, and behaviours according to what develops and maintains their employability (Maree, 2017). Considering the educational system, higher education (and even secondary education) should focus on instilling an adaptability mindset in future workers. The focus should be on lifelong learning, adopting a protean career, and instilling a basic set of cognitive and emotive competencies to cope with the changes 4IR will throw in their direction (Clarke & Patrickson, 2007; Coetzee & Roythorne-Jacobs, 2012). Instilling these coping skills also applies to professionals such as industrial psychologists and counsellors.

Knowing that 4IR will be disruptive and lead to cognitive-emotional distress and other related challenges, it will be prudent to focus on workers' psycho-social strengths and empower them to lean effectively on the psychological strength "storehouses" they have (Asbari et al., 2021;

Broad & Luthans, 2020). These strengths can be brought to light and strengthened through training, counselling sessions, workshops, and active worker management, to name a few methods. (Oosthuizen, 2022). A theme often raised during the empirical study was resilience and self-confidence. The results suggest that these two elements can form a good starting point in developing young and existing workers cognitively equipped to cope with frequent adjustments to ensure their employability (Broad & Luthans, 2020; Zyberaj et al., 2022). Furthermore, research showed that resilience aids workers in dealing with demanding circumstances by being more persistent (Zyberaj et al., 2022).

4.3.2. Recommendations for Industrial and Organisational Psychology practices

This study endeavoured to establish the relationship between employability, career adaptability, and psychological capital, and to propose recommendations for industrial and organisational psychology practices. As indicated above, 4IR and STARA will disrupt future workers significantly. It will consequently challenge industrial psychologists to stay updated with the latest developments (Oosthuizen, 2022), influencing industries, the labour force, and workers as individuals (Coetzee, 2019). To offer meaningful support, industrial psychologists must adapt to changing work demands by adopting specialised, methodical, social, and personal competencies (Oosthuizen, 2022). Industrial psychologists must offer supportive and developmental interventions to young entry-level, and more experienced workers (Coetzee, 2019). They must also stay abreast of workplace trends such as virtual learning, work-life integration, virtual teams, social justice, diversity equity and inclusion, off-site work, and employee health and wellness (Oosthuizen, 2022).

According to Broad and Luthans (2020), workers are expected to cope with challenges such as frequent workplace changes, stress, depression, anxiety, and so forth. Students and workers can gain from being cognitively equipped and have their psycho-social resources bolstered through interventions to handle the challenges and setbacks that will present themselves. These interventions must assist workers in acquiring the required employability attributes and adjustability mindset to changeable work situations and environments. Industrial psychologists can assist workers with developing resilience, efficacy, agility, and adaptability to effectively address the stressful and challenging nature of a constantly changing work environment. Various methods can develop the above-mentioned psycho-social strengths, such as training programmes, counselling sessions, talent analytics, and talent management and development (Oosthuizen, 2022).

Moreover, industrial psychologists who work inside organisations can also play an active role in aiding new and existing workers to plan careers matching their employability attributes. By anticipating the labour market trends and how various challenges can be addressed, industrial psychologists can help workers prepare themselves to maintain skills relevancy through skills training, further education, and strengthening their psycho-social strengths. They act as career counsellors, as they should understand workers as a whole person to know how to ensure that these workers obtain and sustain career opportunities. Organisations should also be made aware of how they should adopt psycho-social strengths development in their career management and development practices to retain employees who are considered talented. These management and development practices should, amongst other things, focus on the cognitive, affective skills, and social competencies of the employability of their workers. Particular focus should also be placed on the demographic factors that influence employability, career adaptability, and the development of psychological capital.

Industrial psychologists should also become more involved with education and training environments. They should play a more active role in assisting educational institutions in developing and adopting modules that focus on the development and strengthening of students' employability by developing their employability attributes, helping them to adopt an adaptability mindset with appropriate possible steps to enable it, and strengthen the psychological capital of the students so that they have these strengths to rely on during times of stress or setbacks and when they need to take on challenging situations.

4.3.3. Recommendations for future research

This research study made use of a cross-sectional method where the primary variables and their sub-dimensions were tested at a specific time, limiting the possibilities of determining causal inferences (Babbie, 2021; Salkind, 2012). A longitudinal study is recommended to be attempted with the same variables to explore the shifts in perceived employability, career adaptability, and psychological capital, given the influence of technological advancement and the possible causal links (Babbie, 2021; Coetzee & Engelbrecht, 2019; Salkind, 2012).

The research outcomes of this study cannot be directly attributed to all other populations and contexts as a convenience sample strategy was used (Neuman, 1997; Salkind, 2012). The sample was restricted to a South African context, specifically to an undergraduate population at a higher educational institution. Replication studies are recommended in other countries, cultures, and occupational contexts with a broader representation of age, gender, race groups, home language, contexts, and academic levels.

4.4. Integration of the research

The current fast-evolving nature of work was emphasised in this study. The 4IR and STARA strongly influence how work will be done and who will be doing it. This continuous technological change demands that workers stay abreast of technological and information change, as well as the latest skills and behaviours that will ensure that they remain employable and that their skills are in demand. Doing so requires them to adapt and change as the labour environment changes. This need for changes will be pronounced for younger workers (especially disadvantaged youth), as they are at the relative start of the 4IR and will have to develop a mindset of lifelong learning and managing their careers actively. Frequent disruptions to the world of work and the hyper-development of technology can be stressful and anxiety-provoking, and lead to other mental disorders. Research has indicated that workers will, amongst others, benefit from being resilient. This research study demonstrated that employability, the ability to adapt to one's career, and psychological capital are all interrelated variables. One variable is bound to have a notable influence on the other. Apart from being skilled, workers will need cognitive-emotive skills to show up psychologically in the future world of work. It will serve educational institutions, counsellors, and industrial psychologists to actively focus on how workers can be cognitively and emotionally prepared through education and a host of facilitative methods to cope with 4IR and STARA.

4.5. Chapter summary

Chapter Four summarised the conclusions from the literature review and empirical analysis of the research study. The literature review and empirical study's limitations and shortcomings were identified, and their effect on the results was examined. Educational institutions, counsellors, and industrial psychologists were offered recommendations on addressing youth's (and other workers') employability, career adaptability, and psychological capital. This chapter culminated in an integration of the research findings.

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Addendum A: Ethical clearance: CEMS IOP Research Ethics Review Committee

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UNISA CEMS/IOP RESEARCH ETHICS REVIEW COMMITTEE

08 September 2021

Dear Mr Jean van Vuuren,

| NHREC Registration # : (if applicable) |
| ERC Reference # : **2021/CEMS/IOP/030** |
| Name :   Mr Jean van Vuuren |
| Student #: 33918651 |
| Staff #: N/a |

Decision: Ethics approval from 08 September 2021 to 08 September 2024

_____

Researcher(s): Name: Mr Jean van Vuuren
Address: PO Box 1679, Brooklyn Square, 0075
E-mail address, telephone: 33918651@mylife.unisa.ac.za, 0836821498

Supervisor (s): Name: Prof Rudolf Machiel Oosthuizen
Address: Unisa, Muckleneuk Campus, Preller Street, Pretoria, 0003
E-mail address, telephone: oosthrm@unisa.ac.za, 0124298245

The relationship between employability, career adaptability and psychological capital amongst non-degreed youth at an educational institution.

Qualification: Masters (MCom)- Post graduate degree

_____

Thank you for the application for research ethics clearance by the Unisa CEMS/IOP Research Ethics Review Committee for the above-mentioned research. Ethics approval is granted for **Three** years.

The **low risk application** was **reviewed** by the CEMS/IOP Research Ethics Review Committee on the 31st August 2021 in compliance with the Unisa Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment. The decision was approved on 8th September 2021.

The proposed research may only commence with the provision that:

1. The researcher will ensure that the research project adheres to the relevant guidelines set out in the Unisa COVID-19 Position Statement on research ethics dated 26 June 2020 which is attached.

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

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2. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the Unisa Policy on Research Ethics.

3. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the Unisa CEMS/IOP Research Ethics Review Committee.

4. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.

5. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing, accompanied by a progress report.

6. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.

7. No field work activities may continue after the expiry date **(08 September 2024)**

8. Submission of a complete research ethics progress report will constitute an application for the renewal of Ethics Research Committee approval.

Note:

The reference number **2021_CEMS/IOP_030** *should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.*

Yours sincerely,

Signature

Chair of IOP ERC

E-mail : vnieka2@unisa.ac.za

Tel: (012) 429-8231

Signature

Acting Executive Dean : CEMS

E-mail: Mpofurt@unisa.ac.za

Tel: (012) 429-4808

Addendum B: Permission letter: Research Permission Sub-Committee (RPSC) of the UNISA Senate

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RESEARCH PERMISSION SUB-COMMITTEE (RPSC) OF THE SENATE
RESEARCH, INNOVATION, POSTGRADUATE DEGREES AND
COMMERCIALISATION COMMITTEE (SRIPCC)

25 October 2021

Decision: Permission approval 25
October 2021 to 30 April 2022

Ref #: 2021_RPSC_081
Mr Jean van Vuuren
Student #: 33918651
Employee #:

Principal Investigator:

Mr Jean van Vuuren
Department of Industrial; and Organisational Psychology
College of Economic and Management Sciences
33918651@mylife.ac.za; 083 682 1498

Supervisor: Prof Rudolf Machiel Oosthuizen; oosthrm@unisa.ac.za; 082 402 9397

THE RELATIONSHIP BETWEEN EMPLOYABILITY, CAREER ADAPTABILITY AND PSYCHOLOGICAL CAPITAL AMONGST NON-DEGREED YOUTH AT AN EDUCATIONAL INSTITUTION

Your application for permission to involve UNISA employees, students and data regarding the above study has been received and was considered by the Research Permission Subcommittee (RPSC) of the UNISA Senate, Research, Innovation, Postgraduate Degrees and Commercialisation Committee (SRIPCC) on 18 October 2021.

It is my pleasure to inform you that permission has been granted for the study. You may invite all first and second year undergraduate students from the Department of Industrial and Organisation Psychology registered for IOP1501 and IOP 2602 to achieve a sample size of at least 350. You may use ICT as a gatekeeper to send out the online questionnaire.

The researcher needs to adhere to Principle 7 of the Joint Published Statement on Ethical Research and Publishing Practices stating that the conclusions of a research study will not result in the stigmatisation of any racial or gender group.

The personal information made available to the researcher(s)/gatekeeper(s) will only be used for the advancement of this research project as indicated and for the purpose as described in this permission letter. The researcher(s)/gatekeeper(s) must take all appropriate precautionary measures to protect the personal information given to him/her/them in good faith and it must not be passed on to third parties. The dissemination of research instruments through the use of electronic mail should strictly be through blind copying, so as to protect the participants' right of privacy. The researcher hereby indemnifies UNISA from any claim or action arising from or due to the researcher's breach of his/her information protection obligations.

You are requested to submit a report of the study to the Research Permission Subcommittee (RPSC@unisa.ac.za) within 3 months of completion of the study.

Note: *The reference number 2021_RPSC_081 should be clearly indicated on all forms of communication with the intended research participants and the Research Permission Subcommittee.*

Kind regards,

RVisagie

Dr Retha Visagie – Deputy Chairperson
Email: visagrg@unisa.ac.za, Tel: (012) 429-2478

———————————————————————————

Prof Lessing Labuschagne – Chairperson
Email: llabus@unisa.ac.za, Tel: (012) 429-6368

DATA SECURITY AND CONFIDENTIALITY AGREEMENT

Title of Study: The relationship between employability, career adaptability and psychological capital amongst non-degreed youth at an educational institution.

As the primary researcher of the above research project:

I, Jean van Vuuren confirm that I will maintain the highest level of confidentiality and security with regard to all project data that I will have access to.

I understand that participants in the project are provided a guarantee that their data and personal information will be maintained securely and treated confidentially at all times and that the data that they provide as individuals in completing questionnaires will not be disclosed or made available to any person outside of the core research team and its support staff (statistician and transcriber).

Primary Researcher: Jean van Vuuren

Signature   Date: 02 August 2021

Addendum D: Confidentiality agreement: Statistician

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Confidentiality Agreement Template: Statistician/Transcriber

This is to certify that I, Carmen Stindt the statistician of the research project '*The relationship between employability, career adaptability and psychological capital amongst non-degreed youth at an educational institution*' agrees to the responsibilities of the statistical analysis of the data obtained from participants (and additional tasks the researcher(s) may require in my capacity as statistician/transcriber).

I acknowledge that the research project is/are conducted by:

Name of researcher: Jean van Vuuren (UNISA)
Institution: University of South Africa
College: College of Economic and Management Sciences

I understand that any information (written, verbal or any other form) obtained during the performance of my duties must remain confidential and in line with the UNISA Policy on Research Ethics.

This includes all information about participants, their employees/their employers/their organisation, as well as any other information.

I undertake to comply with the provisions of the POPI Act (2013), as well as all applicable legislation as amended or substituted from time to time. This include treating all Personal Information strictly as defined within the parameters of POPI, and to process Personal Information only in accordance with the consent it was obtained for and for the purpose agreed to.

I agree to:

i. Keep all the research information shared with me confidential by not discussing or sharing the research information in any form or format with anyone other than the researcher(s).

ii. Keep all research information in any form or format (e.g., documents, tapes, transcripts) secure while it is in my possession.

iii. Return all research information in any form or format to the researcher(s) when I have completed the research tasks.

iv. After consulting with the researcher(s), erase or destroy all research information in any form or format regarding this research project that is not returnable to the researcher(s) (e.g., information stored on computer hard drive).

I understand that any unauthorised release or carelessness in the handling of this confidential information is considered a breach of the duty to maintain confidentiality.

I further understand that any breach of the duty to maintain confidentiality could be grounds for immediate dismissal and/or possible liability in any legal action arising from such breach.

Full name of statistician: Carmen Stindt

Signature of statistician:

Date: 9/03/2021

Address of statistician: 56 Prospect Road, Walmer, Port Elizabeth, 6070

Statistical Company: EverSci (Pty) Ltd

Any Job/reference number: JvV01

Signature of Primary Researcher

Full Name of Primary Researcher: Jean van Vuuren

Date: Thursday, 04 March 2021

Addendum E: Certificate of language editing

Chanel Serfontein

📞 081 015 8813
✉ Chanel@pageturner.co.za

www.pageturner.co.za

17 November 2022

To whom it may concern

This is to certify that I, Chanel Serfontein, have edited the dissertation submitted for the degree of Master of Commerce in the subject Industrial and Organisational Psychology at the University of South Africa titled "The Relationship Between Employability, Career Adaptability, and Psychological Capital Amongst Non-Degreed Youth at an Educational Institution" by Jean van Vuuren.

The onus is, however, on the author to make the changes and address the comments.

Warm regards,

Chanel Serfontein

Page Turner

chanel@pageturner.co.za