

Investigating the psychometric properties of the Short-Form Career Adapt-Ability Scale (CAAS-SF) in a selected sample of South African employees

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Mini-dissertation accepted in partial fulfilment of the requirements for the degree [Master of Commerce](#) in [Industrial and Organisational Psychology](#) at the North-West University

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Graduation: June 2022

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COMMENTS

The reader is reminded of the following:

- The editorial style of this manuscript follows the guidelines of the South African Journal of Industrial Psychology (SAJIP).
- The referencing style in this mini-dissertation follows the Publication Manual (7th edition) format of the American Psychological Association (APA).
- These practices align with the Programme's policy in Industrial Psychology of the North-West University (Potchefstroom) to use the APA style of referencing in all scientific documents as of January 1999.
- The mini-dissertation is submitted in the form of a research article.
- Chapter 1 is the revised research proposal and may be presented in a different tense.
- Each chapter contains its reference list.
- Chapter 2 will be submitted for publication in the South African Journal of Industrial Psychology.

ACKNOWLEDGEMENTS

I wish to thank the following people for their assistance in the research project. Without these individuals, the study would not have been possible:

- I want to thank my Heavenly Father, who has given me great strength, ability, and determination to undertake and complete this project.
- Dr Bouwer Jonker, the most excellent supervisor in the world. Thank you for all the effort and support provided for the research. Thank you that you were always willing to assist me in any way needed. I would not have been able to complete this research project successfully without your assistance.
- To my co-supervisor, Prof Leon de Beer, thank you for your assistance, support and care shown throughout the duration of this study. I genuinely appreciate the effort in assisting me as best possible.
- To my parents, sister, and Henk, thank you for the love, support, and motivation you have provided me during this entire process, especially during the lockdown. You are true examples of strength and encouragement. I value all your kind and inspiring words; they contributed to the success of my study.
- Thank you to all my friends for supporting me, ready to lend me an ear or a hand when I needed one. Thank you for supporting me during the good and the bad. I am honoured to call you my friends.
- Last but not least, thank you to Monica Botha for the proficient and timely manner in which the language editing was done.

DECLARATION OF OWN WORK

I, **Ischke van der Bergh**, hereby confirm that this mini-dissertation/dissertation/thesis with the registered title “*Investigating the psychometric properties of the Short-Form Career Adapt-Ability Scale (CAAS-SF) in a sample of South African employees*” is my own work.

I further declare that:

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Ethics Committee (EMS-REC)

30 October 2020

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Per e-mail

Dear Dr BE Jonker / Prof L de Beer,

EMS-REC FEEDBACK: 30102020

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Applicant: Dr BE Jonker / Prof L de Beer – MCom in Industrial Psychology

Your ethics application on, *Investigating the psychometric properties of the Short-Form Career Adaptability Scale (CAAS-SF) in a sample of South African employees*, which served on the EMS-REC meeting of 30 October 2020, refers.

Outcome:

Approved as a minimal risk study. A number **NWU-00902-20-A4** is given for one year of ethics clearance.

Due to the Covid-19 lock down ethics clearance for applications that involve data collection or any form of contact with participants are subject to the restrictions imposed by the South African government.

Kind regards,

Prof Mark Rathbone

Chairperson: Economic and Management Sciences Research Ethics Committee (EMS-REC)

DECLARATION OF LANGUAGE EDITING



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TO WHOM IT MAY CONCERN

This serves to confirm that I have edited and proofread the dissertation entitled

**Investigating the psychometric properties of the Short-Form Career Adapt-
Ability Scale (CAAS-SF) in a selected sample of South African employees**

prepared by Ms Ischke van der Bergh in accordance with the requirements for the degree of Master of Commerce in Industrial and Organisational Psychology at the North-West University, according to the specifications of the University, where available, and the latest standards for language editing and technical (computer-based) layout.

Editing was restricted to language usage and spelling, consistency, formatting and the style of referencing. No structural writing of any content was undertaken.

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All references have been provided in the prescribed format.

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SUMMARY

Title: Investigating the psychometric properties of the Short-Form Career Adapt-Ability Scale (CAAS-SF) in a sample of South African employees.

Keywords: Career adaptability, reliability, self-perceived employability, turnover intention, validity, work engagement.

With the current unpredictable and boundary-less working environments, it has become imperative for employees to develop the ability to adapt to these ever-changing environments. Career adaptability skills are essential for employees to master any career unpredictability and changes in their working environments. Career adaptability provides employees with a readiness to cope with predictable tasks, prepare and participate in roles, and unpredictable modifications in working conditions. Global changes impact on the South African working environments; therefore, organisations and employees need to adjust and adapt to these changes readily. Furthermore, the investigation of the CAAS-SF plays a vital role as it can aid and guide the development of interventions, employees, and organisations within South Africa to adjust and overcome any changes or uncertainties. Career adaptability is a phenomenon that has become essential for employees, managers, and industrial psychology practitioners, currently receiving little attention in the South African context. The Career Adaptability Scale (CAAS) was validated among Grade 9 and Grade 11 learners, showing excellent reliability and construct validity. However, with fast-paced, dynamic environments, there is a need for assessments with the minimum number of items, reduced administration times and a lower burden on employees. Therefore, the research study aimed at investigating the CAAS-SF within a sample of South African employees to provide a reliable and applicable measure.

The general objective of this research was to investigate the psychometric properties of the CAAS-SF in a sample of South African employees. Specifically, the research aimed to investigate the factor structure, convergent validity, discriminant validity, and predictive validity. As it is required of a measure to be reliable to be valid, the reliability of the CAAS-SF was explored. Furthermore, it aimed to determine the relationships between career adaptability, work engagement, self-perceived *employability*, and turnover intention. In terms of the research approach, a quantitative and cross-sectional survey design was utilised. Participants ($n = 277$) were selected based on their availability and willingness to participate

in the study. Data was collected through purposive sampling, and the criteria of inclusion were employed participants 18 years or older and proficient in Grade 10 Second Language English. To confirm the proposed four-factor structure, confirmatory factor analysis was employed to explore the most appropriate factor structure, given the fit of the data of the models. It was found that the second-order model was the pragmatic solution in this study due to the second-order factors being indicated by the first-order factor.

Furthermore, Cronbach's alpha coefficient values were calculated for the constructs to establish the scale's reliability. Convergent validity was determined between career adaptability and other similar constructs. Furthermore, discriminant validity was established in terms of constructs from which it is supposed to differ. Finally, a structural model determined predictive validity by considering significant regression relationships between career adaptability and career-related outcomes such as work engagement, self-perceived employability, and turnover intention.

Career adaptability was confirmed as a second-order model structure within the South African context and provided acceptable reliability, internal consistency coefficients. Acceptable convergent and discriminant validity was determined. Furthermore, the investigation into predictive validity indicated significant positive relationships between career adaptability and career-related outcomes, work engagement, self-perceived employability, and turnover intention. It was also found that work engagement plays a positive mediating role in the relationship between career adaptability and self-perceived employability and the relationship between career adaptability and turnover intention.

Recommendations for future considerations were made accordingly, with the practice in mind. Furthermore, the limitations of this current research study were discussed.

OPSOMMING

Titel: Onderzoek die psigometrie eenskappe van die kortvormige loopbaan aanpassingsvermoë (CAAS-SF) in 'n steekproef van Suid-Afrikaanse werknemers.

Sleutelwoorde: Betroubaarheid, geldigheid, loopbaanaanpasbaarheid, omsetintensiteit, selfwaarnemende indiensneembaarheid, werksbetrokkenheid.

Met die huidige onvoorspelbare en grenslose werksomgewings het dit noodsaaklik geword dat werknemers die vermoë ontwikkel om aan te pas by immer-veranderende omgewings. Beroepsaanpassingsvermoë is noodsaaklik vir werknemers om enige loopbaanonvoorspelbaarheid en veranderinge in hul werksomgewings te bemeester. Beroepsaanpassingsvermoë bied werknemers die gereedheid om voorspelbare take, die voorbereiding en deelname aan rolle, en onvoorspelbare veranderinge in werksomstandighede die hoof te bied. Globale veranderings beïnvloed die Suid-Afrikaanse werksomgewings; dus moet organisasies en werknemers spoedig by hierdie veranderings kan aanpas. Verder speel die meting van die CAAS-SF 'n belangrike rol omdat dit die ontwikkeling van intervensies, werknemers en organisasies binne Suid-Afrika kan help en lei om by enige veranderings of onsekerhede aan te pas en dit te oorkom. Beroepsaanpassingsvermoë is 'n verskynsel wat noodsaaklik geword het vir werknemers, bestuurders en bedryfsielkundiges, wat tot dusver min aandag in die Suid-Afrikaanse konteks ontvang het. Die loopbaanaanpassingsvermoë skaal (CAAS) is gevalideer onder Graad 9- en Graad 11-leerders, en het uitstekende betroubaarheid en konstruktiviteit getoon. Met dinamiese omgewings is daar egter 'n behoefte aan assesserings met die minimum aantal artikels, verminderde administrasietye en wat 'n laer las op werknemers plaas. Daarom is die navorsingstudie daarop gemik om die CAAS-SF binne 'n steekproef van Suid-Afrikaanse werknemers te ondersoek, om 'n betroubare en toepaslike maatstaf vir die konteks te bied.

Die algemene doel van hierdie navorsing was om die psigometrie eenskappe van die CAAS-SF in 'n steekproef van Suid-Afrikaanse werknemers te ondersoek. Dit was spesifiek daarop gemik om die faktorstruktuur, konvergente geldigheid, diskriminante geldigheid en voorspellingsgeldigheid te ondersoek. Aangesien dit van 'n maatstaf vereis word om betroubaar te wees, is die betroubaarheid van die CAAS-SF ondersoek. Verder was dit daarop gemik om die verband tussen loopbaanaanpassingsvermoë, werksbetrokkenheid, self-waargenome

indiensbaarheid en omsetintensiteit te bepaal. In terme van die navorsingsbenadering is 'n kwantitatiewe en deursnee-opname-ontwerp gebruik. Data is versamel deur middel van doelgerigte steekproefneming, en die kriteria vir insluiting was werkende deelnemers, 18 jaar of ouer en vaardig in Graad 10 Tweede Taal Engels. Deelnemers ($n = 277$) is ingesluit op grond van hul beskikbaarheid en bereidwilligheid om aan die studie deel te neem. Data is versamel deur doelgerigte steekproefneming, en die kriteria vir insluiting was deelnemers, 18 jaar of ouer, wat vaardig was in graad 10 Tweede Taal Engels. Om die voorgestelde vierfaktorstruktuur te bevestig, is bevestigende faktoranalise gebruik om die geskikste faktorstruktuur vir die skaal te bepaal, gegewe die gepasheid van die data van die modelle. Daar is gevind dat die tweede-orde model die pragmatiese oplossing in hierdie studie is, omdat die faktore van die tweede orde aangedui word deur die eerste-orde faktor. Om die betroubaarheid van die skaal vas te stel, is die Cronbach se alfa-koëffisiëntwaardes vir die konstrunkte bereken. Konvergente geldigheid is bepaal tussen loopbaanaanpasbaarheid en ander konstrunkte wat soortgelyk is. Verder is diskriminant geldigheid vasgestel in terme van konstrunkte waarvan dit veronderstel is om te verskil. Laastens is die voorspellingsgeldigheid bepaal deur beduidende regressieverhoudings tussen loopbaanaanpasbaarheid en loopbaanverwante uitkomst, soos werksbetrokkenheid, self-waargenome indiensbaarheid en omsetintensiteit in 'n strukturele model te oorweeg.

Loopbaanaanpasbaarheid is bevestig as 'n tweede-orde modelstruktuur binne die Suid - Afrikaanse konteks en bied aanvaarbare betroubaarheid, interne konsekwentheid, koëffisiënte. Aanvaarbare konvergente en diskriminant geldigheid is ook vasgestel. Die ondersoek na voorspellingsgeldigheid dui verder op beduidende positiewe verhoudings tussen loopbaanaanpasbaarheid en die loopbaanverwante uitkomst, werksbetrokkenheid, self-waargenome indiensbaarheid en omsetintensiteit. Daar is ook gevind dat werksbetrokkenheid 'n positiewe bemiddelende rol speel in die verhouding tussen loopbaanaanpassingsvermoë en self-waargenome indiensneembaarheid, sowel as in die verhouding tussen loopbaanaanpasbaarheid en omsetintensiteit.

Aanbevelings vir toekomstige oorwegings is dienooreenkomstig gemaak, met die praktyk in gedagte. Verder is beperkings van hierdie huidige navorsing bespreek.

CHAPTER 1

INTRODUCTION

1.1 Introduction

It has become crucial for employees to adapt to ever-changing environments (Cammarosano et al., 2019). Employees have to become life-long learners and continuously develop to obtain adaptation abilities. Career adaptability skills can aid employees and organisations to adjust and overcome constantly changing environments with ease (Chersich & Wright, 2019). Career adaptability skills can guide employees in making better career transitions, viable career choices, and adaptation skills, which will lead to them having more success in their careers (Zacher, 2014). Career adaptability skills can aid employees in their careers to make informed decisions and changes, explore alternatives, improved job fit choices and developing the self (Savickas, 1997). The construct career adaptability has not received much attention in the South African context; therefore a need exists for measuring instruments focussing on career adaptability and development (Maree, 2012). However, with fast-paced, ever-changing environments, organisations seek and prefer tools with the minimum number of items, less time-consuming and not burdening their employees much (Maggiori et al., 2017). Within the current COVID-19 pandemic, measurements with fewer questions and shorter administration times are valuable, as employees work non-stop, late nights, and faster (Cuker, 2017). Employees therefore have less time for relaxation and other activities, where a shorter instrument might be more favourable. The CAAS-SF, a valid alternative for the CAAS, was developed to better integrate within surveys and in diverse settings.

Career adaptability skills can therefore be beneficial for employees and organisations. Career adaptability can act as a psychosocial resource for employees, which could lead to positive organisational outcomes such as increased work engagement, self-perceived employability and decreased turnover intention. These career-related outcomes have not been studied collectively in the South African context, and the associations between them might be unclear. Furthermore, career adaptability, and the CAAS-SF have not received much attention in the South African context. This study therefore aimed to validate the CAAS-SF for a sample of South African employees, as it was yet to be validated, addressing the research gap.

1.2 Problem Statement

Within the current unpredictable and boundary-less working environment, it is becoming imperative for employees to be able to adapt to ever-changing situations (Cammarosano et al.,

2019). Nowadays, to stay updated with changes in technology and environments, employees have to become lifelong learners, undergo constant training and development, and obtain the ability to adapt to working environments (Maree, 2012). According to Maggiori et al. (2017), regulation abilities and adaptability resources, such as career adaptability, are essential skills to master career unpredictability and changes. Savickas (1997, p. 254) defines *career adaptability* as "the readiness to cope with the predictable tasks of preparing for and participating in the work role and with the unpredictable adjustments prompted by changes in work and working conditions". A career educational goal is to increase individuals' career adaptability resources and career adaptabilities, which can be measured through the CAAS-SF (Savickas & Porfeli, 2012). Career adaptability has not received much attention in the South African context, and there is a need for career-related assessments (Maree, 2012). Global changes impact significantly on South Africa, and employees and organisations have to adjust to these changes continuously (Chersich & Wright, 2019). We live in unpredictable times, and the impact of the COVID-19 pandemic will affect South Africa's economy and organisations significantly (Truter, 2020). Employees with useful adaptation abilities overcome change and uncertainties with greater ease (Chersich & Wright, 2019). The measurement of career adaptability with the CAAS-SF instrument is an important part as it can aid in the development of interventions and guide employees and organisations, within South Africa, to overcome changes and uncertainties.

Career adaptability can guide employees in acquiring skills of adaptation, making better career transitions and viable career choices, leading to them being more successful in their professions (Zacher, 2014). Career adaptability provides meaning on how individuals build their unique careers and relate to career adaptability (Savickas, 2005). Therefore, adaptation may indicate learning or understanding swiftly; it may also refer to someone changing or developing to become more congruent within their environment. It implies being flexible in response to a setting; being capable of adjusting to different conditions. In addition, it highlights the ongoing interplay between individuals and their environments (Savickas, 1997).

Savickas' model on career adaptability formed the foundation of this study. This model replaces career maturity with career adaptability (Savickas, 1997). Adapting is a fundamental construct in the career development for employees. The term adaptability also agrees more with growth and adapting to the rapid technological changes in work-environments, rather than with career maturity (Savickas, 1997). Additionally, Savickas' model shifts attention to employees'

readiness to cope with career uncertainties, choices, transitions, and adaptation. The Career Adapt-Ability Scale (CAAS) is based on Savickas' model of career adaptability. Career adaptability, and the CAAS, can aid individuals to make informed career choices and changes, exploring alternatives, as well as making decisions that can improve job fit and develop the self (Savickas, 1997). The CAAS focusses on four psychosocial resources of individuals for enduring professional transitions, improvement activities and occupational traumas (Cammarosano et al., 2019; Maree, 2012; Zacher, 2014). The CAAS-SF, the structure and four dimensions indicated acceptable coefficients, and it seemed to have a good fit with the data. This suggests that the different items in the measure focussed on the dimensions (three items for each dimension) and that the factors constituted career adaptability. The four psychosocial resources are i) concern, ii) control, iii) curiosity, and iv) confidence (Cammarosano et al., 2019; Maggiori et al., 2017; Maree, 2012; Savickas, 1997; Savickas & Porfeli, 2012; Zacher, 2014). *Concern* refers to the degree to which an individual is conscious of and prepares for the future of their career. It motivates the individual to plan, predict and prepare for various professional situations (Cammarosano et al., 2019). *Control* reflects personal responsibility for planning and constructing one's career. It entails using self-discipline, effort, and persistence to exercise control over a situation and one's professional future (Savickas & Porfeli, 2012). *Curiosity* refers to the exploration, discovering and learning about alternative career opportunities. Individuals interact with the labour market, shape possible selves, and think about the self in different situations and career roles (Zacher, 2014). *Confidence* reflects what individuals feel capable of achieving even when there are challenges in achieving goals. Furthermore, confidence refers to perceived self-efficacy in solving problems, accomplishing goals, and overcoming obstacles in the working environment (Maggiori et al., 2017). Savickas (1997) states that the stability of the CAAS, and its four dimensions, should be investigated carefully in the modern world of work; this can contribute to the validity and practical usefulness of the measure. The investigation should be completed in different linguistic regions, career paths, and various constructs (Maggiori et al., 2017).

A research study conducted regarding the construction of the CAAS determined the reliability and measurement equivalence across 13 different countries (Savickas & Porfeli, 2012). It was proven to be psychometrically sound across countries and cultures. According to the research, a study conducted by McIlveen et al. (2018) included three different social occupations: mothers (which should be valued as any other occupation according to the research), retail workers, and teachers enrolled in a bachelor of education degree. The CAAS can be used across

different work environments; the CAAS can apply to professionals, lower-level and unpaid employees (McIlveen et al., 2018). The research indicates that the CAAS can be utilised in distinct professions, large work environments, and various personnel profiles. Research conducted by Zacher (2014) in Australia shows that career adaptability predicted occupational success even better than personality characteristics. Zacher (2014) also states that professional concern and confidence, two of the CAAS dimensions, could predict occupational success and that self-rated performance and satisfaction are indicators of professional achievement. The findings indicate that the CAAS could predict career success. The findings of Zacher (2014) further support the incremental validity of the CAAS. Cammarosano et al. (2019) conducted a study in Brazil with participants in possession of higher education degrees and found that the psychometric properties of the CAAS were appropriate across diverse cultures. The research focussed on gender differences and concluded that no significant differences between genders were found. A study conducted in Finland to aid student-athletes in career readiness and overcoming adaptation barriers indicated good concurrent validity (Ryba et al., 2017).

Within the diverse South African context, Maree (2012) validates the CAAS among a sample of Grade 9 and Grade 11 learners. The CAAS showed excellent reliability and construct validity within that study. Reliability can be seen as essential to sound assessment practice since it refers to a measurement or test scores being free from errors (Foxcroft & Roodt, 2013; Moss, 1994). Reliability indicates that a measurement is trustworthy, accurate or that it measures consistently. Validity is concerned with what the measure aims to measure and how well it measures the specific construct (Foxcroft & Roodt, 2013). A study by Coetzee and Stoltz (2015) in South Africa focussed on the role of career adaptability in employee fulfilment and retention factors. In their study they used the CAAS, and it included employees in the automotive industry. Maree (2012) states that there is a need in South Africa for measuring instruments that can be applied to aid individuals in career development and choices. According to Form 207, list of classified tests, of the Health Professions Council of South Africa (HPCSA) (2020), there are a few career development and interest instruments such as the Career Development Questionnaire, Occupational Interest and Personality Profiler, SAVII and Occupational Personality Questionnaire. Other assessments reliable and valid in the South African context include the CAAS (Maree, 2012) and Career Agility scale (Coetzee et al., 2020). There is still a need for a career adaptability scale with a minimum number of items for the changing and dynamic working environment, which will become more critical after COVID-19.

It is also vital to utilise measuring instruments with fewer items in active working environments (Maggiori et al., 2017). Active working environments are those where employees are expected to work non-stop, late nights, at a fast pace, putting in more hours at work with fewer pauses for relaxation activities (Cuker, 2017). In active working environments, it has become vital to develop and validate scales with the minimum number of items, which can also reduce the administration time and lessen the burden on participants. Consequently, Maggiori et al. (2017) created the Career Adapt-Ability Scale - Short Form (CAAS-SF). A 12-item version of the CAAS, the CAAS-SF, was developed. The CAAS-SF was developed to improve the integration thereof into more significant surveys and diverse settings, as it has become vital to make use of assessments with the minimum number of items (Maggiori et al., 2017). The CAAS-SF was validated in a sample of French and German participants. Maggiori et al. (2017) found that CAAS-SF is a valid alternative to the CAAS. Isik et al. (2018) conducted a study focussing on the CAAS-SF in a Turkish context. The participants were diverse; secondary school learners, undergraduates, and employed adults. The study concentrated on age and gender differences, which, once again, showed that the CAAS-SF could be utilised in diverse work environments (Isik et al., 2018). Yu, Dai, Guan, and Wang (2019) researched three different samples (students, civil employees, and public and private sector employees) and found it consistent with the findings of Maggiori et al. (2017). The validity evidence applies to professionals, general workers, and students. However, items showed lower reliability among students; this might be due to unstable career expectations (Yu et al., 2019). The CAAS-SF has received much attention but little in the South African context (Coetzee & Stoltz, 2015; Coetzee et al., 2020; Maree, 2012). It will be beneficial to validate the CAAS-SF as it is less time-consuming (Maggiori et al., 2017) and can be applied in different contexts, especially in the active working environment of South Africa. Therefore, a gap exists within the South African context for the validation of the CAAS-SF.

The career construction theory can be used as a framework to argue that career adaptability associates with positive organisational outcomes. Sixteen propositions are advanced in the career construction theory, but the three most pertinent to this study are outlined in Savickas (2002, 2013) as follows:

1. Occupational success depends on the degree to which individuals regard their work roles as acceptable channels for their dominant vocational characteristics.
2. The extent to which individuals achieve satisfaction from work is proportionate to the degree to which they can implement their vocational self-concepts.

3. Career adaptability is a psychosocial construct that describes an individual's readiness and resources to cope with current and predicted career development tasks, transitions, and traumas. The adaptive fitness of career construction (attitudes, beliefs, and competencies) increases alongside the development of concern, control, conception, and confidence.

The current study aimed to use the career construction theory to link the variables under investigation. Therefore, it was hypothesised that career adaptability acts as a psychosocial resource in a sample of South African employees, resulting in further positive organisational outcomes, such as work engagement and self-perceived employability. The aforementioned psychological resource, initiated through concern, control, curiosity, and confidence, can lead to increased work engagement, self-perceived employability and decreased turnover intention.

Research shows meaningful relationships between career adaptability and career-related outcomes (Coetzee & Stoltz, 2015). The work-related factors that this research focussed on were work engagement, self-perceived employability, and turnover intention. These three constructs are conceptually related to the willingness to cope with the predictable and unpredictable adjustments necessitated by changes in the work and working conditions. *Work engagement* is a positive state related to work-related well-being; engaged employees are more energetic and are more involved in their work (Bakker & Leiter, 2010). *Self-perceived employability* refers to the skills that individuals have as well as other attributes that can aid them to find work and stay employed; it is their perception of being capable of being employed (Rothwell & Arnold, 2007). *Turnover intention* is employees' behavioural attitude to leave the organisation (Aydogdu & Asikgil, 2011); it is employees' intention to leave the organisation (Ali, 2008).

Although the career-related outcomes have not received much attention in the South African context, it has been studied previously. Discussions regarding previous research on the career-related outcomes were explained as follows: Work engagement, self-perceived employability, and turnover intention. Firstly, researching the relationship between career adaptability and work engagement, Paradnike and Bandzeviciene (2016) found that adaptability sources were associated with student engagement which could be equated to work engagement. Therefore, individuals with higher levels of career adaptability have more confidence and are more dedicated to their work. Rossier et al. (2012) also found that career adaptability strongly relates

to employees' work engagement. Nilforooshan and Salimi (2016) conducted research to determine whether career adaptability is a mediator between personality and career engagement. The research indicated that the career adaptability dimensions relate positively to career engagement. Supporting this, Yang et al. (2019) found that career adaptability plays a significant role in predicting employee work engagement in the Chinese context.

Secondly, research indicates meaningful relationships between career adaptability and self-perceived employability. A study by Rudolph et al. (2017) indicated that career adaptability was positively associated with self-perceived employability. Supporting the findings, Spurk et al. (2020) also found a positive relationship between career adaptability and the career-related outcome, namely employability. This suggests that employees with higher career adaptability levels might show higher levels of self-perceived employability (Udayar et al., 2018). The employees with higher career adaptability might perceive themselves to have the ability to obtain sustainable employment.

Lastly, career adaptability is significantly associated with adaptation results such as turnover intention (Rudolph et al., 2017), meaning that the sense of high levels of adaptability leads to lower levels of turnover intention. The research found that higher career adaptability was negatively associated with turnover intentions (Rudolph et al., 2017). The negative correlation suggests that higher career adaptability is associated with employees having lower intentions of leaving the organisation (Chan & Mai, 2015). Therefore, career adaptability could function as a resilience source for employees and may reduce individuals' plans to leave organisations, especially for those constructing their careers (Coetzee & Stoltz, 2015). In addition, a deeper understanding of career adaptability could assist in finding ways to aid employees in complex career paths (Chan & Mai, 2015). Conversely, it was found that, during downsizing, employees who have higher career adaptability and exploration tend to show lower loyalty and higher intentions of exiting the organisation (Klehe et al., 2011). Therefore, the direction of the relationship between career adaptability and turnover intentions might still be unclear.

Research conducted in Hong Kong investigated the relationship between self-perceived employability and work engagement (Ngo et al., 2017). The study found that self-perceived employability is positively related to work engagement (Ngo et al., 2017). This positive relationship indicates that as the levels of work engagement increase, self-perceived employability also increases. Because career adaptability leads to work engagement and work

engagement leads to self-perceived employability, work engagement can play a mediating role between career adaptability and self-perceived employability. This means that employees with high levels of career adaptability will have higher levels of work engagement (Nilforooshan & Salimi, 2016; Paradnike & Bandzeviciene, 2016; Rossier et al., 2012), and this relationship will positively impact on self-perceived employability (Ngo et al., 2017).

A study conducted by Memon et al. (2016) focussed on the relationship between satisfaction, work engagement and turnover intention. The study found that work engagement is negatively related to turnover intention (Memon et al., 2016). This indicates that higher levels of work engagement lead to lower levels of turnover intention. Moreover, a study conducted in South Africa found that employees with high levels of work engagement had significantly lower turnover intentions (Takawira et al., 2014). This might indicate that there is a negative relationship between work engagement and turnover intention. Work engagement can also play a mediating role between career adaptability and turnover intention. High levels of career adaptability (Chan & Mai, 2015; Coetzee & Stoltz, 2015; Rudolph et al., 2017) lead to higher work engagement (Memon et al., 2016; Takawira et al., 2014), which leads to lower turnover intentions.

When considering these career-related outcomes, the expectation is that higher levels of career adaptability will increase levels of work engagement and self-perceived employability, but lower levels of turnover intentions. These constructs have not been studied collectively within the South African context. This study measured the associations between career adaptability and these career-related outcomes, in the South African context.

The research aimed to validate the CAAS-SF for a sample of South African employees. The study focussed on the short form as it was yet to be validated in the South African context. In the Republic of South Africa (RSA), (1998) the Employment Equity Act, 55 of 1998, also plays a vital role in using psychometric assessments on employees. Validation is necessary as the Employment Equity Act states that psychological testing on employees will only be allowed if the measurement is scientifically valid and reliable, can be applied fairly to all employees, and does not discriminate against any group or individual (unbiased). Psychometric assessments which are valid and reliable measure what they aim to measure and measure the construct consistent over time and between researchers. In this research study, the researcher aimed to validate the CAAS-SF that career adaptability can be accurately measured during different time

intervals across South African studies by other researchers. Although ample research has been done on each construct individually, it is unclear what the relationship of the mentioned constructs are collectively in a South African sample. Work ethics, values and beliefs of South African employees may differ from those of other countries (Foxcroft & Roodt, 2009), which could lead to differential outcomes due to context, i.e. ethics, values, and beliefs. Therefore, this research aimed to determine construct, discriminant, convergent and criterion validity, and the reliability of the CAAS-SF in the South African context. It also aimed to determine the relationships between career adaptability and career-related outcomes.

1.3 Expected contribution of the study

In the current study, contributions were made towards the organisation and Industrial Psychology literature.

1.3.1 Contribution to the organisation

Career adaptability has been shown to have significant relationships with various career-related outcomes (Rudolph et al., 2017). There is minimal research regarding the relationship between career adaptability and work engagement, self-perceived employability, and turnover intention in the South African context. Career adaptability is a competency that enables employees to solve complex problems and overcome difficulties and changes in their careers (Rudolph et al., 2017). By focussing on career adaptability, organisations can achieve new perspectives, especially regarding interventions that could lead to numerous benefits. These benefits include lower turnover intentions (Chan & Mai, 2015; Rudolph et al., 2017), higher work engagement (Rossier et al., 2012), self-perceived employability (Udayar et al., 2018), satisfaction, lower levels of work stress (Rudolph et al., 2017), higher performance levels and ultimately career success (Ohme & Zacher, 2015). Individuals with higher career adaptability will, in the end, perform better, as well as overcome unexpected changes and difficulties. Each employee's performance contributes to the organisation's overall performance and success. Therefore, when focussing on career adaptability and achieving these benefits, the organisation might experience better overall functioning.

1.3.2 Contribution towards Industrial Psychology literature

The CAAS-SF is a relatively new version of the CAAS developed by Maggiori et al. (2017). The CAAS-SF was developed to reduce administration time, overcome a lack of motivation, and facilitate using it in more extensive surveys. Career adaptability has positive effects on the employees and the organisation. Maggiori et al. (2017) suggest that it is essential to test the measurement in further research to assess the stability and invariance, especially in different countries and with different variables. Therefore, by placing focus on validating the CAAS-SF within the South African context, it would provide other researchers with a psychometrically sound instrument with which to conduct further research. This research facilitated the field of Industrial and Organisational Psychology to address the gap relating to career adaptability in the organisational context, i.e. among employees. This research focussed on the associations of adaptability with work engagement, self-perceived employability, and turnover intention.

1.4 Research objectives

1.4.1 General objective

The general objective of this research was to investigate the psychometric properties of the CAAS-SF in a sample of South African employees.

1.4.2 Specific objectives

- To determine how career adaptability, work engagement, self-perceived employability and turnover intention are conceptualised according to scientific, peer-reviewed literature.
- To determine if the CAAS-SF is reliable and valid in South Africa. More specifically, to establish the following:
 - Acceptable Cronbach's alpha and composite reliability coefficients.
 - Factorial validity.
 - Convergent validity.
 - Discriminant validity.
 - Criterion validity, i.e. the relationships between career adaptability, work engagement, self-perceived employability, and turnover intention.
- To provide recommendations for future research and practice.

1.5 Research hypotheses

The following *alternative* formulated hypotheses aimed to answer the research questions and to achieve the objectives of the study.

H1: The CAAS-SF shows acceptable internal consistency (reliability).

H2: The CAAS-SF consists of four (4) factors.

H3: The CAAS-SF shows acceptable convergent validity.

H4: Career adaptability shows acceptable discriminant validity.

H5: Career adaptability has a positive relationship with work engagement.

H6: Career adaptability has a positive relationship with self-perceived employability.

H7: Career adaptability has a negative relationship with turnover intention.

H8: Work engagement mediates the relationship between career adaptability and self-perceived employability.

H9: Work engagement mediates the relationship between career adaptability and turnover intention.

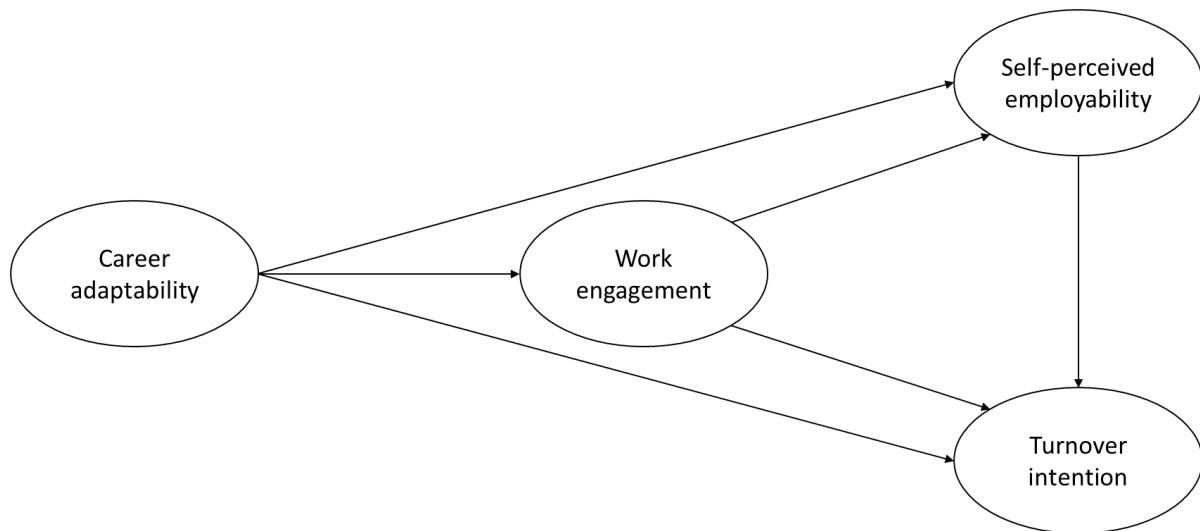


Figure 1. *The proposed model of the study.*

1.6 Research Design

1.6.1 Research approach

This study utilised a quantitative research design. Quantitative research focusses on objective assessments and employing surveys, questionnaires, and manipulation of pre-existing data to

analyse the collected data (Babbie, 2010; Muijs, 2010; Brannen, 2017). Gathering statistical data and inferring it across individuals or describing phenomena is what quantitative research entails. (Babbie, 2010; Muijs, 2010). Brannen (2017) states that before collecting data, a researcher must isolate, describe, and link specific variables to develop a hypothesis to examine with the collected data. This approach allowed the researcher to investigate data, construct generalisations and predictions, and investigate the associations between career adaptability and other career-related constructs (Leedy & Ormrod, 2001). Career-related constructs include work engagement, self-perceived employability, and turnover intention.

This research made use of a cross-sectional survey design. A cross-sectional design allowed the researcher to make assumptions from the collected data about the population (Lavrakas, 2008a). The benefits of the cross-sectional research design involve fewer costs and participants withdrawing due to the time boundaries of data acquisition (De Vos et al., 2011). This design also contributes due to its applicability in terms of measurement validation (De Vos et al., 2011), in this case the CAAS-SF.

1.6.2 Research method

Two phases were implemented, namely a literature review and an empirical study. The results are presented in research article format.

1.6.3 Literature review

The researcher conducted a thorough literature search on career adaptability, using relevant data between 2000 and 2020, including variables such as work engagement, self-perceived employability, and turnover intention. The researcher obtained appropriate literature through utilising search engines and various databases, namely Google Scholar, EbscoHost, ScienceDirect and Researchgate. Furthermore, the researcher used the North-West University's Ferdinand Postma Library services. The library granted access to scientific journals through the Catalogue, Lib Guides and One Search functions. These functions required appropriate keywords such as adaptability, work engagement, self-perceived employability, and turnover intention. The utilised journals referred to are, inter alia: *SA Journal of Industrial Psychology*, *SA Journal of Human Resource Management*, *Journal of Psychology in Africa*, *Journal of Vocational Behaviour*, *South African Journal of Human Resources*, *International Journal of*

Educational Vocational Guidance, Journal of Career Assessment, Journal of Psychology in Africa, Journal of Psychological Assessment, International Journal of Psychology, Journal of Occupational and Organisational Psychology, South African Journal of Economic and Management Science, The Career Development Quarterly, Scandinavian Journal of Psychology, American Psychologist, American Journal of Theoretical and Applied Statistics, Journal of Marketing Research, Health Psychology and Behavioural Medicine, Educational and Psychological Measurement, Frontiers in Psychology, and many more. The researcher also consulted other applicable sources to ensure a thorough review of the literature.

1.6.4 Research participants

The target population was employees within the South African context. The researcher utilised a non-probability sampling technique in this study. Non-probability does not include the random and systematic selection of participants (Trochim & Donnelly, 2006). Specifically, the research used a purposive sampling method. Purposive sampling aims to produce a sample that is representative of the population (Lavrakas, 2008b). Purposive sampling can be seen as a deliberate choice of participants based on qualities that the participant has (Etikan et al., 2016).

The researcher decided what should be known and found individuals willing to participate and provide information and knowledge. This included identifying and selecting individuals or groups who are proficient, well-informed on the topic, available, willing to participate and have the ability to communicate their experiences (Etikan et al., 2016). The inclusion criteria were employed participants, 18 years or older with at least a Grade 10 Second Language English level of proficiency to be able to complete the questionnaire. The researcher decided and ensured that the language was appropriate for respondents. The language proficiency was vital for participants to be able to understand the item contents (Van Eeden et al., 2013). An item example was "Taking responsibility for my actions", which was measured on a Likert type scale, with 1 - not a strength and 5 - greatest strength. This example indicates that the lexicon was aimed at the general reader and not overly complex and ambiguous. Participant inclusion depended on their availability and willingness to participate in the research. A sample size of approximately 300 ($n = 300$) respondents was envisaged for this study, in line with common rules of thumb that have been proposed (Comrey & Lee, 2013; Tabachnick & Fidell, 2013). The sample size was determined to enable meaningful data analysis when measuring the outlined hypotheses of the study. The sample frame was the workforce of South Africa,

including various groups, educational and vocational levels, who wished to participate voluntarily. Characteristics such as gender, age, ethnicity, language, education, and sector made the included participants a diverse group.

1.6.5 Measuring instruments

Biographical information: A biographical questionnaire collected the necessary information regarding participants in a short section at the beginning of the survey. Specifically, information such as age, ethnicity, gender, home language, educational level, tenure at the current organisation, and sector was requested. The collection of biographical information was necessary to describe the characteristics of the sample accurately, according to the American Psychological Association (APA, 2008).

Career adaptability: By utilising the CAAS-SF that Maggiori et al. (2017) developed, career adaptability was measured. The measure consisted of 12 items with a 5-point Likert-type scale; the scale ranges from 1 - not a strength to 5 - greatest strength. The instrument focussed on the four dimensions, namely concern, control, curiosity, and confidence (Maggiori et al., 2017). There were three items to measure each of the four dimensions. "Thinking about what my future will be like" (concern), "Taking responsibility for my actions" (control), "Investigating options before making a choice" (control), and "Working up to my ability" (confidence) are examples of the items in the scale. The internal consistency was satisfying for the dimensions scores (between 0.63 and 0.94) and the total adaptability scores (between 0.73 and 0.88) (Maggiori et al., 2017).

Work engagement: This research utilised the 9-item Utrecht Work Engagement Scale (UWES-9). Schaufeli et al. (2006) reduced the 17-item scale to a 9-item scale and tested the 9-item scale across ten countries, including South Africa. The UWES-9 is a self-report instrument, and scoring is according to a 7-point frequency rating scale. The scale ranges from 0 - never to 6 - always. The scale focusses on the three dimensions of engagement: vigour, dedication, and absorption (Schaufeli et al., 2006). There are three items allocated to each dimension. Examples of the questionnaire include, "My job inspires me" (dedication), "At my work, I feel bursting with energy (vigour)", and "I feel happy when working intensely" (absorption). Balducci et al. (2010) found the Cronbach alpha reliability coefficients of the scale to be between 0.73 and 0.84.

Self-perceived employability: De Witte (1992) developed the self-perceived employability scale consisting of four items. Van der Vaart et al. (2015) utilised the four items successfully in the South African context. Respondents rate the items using a 5-point frequency-rating scale. The scale responses range from 1 - strongly disagree to 5 - strongly agree. Examples of items that participants respond to are: "I am optimistic that I would find another job if I looked for one" and "I could easily switch to another employer if I wanted to". The scale had an acceptable omega reliability coefficient of 0.85 (Van der Vaart et al., 2015).

Turnover intention: Turnover intention was measured with the Turnover Intention Scale (TIS). Sjöberg and Sverke (2000) developed this 3-items measure of intentions to leave. An example of the items includes "If I was completely free to choose, I would leave this job". Participants respond to the items on a 5-point scale, where options range from 1 - strongly disagree to 5 - strongly agree (Sjöberg & Sverke, 2000). A high score indicates that an employee is more likely to leave the organisation. The study of Sjöberg and Sverke (2000) provided a Cronbach alpha of 0.83. A study conducted in South Africa by De Villiers and Stander (2011) stated that the Cronbach's alpha coefficient of this measure was 0.83.

1.6.6 Research procedure

The researcher submitted the proposed study to the Scientific Committee and a Research Ethics Committee of the North-West University (NWU EMS-REC). After the committees approved the study, the researcher followed a two-pronged approach to collect data.

Firstly, the researcher made use of various social media platforms such as LinkedIn, Facebook, Twitter, and Instagram to collect data from relevant participants. Prospective participants received information regarding (a) the general objective of the study, (b) voluntary participation, (c) withdrawal, (d) how data would be collected, (e) procedures for handling confidentiality and anonymity, (f) risk level of the study, (g) what would happen to the results, (h) if an incentive was offered to participate, and (i) whom to contact if more information was required. The participants received all the necessary information on the voluntary nature, withdrawal, confidentiality, and purpose once they followed the QuestionPro online hyperlink. The hyperlink directed them to a page containing all the information; participants consented to participate by continuing with the questionnaire.

Secondly, the researcher made formal contact with organisations in various sectors via e-mail. Specifically, the decision-making structures of potential participating organisations were contacted, requesting permission to collect data. The organisations were located via internet searches, social media platforms and geographically, if necessary. Formal letters providing information on the study were e-mailed to the identified organisations' decision-making structures. This information included the following aspects: (a) the aims of the study, (b) the statement that participation was voluntary, (c) the criteria for employees to participate in the study, (d) the approximate time it would take to complete the questionnaire, and (e) how confidentiality and privacy would be handled. The ethics clearance number of the study was provided in the letters e-mailed to the organisations. It was clearly stated that the identity of a participating organisation would be kept confidential.

After receiving permission to collect data from an organisation, the researcher requested that a coordinator (a practitioner in the Human Resource department who did not hold a position of authority over employees) forwarded an invitation e-mail from the researcher to all employees. This invitation e-mail included a QuestionPro online hyperlink. The hyperlink directed potential participants to a page containing all the participant information as discussed. Consent was provided when participants continued with the questionnaire.

Participants received a two-week time frame in which they could complete and electronically submit the questionnaire. The questionnaire had 34 questions and was estimated to take approximately 15 to 20 minutes to complete. After the collection of data, the survey host captured the data through an online system, which was utilised to proceed with statistical analysis. Only the researcher and research supervisors had access to the anonymous data file. The researcher and research supervisors secured the data file with password protection, and the research supervisor stored the files on a computer hard drive and external hard drive.

1.6.7 Statistical analysis

The researcher used Jeffrey's Amazing Statistics Program (JASP) 0.10 (Computer Software) (JASP Team, 2020) to calculate Cronbach's alpha reliability and omega coefficients for the career adaptability and career-related constructs. JASP was developed to improve statistical testing and analysis methods in the psychological science field. Mplus 8.6 was used to conduct latent variable modelling (Muthén & Muthén, 2017). To investigate the model fit to the data,

the researcher used Confirmatory Factor Analysis (CFA), which aided in clarifying the question related to the factorial validity of career adaptability by utilising the Tucker-Lewis index ($TLI \geq 0.90$), comparative fit index ($CFI \geq 0.90$), chi-square value (lowest = best-fitting model), the root square error of approximation ($RMSEA \leq 0.08$) and the standardised root mean square residual ($SRMR \leq 0.08$) (Harrington, 2009; Hooper et al., 2008).

Convergent validity was determined with the factor loadings, specifically the factor loadings for the relevant construct was ideally above 0.70, but 0.50 and above is allowable (Hair et al., 2014). The researchers also made use of a correlation matrix to clarify answers regarding the relationship between the variables. According to Cohen (1992), effect sizes that will be considered practically significant should be at $r > 0.30$ - 0.49 for a medium effect and $r > 0.49$ for a large effect. The researcher utilised correlations to examine the discriminant validity between career adaptability and career-related constructs. To show evidence of satisfactory discriminant validity, the correlations between the constructs of concern were below 0.85 (Bertea & Zait, 2011; Brown, 2015). Furthermore, the researcher compared the constructs' shared variance and the average variance extracted (AVE) to consider discriminant validity further. To present acceptable discriminant validity in this comparison, the shared variance between the constructs should be smaller than the AVE of the constructs (Bertea & Zait, 2011).

Finally, the researcher specified a structural model based on criterion validity-related hypotheses. Specifically, the researcher examined the structural paths, especially the significance, size, and direction of the standard beta coefficients (β) when determining criterion validity (Bergkvist & Rossiter, 2007). The parameters for statistical significance in this study were valued at the 95% significance level ($p < 0.05$).

1.6.8 Ethical considerations

The researcher maintained fair and ethical practices throughout this research study. The researcher avoided any harm to participants (De Vos et al., 2011). Essential fundamentals for all involved with this research were mutual trust, clear expectations, and cooperation (Strydom, 2011). To address problems that may occur appropriately, the researcher based all actions on ethical decision-making. According to Strydom (2011), the researcher could limit ethical issues by ensuring that there was no harm caused in any way to participants, participation was voluntary, participants could withdraw, the researcher adhered to anonymity and

confidentiality of the participants, and there was no misguiding of participants. Every participant received comprehensive information relating to the purpose of the research, what was expected from them and the risk level of the study. The participants received all the necessary information once they followed the online hyperlink, it directed them to the appropriate information; after participants agreed to participate, they could start with the questionnaire and consent was implied. The researcher made use of a draw where three of the participants stood a chance to receive a Checkers e-voucher. The first prize was R300, the second prize R150 and the third prize R50. The respondents could choose whether they would like to participate or be considered for the e-voucher raffle at the end of the questionnaire. A hyperlink was provided at the end of the survey. Once they clicked on it, it requested personal information such as a name and e-mail address, and the participant would then automatically be included in the draw. As the hyperlink was at the end of the survey, only fully completed questionnaires were considered for the draw. The draw took place after data collection and data capturing, 18 November 2021 (or earlier if data collection and capturing were complete before this date), and the winners were informed of their prize by e-mail, which would include their e-voucher. The researcher obtained informed consent from participants when they participated and continued with completing the questionnaire (De Vos et al., 2011). The researcher adhered to aspects such as human dignity, respect, and no harm. The research commenced once the NWU-EMS-REC reviewed and approved the application submitted. After the two-week time frame, data was captured, analysed, and stored securely using password-protected files that were only accessible by the researcher and supervisors. The data from the study will be stored safely for five years. Upon request, the researcher provided feedback on the general findings of the results, still following strict privacy and confidentiality procedures. Finally, the researcher disseminated the anonymous findings in the form of a master's dissertation and possible publication in a peer-reviewed scientific journal.

1.7 Chapter division

The chapters in this mini-dissertation are presented as follows:

Chapter 1: Introduction

Chapter 2: Research article

Chapter 3: Conclusions, limitations, and recommendations

1.8 Chapter Summary

This chapter included the problem statement, research objectives, and research hypotheses. It was followed by an explanation of the measuring instruments utilised, as well as the research methods. The chapter ended with a brief outline of the chapters to follow.

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CHAPTER 2
RESEARCH ARTICLE

Investigating the psychometric properties of the Short-Form Career Adapt-Ability Scale (CAAS-SF) in a sample of South African employees

Abstract

Orientation: Career adaptability holds significant consequences for both individuals and organisations. This phenomenon has captured the attention of managers. Currently, there is no career adaptability scale, in short form, validated in the South African context. Therefore, researchers and managers cannot accurately assess the level and impact of career adaptability within South African organisations.

Research purpose: To investigate the psychometric properties of the Short-Form Career Adapt-Ability scale (CAAS-SF) for use in South Africa.

Motivation for the study: Since there is currently a lack of a valid and reliable scale, making it challenging to measure career adaptability, it is essential to validate such a scale. Validating the scale can assist researchers and South African organisations to determine the level of career adaptability and the impact thereof accurately and compare it with the consequences, positive or negative, shown to exist within other contexts.

Research design, approach, and method: A cross-sectional research approach was utilised in the study. Purposive sampling ($n = 277$) was employed within the South African context. Investigations were specifically aimed at the factor structure, convergent validity, discriminant validity, and criterion validity to determine the overall validity of the CAAS-SF. Furthermore, reliability constructs were also considered in the study.

Main findings: The results confirmed that the CAAS-SF was a second-order factor structure and that all factors provided acceptable reliability coefficients, i.e. internal consistency. Furthermore, convergent validity could be shown utilising the correlations between career adaptability and career-related outcomes. Discriminant validity could be determined considering the correlations between the variables, as all fell within the acceptable parameters. The criterion validity hypotheses were partially supported. The study indicated significant positive relationships between career adaptability and work engagement, as well as self-perceived employability. However, the relationships between career adaptability and work engagement were significant positive relationships. Furthermore, work engagement plays a mediating role in the relationship between career adaptability and self-perceived employability and career adaptability and turnover intention. Therefore, the criterion validity hypotheses were only partially supported.

Practical/Managerial Implications: Based on the study results, it is evident that it is worth addressing career adaptability due to its impact on employees and organisations within the South African context. Therefore, managers need to be aware of career adaptability and integrate it in their organisational culture to improve individual and organisational performance.

Contribution/Value-add: The research contributes to the limited research available regarding career adaptability in South African. Furthermore, it contributes towards the implications for individuals and organisational outcomes by providing a reliable and valid scale. Therefore, the scale can be employed by managers and academia to investigate career adaptability in working environments.

Keywords: Career adaptability, reliability, self-perceived employability, turnover intention, validity, work engagement.

Introduction

Recent transformations in current working environments and the labour market have influenced the construction of individual career paths significantly due to rapid technological changes and economic and social instability (Lodi et al., 2020). An individual's career path is no longer linear but dynamic and multifaced; individuals should therefore acquire skills to be more attractive in the labour market to remain employed (Lodi et al., 2020), even more so after the COVID-19 pandemic. One of these critical skills that employees should acquire is career adaptability. Adaptability resources and self-regulation abilities, such as career adaptability, are crucial skills to master in the current unpredictable and boundary-less working environments (Maggiori et al., 2015). Individuals have to become lifelong learners, constantly train and develop themselves to obtain the skill or ability to adapt in working environments to master unpredictability and changes (Maree, 2012). Career adaptability skills have become a necessity for career success (Chen et al., 2020). The concept career adaptability has received little attention in the South African context. As global changes impact significantly on South Africa, there is a need for career-related assessments to assist individuals and organisations to learn to adapt to continuous change (Maree, 2012; Chersich & Wright, 2019).

As we live in unpredictable times and with the significant impact of the COVID-19 pandemic on South Africa's economy and organisations (Truter, 2020), having helpful adaptation abilities will enable individuals to overcome uncertainties and change with ease (Chersich & Wright, 2019). The measurement of career adaptability skills with the CAAS-SF instrument is critical. It can assist in developing various interventions and guide organisations and employees within the South African context to overcome uncertainty and change.

In recent years, career adaptability has attracted the attention of various researchers as it is becoming a critical topic. A research study by Savickas and Porfeli (2012) regarding the construction of the CAAS showed reliability and measurement equivalence across 13 various countries. The measurement is proven to be psychometrically sound across cultures and countries. The CAAS can be utilised across multiple working environments; it can apply to professional, lower-level, and unpaid employees (McIlveen et al., 2018). According to the research, a study conducted with the CAAS included three occupations: stay-at-home mothers (which should be valued as any other occupation according to the research), teachers enrolled in a Bachelor of Education degree, and retail workers (McIlveen et al., 2018). Research concluded that the CAAS could be applied in various professions, different (large or small) working environments and with distinct personnel profiles. Zacher (2014) indicates that occupational success could be predicted in Australia utilising the CAAS, even better than personality characteristics. Furthermore, the two dimensions of the CAAS, professional concern and confidence, predict occupational success, self-rated performance, and satisfaction as an indication of professional achievement (Zacher, 2014). A study conducted in Brazil on individuals with a higher educational degree found that the psychometric properties of the CAAS were appropriate across diverse cultures (Cammarosano et al., 2019). The study indicated that there are no significant differences between genders. In Finland, a study was conducted to assist student-athletes with their career readiness and overcoming adaptation obstacles. The study indicated good concurrent validity (Ryba et al., 2017).

Maree (2012) validates the CAAS within the diverse South African context. The sample included Grade 9 and Grade 11 learners. The study showed excellent construct validity and reliability. In addition, Coetzee and Stoltz (2015) focus on career adaptability in employee fulfilment and retention factors. The CAAS was implemented in the study on employees within the automotive industry. The study confirmed the internal consistency reliability and the construct validity of the CAAS in the South African context.

Career adaptability can assist employees to improve career resilience, cope with unpredictable situations, and make appropriate changes, especially as the world of work shifts from stable to fluid (Chen et al., 2020; Zacher, 2014). Career adaptability guides individuals to transition smoothly between career roles, maintain balance, positively influence their psychological resources in career development, and achieve more meaning in life (Chen et al., 2020). Consequently, career adaptability provides a sense of how employees build unique careers (Savickas, 2005). Furthermore, adaptability can refer to learning, understanding swiftly, change and development, and becoming more congruent with one's environment. Career adaptability highlights the ongoing interplay between an individual and their environment (Savickas, 1997). Therefore, career adaptability implies flexibility in response to a situation, adjusting to conditions. Career adaptability is central to an individual's self-regulation resources, as it guides individuals to design their careers (Rossier et al., 2017). Fortunately, individuals can activate their career adaptability resources, and career interventions can strengthen them. As a result, career adaptability can guide individuals to utilise better resources that contribute to employability. Constant interactions can lead to fostering adaptive functioning, which could ultimately lead to a successful career life (Rossier et al., 2017). Research has indicated meaningful relationships between career adaptability and various career-related outcomes (Coetzee & Stoltz, 2015).

The career-related outcomes that this research focusses on include work engagement, self-perceived employability, and turnover intention. These constructs are included as they are conceptually related to an individual's willingness to cope with predictable and unpredictable changes in the working environment. Work engagement can be defined as a positive state pertaining to an employee's work-related well-being. Engaged employees are more involved and energetic with their work (Bakker & Leiter, 2010). Self-perceived employability is the skills employees have that aid them in finding work and staying employed. It is their perception of being capable of finding employment (Rothwell & Arnold, 2007). Turnover intention is the behavioural attitude of an employee to leave the organisation (Aydogdu & Asikgil, 2011). It is an employee's intention to leave the organisation where they are employed (Ali, 2008). Although the work-related outcomes have not received much attention in South Africa, it has been studied previously and in other contexts. Previous research on career-related outcomes will be discussed as follows: Work engagement, self-perceived employability, and turnover intention.

Firstly, a study on the relationship between career adaptability indicates that adaptability resources were positively associated with student engagement; student engagement can be equated to work engagement. Supporting this, Rossier et al. (2012) found that career adaptability is strongly related to work engagement. Research was conducted to determine the mediating role of career adaptability between personality and career engagement (Nilforooshan & Salimi, 2016). The study showed that career adaptability dimensions are positively related to career engagement. Furthermore, in the Chinese context, it was determined that career adaptability plays a significant role in predicting work engagement (Yang et al., 2019). Therefore, employees with higher career adaptability levels show higher levels of engagement and dedication in their work.

Secondly, research showed meaningful relationships between career adaptability and self-perceived employability. Career adaptability is positively correlated with self-perceived employability (Rudolph et al., 2017). Supporting this, a study conducted found that career adaptability is positively associated with the career-related outcome, employability (Spurk et al., 2020). Employees with higher levels of career adaptability might perceive themselves to have increased abilities to obtain sustainable employment. Therefore, employees with increased levels of career adaptability might indicate higher levels of self-perceived employability (Udayar et al., 2018).

Lastly, according to Rudolph et al. (2017), career adaptability is significantly associated with an employee's adaptation, including turnover intention, meaning higher career adaptability levels lead to lower levels of turnover intention. Research indicated that career adaptability is negatively correlated with turnover intention (Rudolph et al., 2017). The negative association suggests that employees with increased levels of career adaptability might have lower intentions of leaving their organisations (Chan & Mai, 2015). Career adaptability could be a resilience resource for employees as it can reduce their plans to leave, specifically those still in the process of constructing their careers (Coetzee & Stoltz, 2015). Conversely, a study found that employees with higher career adaptability levels tend to show lower loyalty and increased intentions to leave, especially during downsizing (Klehe et al., 2011). The relationship's direction might therefore still be unclear and requires further investigation.

A study conducted in Hong Kong investigated the relationship between work engagement and self-perceived employability. The research indicated that work engagement is positively

associated with self-perceived employability (Ngo et al., 2017). Therefore, as work engagement levels increase, self-perceived employability will also increase. However, as higher career adaptability leads to higher work engagement, and increased work engagement leads to increased self-perceived employability, work engagement might be mediating the relationship between career adaptability and self-perceived employability. Therefore, as career adaptability levels increase, work engagement levels will increase (Nilforooshan & Salimi, 2016; Paradnike & Bandzeviciene, 2016; Rossier et al., 2012), leading to increased self-perceived employability (Ngo et al., 2017).

A study focussing on the relationship between satisfaction, work engagement and turnover intention indicated that work engagement is negatively associated with turnover intention (Memon et al., 2016). This suggests that increased levels of work engagement lead to decreased levels of turnover intention. Supporting this, research in the South African context showed that employees with higher levels of work engagement had significantly lower intentions of leaving their organisations (Takawira et al., 2014). This suggests that work engagement can play a mediating role between career adaptability and turnover intention. Higher levels of career adaptability therefore lead to increased work engagement (Chan & Mai, 2015; Coetzee & Stoltz, 2015; Rudolph et al., 2017), which ultimately leads to lower levels of turnover intention (Memon et al., 2016; Takawira et al., 2014).

There is a need for measuring instruments in South Africa that can be implemented to assist and guide individuals with their career choices and development (Maree, 2012). Form 207 of the Health Professions Council of South Africa (HPCSA) lists a few career development and interest instruments such as the SAVII, Occupational Interest and Personality Profiler, Occupational Personality Questionnaire, and Career Development Questionnaire (HPCSA, 2020). Furthermore, some assessments have been proven valid and reliable, such as the Career Agility Scale (Coetzee et al., 2020) and the CAAS (Maree, 2012). There is an urgent need for a shortened career adaptability scale, especially after the COVID-19 pandemic, which left dynamic environments even more uncertain.

Nowadays, working environments require employees to work non-stop, late nights, more hours, and faster, with fewer breaks and relaxation activities (Cuker, 2017). It is therefore critical to implement measuring instruments with the least number of items, shorter administration times, and to lessen the burden on the participants (Maggiori et al., 2015).

Maggiori et al. (2015) developed the CAAS-SF. The CAAS-SF is a 12-item version of the CAAS. The development of the CAAS-SF was to improve the integration into more significant surveys and diverse settings, as organisations required to implement assessments with the least number of items (Maggiori et al., 2015). It was found that the CAAS-SF is a valid alternative option for the CAAS.

Maggiori et al. (2015) validated the CAAS-SF in a sample of German and French participants. The study confirmed the structure of the CAAS-SF, specifically regarding the first-order factors and second-order factors. Furthermore, the study included language and gender differences; they found that the scale's internal consistency was satisfactory across diverse groups (Maggiori et al., 2015). A study was conducted in the Turkish context on diverse secondary-school learners, employed adults and undergraduate students. The research focussed on gender and age differences. It indicated that the CAAS-SF could be utilised in various and diverse environments (Isik et al., 2018). Furthermore, a study conducted on three different samples, including students, civil employees, and private and public sector employees, found results consistent with the findings of Maggiori et al. (2015) (Yu et al., 2019).

The CAAS-SF has received much attention, however, little in the South African context. It will be beneficial for the South African context to validate the CAAS-SF. It is less time-consuming and applicable in various and diverse contexts, especially after the COVID-19 pandemic, which has left the South African working environment with significant change and uncertainty. Therefore, there is a gap within the South African context to validate the CAAS-SF.

The present study aimed to validate the CAAS-SF in a diverse sample of South African employees. The short-form version is yet to be validated in the South African context; therefore, it was the focus of this study. In addition, the Employment Equity Act, 55 of 1998, played a critical role in utilising employees' psychometric assessment (RSA, 1998). The Act states that psychological testing on employees is only allowed if the instrument is scientifically reliable and valid, reasonably applied to all, and unbiased, not discriminating against any individual or group. The researcher aimed to validate the CAAS-SF; other researchers can accurately measure career adaptability across the South African context at different time intervals. This research aimed to determine construct, discriminant, convergent, and criterion validity and reliability of the CAAS-SF in the South African context and determine the relationship between career adaptability and career-related outcomes.

Literature Review

Career adaptability

Savickas (1997, p. 254) defines career adaptability as "the readiness to cope with the unpredictable tasks of preparing for and participating in the work role and with the unpredictable adjustments prompted by changes in the work and working conditions". Career adaptability refers to an individual's set of psychosocial resources that assist them to manage their career-related tasks and changes successfully (Rudolph et al., 2017). According to Taber and Blankemeyer (2014), career adaptability enables individuals to cope with career developmental tasks, traumas, and transitions.

Career adaptability consists of four dimensions: concern, control, confidence, and curiosity (Cammarosano et al., 2019; Maggiori et al., 2015; Maree, 2012; Savickas, 1997; Taber & Blankemeyer, 2014). Firstly, the concept of concern refers to future time orientation and acknowledging that current actions directly link to future aspirations; therefore, an individual should be aware and prepare for future careers (Cammarosano et al., 2019; Taber & Blankemeyer, 2014). Secondly, control relates to an individual's self-discipline, taking responsibility for planning and constructing careers (Savickas & Porfeli, 2012). Thirdly, confidence is the belief in one's capacity and ability to overcome obstacles; it is perceived self-efficacy when facing problems, pursuing, and achieving goals in working environments (Maggiori et al., 2015; Taber & Blankemeyer, 2014; Zacher, 2014). Lastly, curiosity refers to being open to new and unique experiences, exploring various environments, and identifying opportunities; therefore, individuals explore the labour market and envision themselves in different situations (Zacher, 2014). Within the current ever evolving and dynamic world, career adaptability, and all its dimensions, is a critical element for individuals to cope and succeed in private and professional environments (Hamtiaux et al., 2013). Individuals should have the ability to adjust or draw on self-regulatory resources to craft solutions to overcome complex and unfamiliar situations (Taber & Blankemeyer, 2014). Career adaptability has shown sustained usefulness for individuals in various vocational outcomes.

Career adaptability research has indicated that career adaptability resources have a positive impact on various career-related concepts, beneficial for individuals and organisations (Taber & Blankemeyer, 2014). The dimensions of career adaptability are significantly related to

learning goal orientation, career optimism (Tolentino et al., 2014), and they predict overall career satisfaction and performance (Zacher, 2014). Relatedly, career adaptability predicts teamwork employability better (De Guzman & Choi, 2013) and job search self-efficacy, person-organisation fit, demands-ability fit, and needs supply fit (Guan et al., 2013). In addition, career adaptability influences employee happiness and well-being positively and is inversely related to work stress, job strain, and job insecurity (Johnston et al., 2013; Maggiori et al., 2013). Furthermore, the dimensions of career adaptability, concern, control, confidence, and curiosity initiate a psychological resource that can lead to increased work engagement, self-perceived employability and decreased turnover intention. Career adaptability sources are associated with higher levels of engagement, increased dedication to work, and higher confidence (Paradnike & Bandzeviciene, 2016; Rossier et al., 2012). It has been found that employees with higher levels of career adaptability have increased self-perceived employability; therefore individuals perceive themselves to have the ability to be sustainably employed (Rudolph et al., 2017; Spurk et al., 2020). Career adaptability is negatively related to turnover intention, meaning that employees with increased career adaptability have lower intentions of leaving organisations (Chan & Mai, 2015). Thus, career adaptability is beneficial for individuals and organisations, especially in evolving, dynamic working environments.

Measuring career adaptability

The original CAAS was developed to measure career adaptability, becoming one of the most extensively used questionnaires to measure this construct. However, due to extensive survey studies, samples, and contexts, a short form was needed with the least possible items (Maggiori et al., 2015). Maggiori et al. (2015) developed a brief 12-item version, the CAAS-SF, to facilitate integration in varied settings and extensive surveys. The 12-item scale was clustered into the four dimensions of career adaptability, namely concern, control, confidence, and curiosity (Maggiori et al., 2015). The current study investigated the CAAS-SF.

Hypothesis 1: The CAAS-SF shows acceptable internal consistency (reliability).

The original CAAS-SF indicated a satisfactory fit with the Tucker-Lewis Index (TLI), Normed Fit Index (NFI), and Comparative Fit Index (CFI) values above 0.95. Furthermore, the original CAAS-SF showed excellent internal reliability for different language versions (Maggiori et al., 2015). In a Turkish context, Isik et al.'s (2018) research showed internal consistency, with

Cronbach alpha coefficients ranging from 0.70 to 0.91. A study conducted in China on the CAAS-SF also indicated good internal consistency on all four subscales (Yu et al., 2019). This showed that the CAAS-SF is a reliable (internally consistent) measure. However, the CAAS-SF has not been researched nor validated in the South African context. This research also considered the reliability coefficients of the most appropriate factor structure based on the data.

Hypothesis 2: The CAAS-SF consists of 4 factors.

The original CAAS-SF provided a satisfactory Cronbach's alpha coefficient for the dimensions' scores and the total adaptability score (Maggiori et al., 2015). This initial model showed an acceptable fit with the NFI, CFI, and TLI values above 0.95 (Maggiori et al., 2015). However, Maggiori et al. (2015) found some problems in establishing the model fit, especially with large samples. A study conducted in the Turkish context found that the second-order factor indicated a good fit and strong values on Cronbach's alpha internal consistency reliability coefficients (Isik et al., 2018). Furthermore, a study on career adaptability resources found the scale to be reliable ($\alpha = 0.90$) (Haenggli & Hirschi, 2020). This indicated that the CAAS-SF is a reliable, internally consistent measure. However, career adaptability has not received much attention in South Africa, and currently the CAAS-SF is not validated, and therefore not available in South Africa. Furthermore, this research considered the reliability coefficients of the most appropriate structure based on the data.

Hypothesis 3: The CAAS-SF shows acceptable convergent validity.

A study conducted in the Chinese context, based on career adaptability, work engagement, and well-being, found that the study variables' convergent validity was satisfactory (Yang et al., 2019). Another study conducted in the Chinese context found that the scale's validity was acceptable (Yu et al., 2019). Supporting this, a research study on career adaptability and career success indicated that the scale had satisfactory construct validity, including convergent and discriminant validity for the dimensions and the global scale (Haenggli & Hirschi, 2020). Furthermore, Spurk et al. (2020) also found satisfactory convergent validity of the scale. This indicates that the CAAS-SF is a valid instrument; however, it has not been researched in the South African context.

Hypothesis 4: Career adaptability shows acceptable discriminant validity.

A study conducted in Switzerland found that the CAAS-SF had satisfactory construct validity, including discriminant, convergent, and criterion validity (Haenggli & Hirschi, 2020). Furthermore, a study conducted on career adaptability and proactive career behaviours found that their results with the CAAS-SF supported discriminant validity (Spurk et al., 2020). Research in a Turkish context indicated that future studies in diverse populations should be conducted to collect more evidence for discriminant validity (Isik et al., 2018). Spurk et al. (2020) found that their research on career adaptability and proactive career behaviours supported discriminant validity. A study conducted by Rudolph et al. (2016) found evidence on discriminant validity consistent with primary studies, supporting the distinctiveness of the scale. This indicated that the CAAS-SF is a valid instrument. However, it has not been validated in the South African context, and therefore is not available in South Africa.

Hypothesis 5: Career adaptability has a positive relationship with work engagement.

Career adaptability and work engagement

Work engagement can be conceptualised as a positive state which relates to an individual's work-related well-being. Employees who are more engaged are usually more energetic and involved in their work (Bakker & Leiter, 2010). Work engagement refers to an employee's involvement, passion, commitment, enthusiasm, focus, and energy in their work (Bakker & Leiter, 2010). The association between career adaptability and work engagement has been researched and indicated a positive relationship (Paradnike & Bandzeviciene, 2016). This means that employees with increased levels of career adaptability show higher confidence and dedication in their work. Research conducted by Rossier et al. (2012) found that career adaptability and work engagement strongly relate. Furthermore, research indicated that career adaptability and work engagement are positively correlated (Nilforooshan & Salimi, 2016), supported by Yang et al. (2019), who found that career engagement plays a significant role in predicting employee work engagement within the Chinese context.

Hypothesis 6: Career adaptability has a positive relationship with self-perceived employability.

Career adaptability and self-perceived employability

Self-perceived employability can be defined as an individual's skills and attributes which assist them to seek job opportunities and remain employed (Rothwell & Arnold, 2007). It is an individual's perception of their capability of being employed. Research indicated a positive relationship between career adaptability and self-perceived employability (Spurk et al., 2017). A study conducted by Rudolph et al. (2017) found that career adaptability is positively associated with an individual's self-perceived employability. This is supported by Udayar et al. (2018), who indicated that employees with higher levels of career adaptability show higher self-perceived employability levels. This means that employees who have higher career adaptability levels might perceive themselves to obtain sustainable employment.

Hypothesis 7: Career adaptability has a negative relationship with turnover intention.

Career adaptability and turnover intention

Turnover intention is defined as an employee's behavioural attitude or intention to leave the organisation (Ali, 2008; Aydogdu & Asikgil, 2011). According to Rudolph et al. (2017), career adaptability is significantly associated with adaptation results, including turnover intention, which means that higher levels of career adaptability can lead to lower turnover intentions. Supporting this, the research found a negative relationship between career adaptability and turnover intention (Chan & Mai, 2015). The negative correlation suggests that higher career adaptability levels are associated with lower grades or intentions to leave an organisation. Career adaptability could be a resilience source for individuals, which reduces an individual's plans to leave their organisation, especially those constructing their careers (Coetzee & Stoltz, 2015). This could mean that individuals with a more in-depth understanding of career adaptability could guide them in complex career paths (Chan & Mai, 2015). Conversely, Klehe et al. (2011) found that employees with higher career adaptability tend to explore, indicate decreased loyalty, and increased intentions to leave an organisation during downsizing. Therefore, whether positive or negative, the relationship between career adaptability and turnover intention is still unclear and requires further research.

Hypothesis 8: Work engagement mediates the relationship between career adaptability and self-perceived employability.

Work engagement mediates the relationship between career adaptability and self-perceived employability

A study conducted in Hong Kong investigated the relationship between work engagement and self-perceived employability and found a positive relationship (Ngo et al., 2017). This means that as the levels of work engagement increases, the levels of self-perceived employability increase. The positive association between career adaptability and work engagement and the positive relationship between work engagement and self-perceived employability might mediate between career adaptability and self-perceived employability. Employees with high levels of career adaptability will have high levels of work engagement (Chan & Mai, 2015; Rossier et al., 2012; Rudolph et al., 2015), positively impacting on self-perceived employability (Ngo et al., 2017).

Hypothesis 9: Work engagement mediates the relationship between career adaptability and turnover intention.

Work engagement mediates the relationship between career adaptability and turnover intention

Research indicated that work engagement negatively correlates with turnover intention (Memon et al., 2016). This means that employees with increased levels of work engagement will have lower levels of turnover intentions. Supporting this, research conducted in the South African context indicated that higher work engagement in employees is associated with lower intentions to leave. Higher levels of career adaptability lead to higher work engagement (Chan & Mai, 2015; Coetzee & Stoltz, 2015; Rudolph et al., 2017; Takawira et al., 2014), which could lead to lower turnover intention (Memon et al., 2016). This might indicate that work engagement plays a mediating role between career adaptability and turnover intention.

Research Design

Research Approach

For purposes of the study, the research approach utilised was a quantitative research design. This approach allowed data investigation to construct generalisations, predictions, and the

associations between the career-related constructs (Leedy & Ormrod, 2001). The career-related constructs include career adaptability, self-perceived employability, turnover intention, and work engagement. Therefore, variables were measured to analyse and compare results. This approach involves large samples and structured procedures (De Vos et al., 2011; Struwig & Stead, 2001).

Furthermore, the study followed a cross-sectional survey design, allowing the researcher to draw assumptions from the collected data regarding the population (Lavrakas, 2008a). The procedure involves collecting data at a fixed point in time, and it is applicable in terms of measurement validation (De Vos et al., 2011). The cross-sectional design is helpful as variables can be measured simultaneously, allowing the measurement of interrelationships between variables (Struwig & Stead, 2001).

Research Method

The following sections clarify the research method followed in the study, explicitly referring to research participants, measuring instruments, research procedure and statistical analysis.

Research Participants

The target population of the study was employees within the South African context. A non-probability sampling technique was utilised. Specifically, the researcher used a purposive sampling method to produce a sample representative of the population (Lavrakas, 2008b). Purposive sampling is a deliberate choice of participants based on the participant's qualities (Etikan et al., 2016). The researcher decided to find and select individuals or groups who are proficient in English, knowledgeable on the topic, available and willing to participate (Etikan et al., 2016). The inclusion criteria were employed participants 18 years or older with at least a Grade 10 Second Language English level of proficiency to complete the questionnaire. The practitioner decided and ensured that the language was appropriate for respondents; all participants needed to understand the items (Van Eeden et al., 2013). A sample size of 200 and more would enable meaningful data analysis, especially with the Weighted Least Squares with Means and Variances (WLSMV) approach (277 were achieved; $n = 277$) (Bandalos, 2014; Rhemtulla et al., 2012). The WLSMV approach is an estimation method known as the robust weighted least squares in the statistical literature. Participant characteristics are diverse,

including gender, age, ethnicity, language, education, and sector. Furthermore, the participants are also diverse regarding their various groups, educational and vocational levels and job functions. Table 1 presents a breakdown of the participants comprising the sample.

Table 1

Characteristics of the participants (n = 277)

Item	Category	Frequency	Percentage (%)
Gender	Male	70	25.27%
	Female	207	74.73%
Ethnicity	African	28	10.11%
	Coloured	13	4.69%
	White	228	97.11%
	Indian	8	2.89%
Highest level of Education	High School	36	13.00%
	Degree (Graduate/Honours)	103	37.18%
	Postgraduate Degree	116	41.88%
	Diploma	22	7.94%
Employed sector	Extraction of raw materials	10	3.61%
	Farming/Fishing/Forestry	8	2.89%
	Manufacturing	21	7.58%
	Construction	10	3.61%
	Utilities (electricity/gas/water)	6	2.17%
	Communication	16	5.78%
	Hospitality	12	4.33%
	Information Technology	15	5.42%
	Financial	26	9.39%
	Retail	18	6.50%
	Education	67	24.19%
	Research & Development	27	9.77%
	Public Sector	41	14.80%

The sample comprised various participants employed in the South African context ($n = 277$). The average (mean) age of participants was 33. The sample consisted of 74.73% females and 25.27% males, i.e. most of the sample were female employees. Regarding ethnicity, 97.11% were white employees, 10.11% were African, 4.69% were Coloured, and 2.89% were Indian. Most of the sample had obtained postgraduate degrees (41.88%), followed by 37.18% who received degrees (undergraduate or honours). In terms of the employed sector, 24.19% of

participants are employed within education, followed by 14.80% employed in the public sector, whilst 2.17% participants are employed in utilities.

Measuring Instruments

A biographical questionnaire collected the necessary information regarding participants in a short section at the beginning of the survey, including age, ethnicity, gender, home language, educational level, tenure at the current organisation, and sector.

Career adaptability was measured utilising the CAAS-SF developed by Maggiori et al. (2015). The measure consists of 12 items with a 5-point Likert-type scale ranging from 1 - not a strength to 5 - greatest strength. The instrument focussed on the four dimensions, namely concern, control, curiosity, and confidence (Maggiori et al., 2015). Three items represent each dimension. "Thinking about what my future will be like" (concern), "Taking responsibility for my actions" (control), "Investigating options before making a choice" (control) and "Working up to my ability" (confidence) are examples of the items in the scale. The internal consistency scores were satisfactory for the dimensions (between 0.63 and 0.94) and the total adaptability scores (between 0.73 and 0.88) (Maggiori et al., 2015).

Work engagement was measured utilising the 9-item Utrecht Work Engagement Scale (UWES-9). Schaufeli et al. (2006) reduced the 17-item scale to a 9-item scale and tested the 9-item scale across ten countries, including South Africa. The UWES-9 is a self-report instrument scored on a 7-point frequency rating scale, ranging from 0 - never to 6 - always. The scale focusses on the three dimensions of engagement: vigour, dedication, and absorption (Schaufeli et al., 2006). There are three items allocated to each dimension. Examples of the questionnaire include "My job inspires me" (dedication), "At my work, I feel bursting with energy (vigour)", and "I feel happy when working intensely" (absorption). Balducci et al. (2010) found the Cronbach alpha reliability coefficients of the scale to be between 0.73 and 0.84.

Self-perceived employability was measured utilising the four-item Self-perceived Employability Scale developed by De Witte (1992). Van der Vaart et al. (2015) utilised the four items successfully in the South African context. Respondents rate the items using a 5-point Likert type scale where responses range from 1 - strongly disagree to 5 - strongly agree. Examples of items that participants respond to are: "I am optimistic that I would find another

job if I looked for one" and "I could easily switch to another employer if I wanted to". The scale had an acceptable omega reliability coefficient of 0.85 (Van der Vaart et al., 2015).

Turnover intention was measured with the Turnover Intention Scale (TIS). Sjöberg and Sverke (2000) developed this 3-items measure of intentions to leave. An example of the items includes "If I was completely free to choose, I would leave this job". Participants responded to the items on a 5-point Likert type scale, where options range from 1 - strongly disagree to 5 - strongly agree (Sjöberg & Sverke, 2000). A high score indicates that an employee is more likely to leave the organisation. The study of Sjöberg and Sverke (2000) provided a Cronbach alpha of 0.83. Likewise, a study conducted in South Africa by De Villiers and Stander (2011) found the Cronbach's alpha coefficient of this measure to be 0.83.

Research Procedure

Ethical clearance was obtained for the research study from the North-West University's Economic and Management Science's Research Ethics Committee (NWU-EMS-REC) (NWU-00902-20-A4). Using a non-probability purposive sampling method, an electronic QuestionPro online hyperlink to the questionnaire was shared on various social media platforms such as LinkedIn, Facebook, and Instagram to gather data from relevant participants. Following the QuestionPro hyperlink, the participants landed on the cover letter explaining the objective, voluntary nature, withdrawal, collecting and handling data, risk level, results, an incentive of participation, and the confidentiality and anonymity of the data. Consent to participate in the research was given once they selected to start with the questionnaire.

The questionnaire consisted of 34 questions and took approximately 5 minutes to complete. The collected data was captured through the survey host online system. The online system was utilised to proceed with the statistical analysis of the data. Only the researcher and research supervisors had access to the anonymous data file. The data was secured with password protection and stored on a computer hard drive and external drive. The confidentiality of the participants was maintained. The raw data was captured and converted to Mplus 8.4 to analyse.

Statistical Analysis

Jeffrey's Amazing Statistics Program (JASP) 0.10 [Computer Software] (JASP Team, 2020) was utilised to calculate Cronbach's alpha reliability and omega coefficients for career adaptability and the career-related constructs. The statistical software, JASP, was developed by quantitative methodologists who aimed to improve statistical analysis and testing methods in the fields of psychological sciences. Mplus 8.6 was used to conduct latent variable modelling (Muthén & Muthén, 2021). CFA was used to investigate the model fit to the data. CFA aided in clarifying the factorial validity of career adaptability by utilising the comparative fit index ($CFI \geq 0.90$), Tucker-Lewis index ($TLI \geq 0.90$), chi-square value (lowest = best-fitting model), the root square error of approximation ($RMSEA \leq 0.08$) and the standardised root mean square residual ($SRMR \leq 0.08$) (Harrington, 2009; Hooper et al., 2008).

With the factor loadings, convergent validity was determined. The factor loadings for the relevant constructs were considered ideal above 0.70, but 0.50 and above were acceptable (Hair et al., 2014). A correlation matrix was generated to clarify answers relating to the relationship between variables. Effect sizes considered practically significant are $r > 0.30$ -0.49 for a medium effect and $r > 0.49$ for a large effect (Cohen, 1992). The correlation matrix was used to evaluate the discriminant validity between career adaptability and career-related constructs. To indicate evidence of satisfactory discriminant validity, the correlations between the constructs of concern were below 0.85 (Bertea & Zait, 2011; Brown, 2015).

The researcher specified a structural model based on the criterion validity-related hypotheses. The structural paths were examined, specifically the significance, size, and direction of the standard beta coefficients (β) when criterion validity was determined (Bergkvist & Rossiter, 2007). The statistical significance parameters in this study were valued at the 95% significance level ($p < 0.05$).

Ethical Considerations

Throughout the research study, the researcher maintained fair and ethical practices. The researcher avoided harm to participants (De Vos et al., 2011). The essential fundamentals of the research are mutual trust, cooperation, and clear expectations (Strydom, 2011). The researcher addressed problems appropriately and based all actions on ethical decision-making.

The researcher limited ethical issues by ensuring no harm to participants, voluntary participation, withdrawal, adherence to anonymity and confidentiality, and not misguiding participants (Strydom, 2011). Aspects such as human dignity, respect, and no harm were adhered to throughout the research process. Participants received comprehensive information on the landing page regarding the purpose of the research, expectations, and the risk level of the study. All necessary information was available to the participants once they followed the QuestionPro online hyperlink, which directed them to appropriate information. Once participants agreed to participate in the research study, they could start with the questionnaire. Consent was implied by the participant selecting to continue with the questionnaire. Data collection only commenced once the NWU-EMS-REC reviewed and approved the submitted application (Reference number: NWU-00902-20-A4).

The researcher implemented a draw where three participants had the chance to receive a Checkers e-voucher. The first prize was R300, the second prize was R150, and the third prize was R50. The participants decided whether they would like to participate or be considered for the raffle at the end of the questionnaire. A second hyperlink was provided at the end of the survey. Once they decided to participate in the raffle and clicked the link, it requested personal information such as their name and e-mail address, automatically entering the participant into the draw. Only fully completed questionnaires were considered for the draw, as the hyperlink was at the end of the questionnaire. The draw took place after data collection and capturing, 18 November 2021, and the winners were informed of their prize by e-mail, which included their e-voucher.

After data collection, data was captured, analysed, safely stored using password-protected files, only accessible by the researcher and supervisors. Data will be safely and securely stored for five years. Upon request, the researcher provided feedback on the general findings of the results, still following strict confidentiality and privacy procedures. Finally, the researcher disseminated the anonymous findings in the form of a Master's thesis and publication in a peer-reviewed scientific journal.

Results

CFA measurement models: Career adaptability (CAAS-SF)

Table 2 presents the fit statistics for the different factor models tested, that is a one-factor model, four-factor model, and a second-order (higher-order) model.

Table 2

Results of the measurement models for the CAAS-SF

Model	χ^2	df	CFI	TLI	RMSEA	SRMR
1: One-factor	221.73	54	0.86	0.83	0.11	0.07
2: Four-factor	76.91	48	0.98	0.97	0.05	0.04
3: Second-order	78.99	50	0.98	0.97	0.05	0.04

Notes: df = degrees of freedom; CFI = Comparative fit index; TLI = Tucker-Lewis index; RMSEA = Root mean square error of approximation; AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion

As can be seen above, the one-factor model was not a good fit for the data. Contrastingly, both the first-order four-factor model and the second-order model had similar, excellent, fit statistics to the data. However, upon inspection of the correlations between the factors, the first-order model showed a correlation of 0.98 between curiosity and confidence, leading to multicollinearity issues in subsequent models. The second-order (higher-order) model is a pragmatic and parsimonious solution in this scenario as it indicates an overall score for career adaptability and addresses the high correlations between the first-order factors. Therefore, this model was used for subsequent analyses.

CFA measurement model: Factor structure and item loadings of the total model

The full measurement research model fit the data well (CFI = 0.962; TLI = 0.958; RMSEA = 0.07). It is important to note that career adaptability was operationalised as a single mean score based on the total (sum) scores from concern, control, curiosity, and confidence. Therefore, work engagement, self-perceived employability, and turnover intention were latent variables. Table 3 presents the factor loadings for the items for the latent variables.

Table 3

Standardised loadings for the latent factors

Factor	Item	Loading	SE	p
Concern	CONC1	0.74	0.07	0.001
	CONC2	0.88	0.07	0.001
	CONC3	0.44	0.08	0.001
Control	CONT1	0.71	0.06	0.001
	CONT2	0.80	0.06	0.001
	CONT3	0.56	0.07	0.001
Curiosity	CUR1	0.69	0.07	0.001
	CUR2	0.51	0.07	0.001
	CUR3	0.47	0.08	0.001
Confidence	CONF1	0.68	0.06	0.001
	CONF2	0.56	0.06	0.001
	CONF3	0.72	0.06	0.001
Career Adaptability	CONC	0.63	0.08	0.001
	CONT	0.77	0.07	0.001
	CUR	0.89	0.08	0.001
	CONF	0.93	0.06	0.001
Work Engagement	WENG1	0.85	0.02	0.001
	WENG2	0.84	0.03	0.001
	WENG3	0.81	0.03	0.001
	WENG4	0.92	0.02	0.001
	WENG5	0.90	0.02	0.001
	WENG6	0.78	0.03	0.001
	WENG7	0.80	0.03	0.001
	WENG8	0.62	0.05	0.001
	WENG9	0.70	0.04	0.001
Self-perceived Employability	SPE1	0.71	0.06	0.001
	SPE2	0.89	0.03	0.001
	SPE3	0.86	0.04	0.001
	SPE4	0.87	0.03	0.001
Turnover Intention	TIN1	0.92	0.04	0.001
	TIN2	0.76	0.04	0.001
	TIN3	0.75	0.05	0.001

Notes: SE = Standard error; All p-values < 0.001.

All the items loaded significantly on their respective factors (average $\lambda = 0.81$; $SD = 0.09$). Furthermore, the standard errors of the estimates were also relatively low, indicating accuracy in the estimation process.

Reliability coefficients and correlation matrix for the study variables

Table 4 below presents the correlation matrix for the study variables.

Table 4

Reliabilities and correlation matrix for the latent variables

Variables	1	2	3	4	5	6	7	8
1. Concern	(0.69)							
2. Control	0.49	(0.67)						
3. Curiosity	0.56	0.69	(0.51)					
4. Confidence	0.59	0.72	0.82	(0.60)				
5. Career Adaptability	0.63	0.77	0.89	0.93	(0.89)			
6. Work Engagement	0.29	0.36	0.41	0.43	0.46	(0.93)		
7. SP Employability	0.19	0.23	0.26	0.27	0.30	0.37	(0.88)	
8. Turnover Intention	-0.06	-0.07	-0.09	-0.09	-0.10	-0.69	-0.12	(0.80)

Notes: Cronbach's reliability coefficients in brackets on the diagonal; All correlations statistically significant $p < 0.001$.

As evident in Table 4, variables were reliable ($\alpha > 0.70$), statistically significant and positively related with one another, barring turnover intention, as expected. However, it is important to point out that even though the first-order factors of the scale did show lower reliability, presumably due to the just identified (3 item) nature of the factors, the second-order model's reliability was highly acceptable when its composite reliability was calculated (0.89). Furthermore, a post-hoc test of all 12 of the items showed an overall reliability coefficient of 0.78. In terms of the correlations, career adaptability was positively correlated with work engagement ($r = 0.46$; medium effect), self-perceived employability ($r = 0.30$; medium effect), and negatively correlated with turnover intention ($r = -0.10$; small effect). Work engagement was positively correlated with self-perceived employability ($r = 0.37$; medium effect) and negatively correlated with turnover intention ($r = -0.69$; large effect). Lastly, self-perceived employability was also negatively correlated with turnover intention ($r = -0.12$ small effect). These results provided initial support for all the research hypotheses.

Structural model fit and regression results

In line with the study, regression paths were added to the measurement, and the following was found: The model was a good fit to the data (CFI = 0.96; TLI = 0.96; RMSEA = 0.07; SRMR = 0.06). The results of the regressions are given in Table 5 and Figure 2.

Table 5

Regression results for the structural model

Structural path	β	S.E.	p	Result
Career Adaptability → Self-perceived Employability	0.16	0.07	0.032	Significant
Career Adaptability → Turnover Intention	0.27	0.07	0.001	Significant
Career Adaptability → Work Engagement	0.46	0.06	0.001	Significant
Work Engagement → Self-perceived Employability	0.30	0.08	0.001	Significant
Work Engagement → Turnover Intention	-0.85	0.05	0.001	Significant
Self-perceived employability → Turnover Intention	0.12	0.06	0.043	Significant

Notes: β = beta coefficient; S.E. = Standard error; p = Two-tailed statistical significance

The regression results showed that all of the hypotheses were supported, i.e. all regressions were significant at the $p < 0.05$ level and even at the level of $p < 0.01$. Furthermore, career adaptability had significant positive path relationships with work engagement ($\beta = 0.46$, S.E. = 0.06, H5), self-perceived employability ($\beta = 0.16$, S.E. = 0.07, H6), and turnover intention ($\beta = 0.28$, S.E. = 0.07, H7). Finally, work engagement showed a significant positive path relationship to self-perceived employability ($\beta = 0.30$, S.E. = 0.08, H8) and significant negative path relationships to turnover intention ($\beta = -0.82$, S.E. = 0.05, H9).

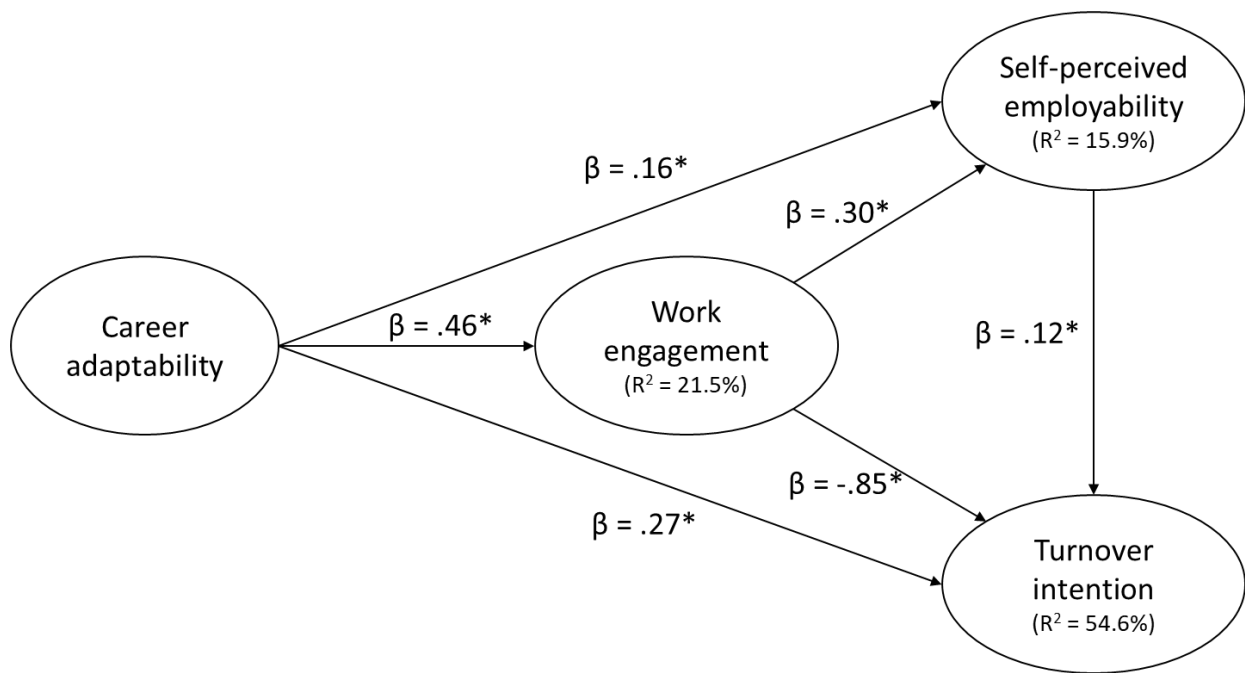


Figure 2. *The structural model with path relationships indicated*

Given the significant regression results, three potential mediating effects were possible (two specific and one serial) and required further investigation. The first potential mediating effect was the mediating role of work engagement in the relationship between career adaptability and self-perceived employability. Results from bootstrapping resampling (10 000 replications) (cf. Rucker et al., 2011), with the two potential indirect effects specified, revealed that the first indirect effect was indeed a meaningful effect (Estimate = 0.14, 95% CI [0.03, 0.21]).

The second potential indirect effect was for work engagement in the relationship between career adaptability and turnover intention. The bootstrapping showed a meaningful indirect effect (Estimate = -0.40, 95% CI [-0.52, -0.29]) which could then be classified as a complementary mediation model as the direct effect from career adaptability to turnover intention was also significant.

Finally, a serial mediation was evident, that is for the indirect effect from career adaptability to turnover intention through both work engagement and self-perceived employability. However, this indirect effect was not meaningful as the 95% confidence interval included zero (Estimate = 0.02, 95% CI [-0.01, 0.05]).

Discussion

Outline of the results

This study aimed at validating the CAAS-SF by determining the reliability and validity of the measure, which included an investigation into the Cronbach alpha, reliability coefficients, factorial, convergent, discriminant, and criterion validity with career-related outcomes, including self-perceived employability, turnover intention, and work engagement.

Firstly, the study set out to investigate that the instrument showed internal consistency (reliability). In terms of hypothesis 1, the calculation of the reliability of the scale, Cronbach's alpha coefficients were utilised. All reliability coefficients were acceptable. The four dimensions (first-order factors) of career adaptability specifically showed lower reliability, presumably due to the 3-item nature of the factors. The second-order model's reliability was highly acceptable, composite. These findings align with Isik et al. (2017) and Yu et al. (2019), who found acceptable reliability values for the four dimensions of career adaptability. These findings supported hypothesis 1.

In terms of hypothesis 2, the study partially supported it since the first-order factor indicates the second-order factors. By utilising CFA, it was found that the full measurement model fit well with the data. Furthermore, it is essential to note that the four dimensions concern, control, curiosity, and confidence, were utilised to operationalise career adaptability as an overall second-order factor. Self-perceived employability, turnover intention, and work engagement were latent variables. This is supported by the findings of Yu et al. (2019) and Maggiori et al. (2015).

Furthermore, it was determined that a one-factor model was not a good fit for the data. Both the first-order four-factor model and the second-order model showed similar, excellent fit statistics to the data. Upon inspection of the correlations, the first-order model leads to multicollinearity issues in subsequent models. The second-order (higher-order) model is a parsimonious and pragmatic solution in this research as it indicated an overall score for career adaptability and addressed the high correlations between the first-order factors.

Next, convergent validity was established using the correlations between career adaptability and other career-related outcomes. All four of the factors correlated with one another, with a significant effect. Specifically, the results indicated a positive relationship between concern and the other three factors, namely control, curiosity, and confidence. Furthermore, the results also found a positive relationship between control and the other two factors, namely curiosity and confidence. Lastly, results also indicated a positive relationship between curiosity and confidence. Furthermore, in the investigation of convergent validity, career adaptability also correlated with all four factors of the CAAS-SF. These findings supported hypothesis 3.

Hypothesis 4 was concerned with determining discriminant validity in terms of career adaptability. Discriminant validity was established considering the correlations between the variables. The correlations were all below the guidelines provided by Brown (2015), of 0.85. Therefore, hypothesis 4 was supported as all correlations fell within acceptable parameters. Further investigation into discriminant validity between the variables was not required.

To investigate hypotheses 5 to 9, it was necessary to explore the structural paths between career adaptability and the career-related outcomes of work engagement, self-perceived employability, and turnover intention. The structural model's regression results indicated that career adaptability was a significant predictor of work engagement, self-perceived employability, and turnover intention. Firstly hypothesis 5 was supported as career adaptability showed a significant positive relationship with work engagement. This indicates that employees' work engagement will increase as their career adaptability increases. This is supported by Rossier et al. (2012), who found that career adaptability strongly relates to work engagement. Paradnike and Bandzeviciene (2016) also found that adaptability resources are associated with student engagement which can be equated to work engagement. Therefore, employees with higher levels of career adaptability show increased confidence and dedication to their work.

Hypothesis 6 was also supported as career adaptability indicated a significant positive relationship with self-perceived employability. Supporting this, Rudolph et al. (2017) and Spurk et al. (2020) suggest that career adaptability is positively associated with self-perceived employability. This indicates that individuals with higher career adaptability show higher levels of self-perceived employability; therefore, they perceive themselves as having the ability to obtain sustainable employment (Udayar et al., 2018).

Hypothesis 7 was only partially supported as there is a significant relationship between career adaptability and turnover intention; however, it was a positive relationship. The positive relationship could be due to downsizing and uncertainty during the COVID-19 pandemic. This is supported by Klehe et al. (2011), who found that employees who have increased career adaptability tend to show lower loyalty and higher intentions of leaving an organisation during downsizing. Furthermore, work engagement plays a mediating role between career adaptability and turnover intention, which could mean that individuals with high career adaptability, who functions in an environment that does not value work engagement, may explore alternative career opportunities, leading to increased turnover intention.

Hypothesis 8 was supported as there was a mediating effect of work engagement in the relationship between career adaptability and self-perceived employability. Supporting this, Ngo et al. (2017) found a positive relationship between work engagement and self-perceived employability. This indicates that as work engagement increases, self-perceived employability will also increase. Therefore, higher career adaptability leads to increased work engagement, resulting in increased self-perceived employability. Therefore, work engagement plays a mediating role between career adaptability and self-perceived employability.

Hypothesis 9 was supported by a meaningful mediating effect of work engagement on the relationship between career adaptability and turnover intention. Supporting the negative mediating effect, Memon et al. (2016) and Takawira et al. (2016) found a significant negative association between work engagement and turnover intention. This means that high levels of career adaptability increase work engagement, leading to lower turnover intention.

Practical implications

This research study provided evidence of the reliability and validity of the CAAS-SF within the South African context. Consequently, utilising the validated scale enables organisations in South Africa to measure career adaptability. By determining and focusing on career adaptability, organisations can develop new perspectives regarding various interventions that could lead to numerous benefits for employees and the organisation (Chan & Mai, 2015; Rudolph et al., 2017). Career adaptability skills can enable and assist employees in solving complex problems, overcoming challenges and difficulties, and transitioning smoothly within

their careers (Rudolph et al., 2017). Furthermore, career adaptability could lead to lower turnover intentions, higher work engagement (Rossier et al., 2012), increased self-perceived employability (Udayar et al., 2018), increased satisfaction, higher performance levels, career success, meaning, and decreased stress levels (Rudolph et al., 2017). Employees with increased career adaptability will perform better, solve complex problems, and overcome any unexpected change or challenges with ease. Each employee's performance contributes to the overall organisational performance and success. Therefore, when implementing interventions to enhance career adaptability, organisations could experience the factors mentioned above and better overall functioning.

The CAAS-SF is a relatively new scale, developed by Maggiori et al. (2015) based on the original CAAS. The CAAS-SF was created with the least number of items which reduces administration time. The reduced time overcomes a lack of motivation, and it could be integrated into more extensive and diverse surveys (Maggiori et al., 2015). Maggiori et al. (2015) suggest that it is essential to investigate the measurement further to determine the stability and invariance, especially in diverse countries and with different variables. Focussing on the validation of the CAAS-SF in the South African context provides other researchers with a psychometrically sound instrument to utilise and with which to conduct further research. Furthermore, the study will facilitate the field of Industrial and Organisational Psychology, specifically with addressing the gap regarding career adaptability in the organisational context,

Limitations and recommendations

The current study provided valuable findings in the South African context in terms of career adaptability. However, no study is without limitations. The first main limitation involves the research approach followed, the utilisation of a cross-sectional survey design. This design restricts the researcher from definitely establishing relationships of a causal nature. Therefore, to explore such relationships, it might be necessary to perform a longitudinal research study. This could enable the researcher to further validate the causality and direction of relationships (Taris & Kompier, 2006). Career-related outcomes can also be explored in terms of causality, such as career success and work meaning (Chen et al., 2020). The definite impact of career adaptability on organisational performance is also an area that could be further researched, as the effects on individual employees are known.

The second limitation is concerned with the sample of the current study. The sample consisted of employed individuals in the South African context. Although the sample is broad and the data can be generalised, focussing on a specific career domain or industry can provide industry-specific evidence. There is a need to further research the CAAS-SF, as well as with different career-related outcomes (Maggiori et al., 2015).

The third limitation is the utilisation of a self-report questionnaire. A self-report questionnaire receives much criticism, especially regarding bias matters. Social desirability will likely occur when items within the questionnaire have a socially sensitive nature, such as career adaptability and career-related outcomes. According to Razavi (2001), social desirability bias can be conceptualised as the tendency to answer self-report items to represent oneself deliberately or unconsciously in a favourable light. The participants' perceptions of a specific phenomenon can also be influenced by their subjective responses. There are some methods to address the limitation; however, it is somewhat limited. The self-report questionnaires are considered normal when exploring latent constructs such as career adaptability, a subjective perception (Podsakoff et al., 2003). Using qualitative interviews in addition to the quantitative survey (a mixed-method approach) is a method to address the current limitation.

The last limitation is concerned with the impact of the COVID-19 pandemic. Firstly, participants could only be included through an online hyperlink to the questionnaire. During the pandemic, movement was restricted, and most organisations closed down due to the lockdown. During these challenging and uncertain times, individuals' responses could have been different to what they would have been during "normal" times before the pandemic.

Conclusion

The current research provided evidence for the reliability and validity of the CAAS-SF in a diverse South African context. The scale was confirmed to be a second-order (higher-order) model structure. The CAAS-SF also provided acceptable internal consistencies, as well as significant positive relationships between career adaptability and self-perceived employability, turnover intention, and work engagement. Furthermore, it was found that work engagement plays a positive mediating role between career adaptability and self-perceived employability and a negative mediating role between career adaptability and turnover intention. Therefore,

considering the relationship between career adaptability and career-related outcomes, it is evident that organisations should refrain from neglecting career adaptability. It is suggested that organisations should consider various interventions that could improve career adaptability among employees, which could have numerous positive effects on engagement, performance, and solving problems, as it would impact on organisations' bottom-line.

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CHAPTER 3

CONCLUSIONS, LIMITATIONS, AND RECOMMENDATIONS

Conclusions, Limitations, and Recommendations

This chapter will discuss the conclusions of the study by linking the general and specific objectives with the findings of the study. Thereafter, the limitations regarding the research are discussed, followed by recommendations for organisations, as well as future research regarding career adaptability.

3.1 Conclusions

Management and researchers have neglected the research of career adaptability, especially within the South African context. Various research studies provided evidence on the numerous positive effects and benefits of this phenomenon for individuals and organisations. Career adaptability has not received much attention in the South African context; there was not a validated scale to measure career adaptability. Furthermore, it created a lack of understanding and awareness regarding career adaptability for management in South African corporations. The current research aimed to address the literature gap by validating a career adaptability scale (CAAS-SF) in the South African context.

The general objective of this study was to validate the CAAS-SF for the South African context. The study investigated specific objectives, i.e. determining the factor structure, reliability, convergent validity, discriminant validity, and criterion validity of the CAAS-SF. Hypotheses were formulated to address these objectives, which were either supported or rejected.

The first objective was to determine how career adaptability and career-related constructs, i.e. work engagement, self-perceived employability, and turnover intention, are conceptualised according to scientific, peer-reviewed literature. A thorough literature review was completed and presented in Chapter 2, therefore, the first objective was achieved. Career adaptability can be conceptualised as “the readiness to cope with the predictable tasks of preparing for and participating in the work role and with the unpredictable adjustments prompted by changes in work and working conditions” (Savickas, 1997, p. 254). Career adaptability is a critical skill which can assist employees in making better career transitions, viable career choices, and overcoming challenges leading to them being more successful in their professional paths (Rudolph et al., 2017; Zacher, 2014). Additionally, career adaptability has been found to have

various positive consequences and benefits on an individual and organisational level, such as increased work engagement, self-perceived employability, and decreased turnover intention (Maggiori et al., 2013; Rudolph et al., 2017; Taber & Blankemeyer, 2014). These relationships have been analysed in the current study and the findings are discussed regarding the second objective of the study.

Regarding the second objective, the reliability and validity of the CAAS-SF had to be determined. Firstly, the factor structure of the CAAS-SF was investigated; it had to be determined whether it consisted of a four-factor structure. By utilising CFA, it was confirmed that the most appropriate structure for this study was, however, a second-order structure as the first-order factor indicates the second-order factors. This was also supported by the findings of Isik et al. (2018), who found that the second-order factor structure showed good fit and strong Cronbach's alpha reliability coefficients in the Turkish context.

Secondly, the Cronbach's alpha coefficient values were investigated to determine the reliability of the scale constructs, i.e. the two-factor structure. Based on the results, it was evident that the CAAS-SF indicated acceptable internal consistency (career adaptability $\alpha = .89$; concern $\alpha = 0.69$; control $\alpha = 0.67$; curiosity $\alpha = 0.51$; confidence $\alpha = 0.60$). However, it is critical to point out that although the first-order factors of the scale showed lower reliability, which is presumably due to the 3-item nature, the second-order model had a highly acceptable composite reliability (0.89). This is supported by research in the Turkish context that indicated Cronbach's alpha coefficients ranging from 0.70 to 0.91 (Isik et al., 2018).

Thirdly, convergent validity was determined between career adaptability and other similar theoretical constructs. All four factors correlated with one another, with a significant effect. The findings showed a positive relationship between concern and the other three factors, i.e. control, curiosity, and confidence. Similarly, the results indicated a positive correlation between control and the other two factors, curiosity and confidence. Furthermore, the results also showed a positive relationship between curiosity and confidence. Career adaptability also correlated with the four factors of the CAAS-SF.

Fourthly, in the second objective, discriminant validity in terms of career adaptability was determined. Discriminant validity was determined by taking the correlations between the variables into consideration. All correlations were below the guidelines of 0.85 (Brown, 2015),

therefore all correlations fell within the acceptable parameters and did not require any further investigations.

Lastly, regarding objective two, it involved determining the criterion validity between career adaptability and the career-related constructs, namely work engagement, self-perceived employability, and turnover intention. The results indicated that career adaptability was a significant predictor of work engagement, self-perceived employability, and turnover intention. Results indicated that there is a significant positive relationship between career adaptability and work engagement. This suggests that as career adaptability levels increase, work engagement will increase. Furthermore, the results indicated a significant positive relationship between career adaptability and self-perceived employability. Therefore, as career adaptability levels increase, self-perceived employability levels increase. The results also showed a significant positive relationship between career adaptability and turnover intention. This suggests that as career adaptability levels increase, turnover intention levels will increase. The positive relationship could be ascribed to downsizing and uncertainty during the COVID-19 pandemic. Furthermore, work engagement plays a positive mediating role in the relationship between career adaptability and turnover intention. Therefore, the positive relationship could be due to individuals with high career adaptability functioning in environments that do not value work engagement, leading to them seeking alternative career opportunities, resulting in the increased turnover intention.

Furthermore, when determining criterion validity, research investigated the mediating role of work engagement in the relationship between career adaptability and self-perceived employability, and career adaptability and turnover intention. The results indicated that work engagement does have a positive mediating effect on the relationship between career adaptability and self-perceived employability. Therefore, increased career adaptability leads to increased work engagement, resulting in higher levels of self-perceived employability. This is supported as research indicated a positive relationship between work engagement and self-perceived employability (Ngo et al., 2017). Furthermore, the results also showed a negative mediating effect of work engagement on the relationship between career adaptability and turnover intention. Therefore, increased career adaptability leads to increased work engagement, resulting in lowered turnover intentions. This is supported as research found a negative relationship between work engagement and turnover intention (Memon et al., 2016; Takawira et al., 2016).

The final objective was to provide recommendations for future research and practice. The objective was achieved by providing limitations and recommendations in the following sections.

3.2 Limitations

It is critical to acknowledge the limitations of the study. The first limitation involves the research approach that was employed. A cross-sectional survey design restricts the research from establishing relationships of a causal nature, as it gathers data at a fixed point in time (Olsen & St. George., 2004). To investigate such relationships, it could be necessary to employ a longitudinal study. A longitudinal study could enable the researcher to validate the causality further and include other career-related outcomes (Chen et al., 2020; Taris & Kompier, 2006). As the effects of career adaptability on individuals are known, further research could be performed on the impact on organisational performance.

The second limitation is concerned with the sample utilised in the study. Data was collected from employed individuals within the South African context. The sample is broad, suggesting that the data can be generalised; however, research can focus on a specific industry or domain to gather industry-specific evidence. There is still a need to conduct further research on the CAAS-SF and with alternative career-related outcomes (Maggiori et al., 2015).

The third limitation involves the use of a self-report questionnaire in gathering responses. The method has received much criticism, specifically regarding bias matters. Social desirability will likely occur with socially sensitive items such as career adaptability and career-related constructs. Social desirability is the tendency to respond to represent oneself, deliberately or unconsciously, in a favourable light, especially with self-report items (Razavi, 2001). Additionally, as responses are subjective, responses might be influenced by the participant's perspective regarding a phenomenon. There are alternative methods to address the limitation. Furthermore, it is acceptable to utilise a self-report questionnaire when investigating latent and subjective constructs such as career adaptability (Podsakoff et al., 2003).

The last limitation involves the impact of the COVID-19 pandemic. The pandemic led to organisations being closed down and restricted the movement of individuals. Furthermore, access to participants was limited; therefore an online hyperlink to the questionnaire was

provided. During these challenging and uncertain times, individuals' responses could have been skewed to what they would have been during "normal" times.

Regardless of limitations, the research study provided valuable results on career adaptability and career-related outcomes, supporting most hypotheses. These results provide critical information for organisations and future research possibilities regarding career adaptability in South Africa; therefore they are considered valuable.

3.3 Recommendations

3.3.1 Recommendations for practice

The validation of the CAAS-SF in the South African context creates opportunities for organisations and practitioners to investigate the construct further. It can provide great insights and understandings regarding career adaptability, specifically regarding the positive effects and benefits it has on organisational outcomes. Organisations need to create awareness regarding career adaptability and focus on possible intervention strategies that can benefit individuals and corporations.

Organisations can develop strategies to enhance career adaptability skills as they enable employees to solve complex problems, overcome difficulties, and transition smoothly through changes in their work and everyday lives. Career adaptability can lead to the organisation achieving new and unique perspectives with their employees, which could lead to benefits such as increased work engagement (Rossier et al., 2017), satisfaction (Rudolph et al., 2017), performance, decreased turnover intention (Chan & Mai, 2015), stress levels (Rudolph et al., 2017), and ultimately to career success (Ohme & Zacher, 2015).

Employees with increased career adaptability levels will perform better, solve complex problems, and overcome difficulties. Every individual's performance contributes to the overall performance and success of the organisation. Therefore, by focusing on career adaptability, employees will perform better, leading to increased organisational performance and ultimately contributing to the organisation's bottom line.

3.3.2 Recommendations for future research

A longitudinal study is recommended as it would further validate the findings, i.e. direction and causality (Taris & Kompier, 2006). The approach could further assist in obtaining insight and an understanding regarding the predicted relationships over time. Furthermore, various alternative career-related constructs could be investigated in the literature regarding causality, such as the well-being or satisfaction of employees, as research indicated that career adaptability increased employees' satisfaction, success, and well-being with increased career adaptability skills (Rudolph et al., 2017).

Data collected was not industry-specific; it was generalised in the South African context. Therefore, future research could consider research on a specific industry or sector within the South African context, leading to industry-specific knowledge. Such research could provide a clearer understanding of the dynamics and manifestation of career adaptability in various South African organisations.

In addition to the self-report questionnaires, it could be beneficial to conduct qualitative interviews with participants. Furthermore, a mixed-method approach could be employed; qualitative interviews in addition to the quantitative survey could be a valuable recommendation.

Lastly, the COVID-19 pandemic restricted access to organisations and participants. Further research could be conducted once the dust of the COVID-19 pandemic settles. The pandemic could have influenced responses; therefore, after some time, people might respond differently. Organisations have opened their doors again, therefore accessing participants specific to an industry or organisation might be possible and more convenient in future research.

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