Monograph | Investigating the skills shortages for artisans in the safety and security sector

EXECUTIVE SUMMARY

South Africa is facing skills shortage as a result, there is a significant skills development initiative needed. The purpose of this study was to investigate causes for the shortage of skilled artisans in the safety and security sector. The research objectives were to discover types of artisan trades that are in shortage, causes for the shortage of skilled artisans including the interventions initiative to address them within the safety and security sector.

A purposive sampling method was used whereby secondary data was collected from the SASSETA WSP/ATR database as well as information from various studies and annual reports from government departments. These government documents consist of Department of Defence, South African Police Service and Department of Correctional Services.

The study revealed that there is a shortage for electricians, vehicle painters, automative motor mechanics, radar mechanics, aircraft maintenance and mechanical engineering technologist at the DoD. DCS needed welders and SAPS required electricians, painters, bricklayers, plumbers, and welders. Furthermore, findings uncovered that absolute scarcity due to new and emerging occupations, relative scarcity due to replacement demand, technological advancement including change of business were the causes of these shortages of these skills. This study found that trade tests are needed the shortages of skills in the sector.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACRONYMS

ARPL	Artisan Recognition of Prior Learning
CBMT	Competency-based modular training
DCS	Department of Correctional Services
DHET	Department of Higher Education and Training
DoD	Department of Défense
INDLELA	National Artisan Development
LMI	Labour Market Intelligence
MTA	Manpower Training Act
NADQAC	National Artisan Development Quality Assurance Committee
NAMB	National Artisan Moderation Body
NC(V)	National Certificate (Vocational)
NDP	National Development Plan
NSDP	National Skills Development Plan
NSF	National Skills Fund
PSET	Post-School Education and Training
QCTO	Quality Council for Trades and Occupations
SAPS	South African Police Services
SASCO	South African Standard Classification of Occupations
SASSETA	Safety and Security Sector Education and Training Authority
SDA	Skills Development Act
SETA	Sector Education and Training Authority
SSP	Sector Skills Plan
TVET	Technical and Vocational Education and Training
WSP	Workplace Skills Plan

CHAPTER 1

INTRODUCTION

1.1 Introduction

South Africa is facing a shortage of artisans. The importance of artisan development programmes for the growth of the economy and job creation. The term artisan refers to a series of intermediate level knowledge and skills where knowledge is a combination of theory and practice, and the emphasis is on the practical held by workers in the craft and artisanal trades (Akoojee, 2013). Artisans consists of professions like millwrights, electricians, plumbers, boilermakers, mechanics, fitters and turners, pattern makers, and injection moulders are included in this category (Akoojee, 2013).

According to De Kock (2012), there are substantial local technical vacancies which cannot be filled due to candidates do not meet the educational and skill requirements. A skill shortage occurs when any one of the following situations arises or a combination of them: shortage of workers in a particular occupation, labour demand exceeds availability of skills, or workers lack appropriate qualifications (Rasool and Botha, 2011).

The National Development Plan aims to add 30,000 artisans per annum by 2030 however, current estimates predict only 20,000 per year, resulting in a shortage of 'priority skills' (National Planning Commission, 2012). The Department of Higher Education and Training (DHET) has identified trades that are in demand for the economy to the level envisaged in the National Development Plan (NDP) such as diesel mechanics, instrument technicians, riggers, auto electricians and millwrights as a worrying threat to the economy (DHET, 2020). The Labour Market Intelligence (2022) data shows that electricians, boilermakers, bricklayer, riggers, plumbers, and carpenters amongst unemployment artisans.

The Coronavirus 2019 has caused serious disruption in artisan development whereby extensive training and development strategies have become essential components of the skills shortage crisis strategy (Labour Market Intelligence, 2022). The government, education and training organisations as well as employers should work together to facilitate the transfer of essential skills, knowledge, and expertise.

1.2 Background

It is a widely held belief in South Africa that the training of artisans in large numbers will contribute towards reducing youth unemployment as these are skills required by employers (JIPSA, 2010). Skills development becomes crucial to South Africa's economic and social development. Skills shortage can be described as an insufficient supply of suitably qualified workers in the workplace (Windapo, 2016). Mabasa and Olutola (2021) explains that a low apprenticeship graduation rate further contributes to the current shortage of artisans.

The Labour Market Intelligence (2023) statistics reveal that over the 10-year period (2011 to 2022), the electrician trade has had the largest number of unemployed artisans (18.5%), other trades that recorded high unemployment boilermaker (13.7%), bricklayer (13.0%), rigger (12.2%), plumber (10.1%) and carpenter (7.0%). In addition, most unemployed artisans were aged between 25–44 years who were African based in KwaZulu Natal and Gauteng in terms of demographics (Labour Market Intelligence, 2023).

Bassot (2022) argued that the unfortunate reality is that the historical context of artisan training programs has given them a lower status in the South African labour market. The training of artisans should also be a national priority. In Technical Vocational Education and Training (TVET) colleges, graduates experience difficulties accessing practical experience which prevents them from obtaining the required work experience to access the trade test which provides them with artisan status (DHET, 2015). Sector Education Training and Authorities (SETA's) play an active role in fostering relations

between institutions of learning and employers in providing work experience programmes (NCP,2012). Artisan training assist in growing support from employers in both the private and public sectors, including the state-owned enterprises to equip learners with appropriate skills (DHET, 2013).

The National Skills Development Plan is the guiding document that determines the work of SETAs and provides direction on the type of programmes and training initiatives implemented. "A national artisan development programme including all components of artisan development, driven by all social partners in a coordinated and integrated manner is therefore a critical need for the country (DHET, 2020:6)." Artisan development in South Africa may benefit from a single regime approach, effective curriculum delivery by the TVET colleges and partnerships between these educational institutions and employers (Smit, 2017).

1.3 Research problem

The shortage of skilled artisans' challenges companies' ability to render quality services to customers and unskilled people are hired to work in the absence of qualified, skilled artisans. This, together with the low number of skilled among qualified artisans, is resulting in diminished service quality and growth.

1.4 The aim of the study

The aim of this study is to investigate causes for the shortage of skilled artisans in the safety and security sector.

1.5 Research objectives

(a) To determine the specific type of artisans that are in shortage in the safety and security sector.
(b) To investigate the causes for the shortage of skilled artisans in the safety and security sector.
(c) To identify ways to address the shortages of skilled artisans in the safety and security sector.

1.6 Research questions

 (i). Which specific artisans are in shortage within the safety and security sector?
(ii). What are the causes of shortage of skilled artisans in the safety and security sector?
(iii). How can the shortages of skilled artisans be addressed in the safety and security sector?
(iv). What are the contributing factors that have led to the shortage of skilled artisan in the safety and security sector?

1.7 Significance of the study

SASSETA will also gain a better understanding of the needs of the sector from the study, not only in terms of the number of artisans required but the specific skills required. Moreover, the study will make a significant contribution to the SASSETA to measure the effectiveness of the artisan development interventions.

1.8 Definition of concepts

1.8.1 Artisan

Ledwaba and Nhlengetwa (2016) describes an artisan as a skilled craftsperson who does work by using their hands. The Skills Development Amendment Act defines an artisan as "a person who has been certified as competent to perform a listed trade in accordance with the Skills Development Act" (DHET, 2011:4). In relations to this study, artisans will be discussed and referred to according to both definitions mentioned above.

1.8.2 Skills

According to Cimitti (2016), non-technical skills are skills that are not specific to any job position or workplace environment. For instance, communication, creative thinking, problem solving skills, information management, leadership, and organizational skills (Cimatti, 2016).

On the other hand, technical skills are expertise or technical competence related to the field of the workers (Demming and Kahn,2018). Hurrell (2016) emphasises that technical skills are often associated with the use of tools, equipment related to work properly and efficiently. This study will adopt both non-technical and technical skills terms in discovering the types of skills in shortage required by employers.

1.8.3 Shortage of skills

Brunello and Wruuck (2021) states that skills shortage is between workers who do not have the essential technical skill. For instance, the capacity to weld, to cook, to write computer code or maintain high-voltage power lines (Demming and Kahn, 2018). Windapo (2016) explains that shortage of skill can be a lack of adequately skilled individuals available in the labour market being sought which can lead to difficulty in recruitment. A shortage of skills can also occur when the labour demand for a particular occupation is greater than the supply of capable people to sustain this demand.

1.9 Outline of the research

Chapter 1, presents the introduction and background to the study. The research problem statement, research objectives and questions are stated as well as the significance of the study. Furthermore, it outlines the scope and focus of the study in its entirety.

Chapter 2, explores the existing and relevant literature in the subject of skills shortage in South Africa and the challenge by the government. This chapter helps to locate this study as a contribution amongst other studies in the subject.

Chapter 3, present research design and methodology. It further explains how data was collected by reviewing government department annual reports including the SASSETA WSP/ATR to obtain the research objectives. The limitations of the study are also noted in this chapter. **Chapter 4,** presentation and discussion the findings of the study. of findings. **Chapter 5,** deals with the conclusion and recommendations of the study

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The focus of this study is largely on artists who are instructing aspiring artisans. It is crucial to explain the paths that lead to becoming an artisan as well as how these paths have changed over time. This section aims to provide insight into the backgrounds of the qualified artisans who are there, as well as the paths that the aspiring artisans.

2.2 Legislative Framework

There various pieces of legislation that seek to regulate the skills development landscape in South Africa. These legislations plays a critical role in shaping the discourse of skills development and addressing transformation imperatives set by the government.

2.2.1 Skills Development Act

The Skills Development Act (Act 97 of 1998) was introduced in 1998. The act encourages employers to invest in training and developing skills in the workplace. Furthermore, the Act also aims to bring about a culture of continuous learning, providing both new entrants to the labour markets and individuals who have previously experienced difficulty in finding employment. As a result, The SDA (Act 97 of 1998) has led to the establishment of SETAs who are agencies responsible for identifying priorities for skills development and implementing skills development (Mbatha, Wildschut, Mncwango, Ngazimbi and Twalo, 2015). The idea is to ensure there's a regulated market that provide training responsive to employers' needs.

The Skills Development Act made changes to traditional training by creating new structures for training through funding incentives to encourage more training in the form of learning programmes as a way of assisting people acquire skills and jobs. The Act also seeks to increase the quality and quantity of artisan. The Skills Development Amendment Act 37 of 2008 defines an apprenticeship as a learnership listed as a trade which includes a trade test in respect of that trade (Van Zyl,2018).

The Skills Development Act of 2008 broadly sets out the statutory functions of the Chief Directorate: National Artisan Development with the main focus being that of coordinating apprenticeship and artisan development within the country" (DHET,2022:72).It is essential that the post-school education and training system responds to these, especially with regard to expanding the pool of skills and knowledge available to the country and equip people to obtain work (DHET,2013).

2.2.2 White Paper of Post Education and Training

The White Paper of Post-School Education and Training (DHET, 2013) is a policy proposal to plan the post-school education and training framework since the establishment of the Department of Higher Education and Training (DHET) in 2009. DHET has prioritised artisan skills development in its White Paper for Post-School Education and Training whose objectives are to strengthen and expand the TVET system for economic growth (DHET,2013). The policy framework suggests that apprenticeship and artisan development from the White Paper Post School Education and Training (DHET,2022:71) should provide:

- The re-establishment of a strong apprenticeship training system,
- The simplification of the pathways leading to artisan trade,
- The improvement of the quality of the apprenticeship training system, and
- The production of 30 000 qualified artisans per annum by 2030.

This is proposed as a significant step towards a comprehensive approach and set of frameworks for producing better-quality artisan planning of skills training, and development (Mbatha at el, 2015). The policy document emphasises that TVET colleges should prepare students for the world of work and promote workplace learning (DHET, 2019). According to the document, workplace learning is important in that it prepares and enhances students' skills and increases their chances of employment (Department of Higher Education and Training, 2019). Hence, White Paper for PSET acknowledges that, even though "in areas of work such as the artisan trades, apprenticeships have traditionally been the pathway to qualifications.

Training would be aimed at preparing students for the workplace and to upskill people presently in employment or who are considering returning to the job market (Smit,2017). Such partnerships can be beneficial to employers by providing young people who can assist in the business while they learn. Moreover, they also allow employers to assess students during their workplace training for possible later recruitment.

2.2.3 National Skills Development Plan (NSDP)

The National Skills Development Plan (NSDP) urges employers to encourage and support worker-initiated training. The document advocates that employers support the education system by offering practical training to students and graduates with SETAs (Department of Higher Education and Training, 2019). The NSDP indicate that the linkage between the education sector and the labour market is critical to achieve graduate placement to address occupations in high demand and priority occupations (Department of Higher Education and Training, 2019). The policy document mentions the importance of how workplace programmes play an essential role in skilling of employees.

In relations to artisans, workplace training is useful in re-skilling or upskilling artisans in the workplace. This is evident in that graduates tend to be less equipped with required work skills and that they cannot perform duties that are in line with their scope of work. Hence, the outcomes of the NSDP suggests that there should be a link between the education sector and the labour market. They seek to have a skilled and educated workforce through quality and responsive education. As previously outlined, reports indicate that there is lack of synergy between the current education system and the labour market in South Africa.

2.2.4 National Development Plan

The skills development framework is aimed at improving the skills in the South African labour force. The National Development Plan (NDP) 2030 was launched in 2012. The NDP is a strategic development plan for South Africa drafted by the National Planning Commission (NCP, 2012). According to the NDP (2012) document, South Africa still faces significant skills shortages which hinders social and economic stability and development thus, the strategy document identifies the improvement of the quality of skills development as critical to the achievement of its objectives. The national skill planning system to conduct labour market research and produce different skills scenarios which should inform training providers (NPC,2012).

The NDP further states that "education and skills, and the opportunity to work are the elements where South Africa most needs to make progress" (Van Zyl,2018:74). TVET colleges support the vision of the NDP by means of creating training opportunities for students enrolling for vocational qualifications. The colleges offer artisanship training to students wishing for a career in the artisanship stream which includes programmes mechanical, electrical, manufacturing or support services (Mail & Guardian, 2019).

2.3 Understanding artisans in South Africa

Craftspeople and associated trade workers are classified as Major Occupational Group 7 in the South African Standard Classification of Occupations (SASCO). Msibi (20215) 22 priority artisanship are included in this group Identified, these are:

- *Engineering: Welders, Electricians, Fitters, Turners, Millwrights, Sheet metal Workers, Boilermakers, Mechatronics, Mechanics, Toolmakers and Patternmakers.*
- *Construction: Bricklayers, Plumbers, Carpenters, Joiners, Shutter hands, Steel fixers, Glaziers, Plasterers and Tilers.*
- *Other: Sound technicians, Instrumentation and Electronics Technicians*

Prior to the amendment of the SDA, artisan development was governed by the Manpower Training Act No. 56 of 1981 (MTA) (Smit, 2017). "Apprenticeships based on a very structured master-apprentice relationship served as a fundamental aspect of artisan training so much so that in the Manpower Act, artisans are not defined, instead, apprentices are defined, and it is derived that artisans would be any person who successfully completes an apprenticeship and passes the relevant trade test" (Msibi, 2015:20).

The MTA defines 'apprentice' as any person employed in terms of a contract of apprenticeship registered or deemed to be registered in terms of the provisions of section n 16(3)(d) or section 18(1)(c) (Smit, 2017). Schoeman (2017) argues that the current apprentice system may not be serving the industry in its current format, in her presentation to the DHET research colloquium. There are three streams referred to training artisans a vocational stream that is driven through TVET Colleges, an occupational stream that is driven through SETAs and a technical stream that is driven through the general schooling system (Fouche, 2017).

According to Smit (2017:49), "Apprentices do not only learn to acquire the prerequisite skills to be competent enough to pass the trade test, but they must acquire technical expertise in a wide variety of personal, generic and specific skills for the chosen trade." Apprentices attended a TVET college where theoretical theory content of a particular trade was taught that should now be transferred to the workplace under the guidance and mentorship of an experienced master artisan or supervisor (Smit, 2017). However, Msibi (2015) mentioned that the apprenticeship system however could not fulfil the demand for artisan labour due to the changing patterns of employment.

Artisan development in South Africa is administered by the DHET. The DHET launched the Sector Education and Training Authorities (SETAs) in 2009 with Further Education and Training Colleges (FETs) that became part of the legislative competence of DHET as a starting point for artisan development in South Africa (Smit, 2017). Learnership and apprenticeship candidates are subjected to a competency test and the passing of the level test, and the final trade test deems them competent to practice, giving them recognition as artisans in the relevant trade (Papier and Vollenhoven, 2017).

In terms of Section 13 of the SDA 97 of 1998, a qualified artisan was formally indentured as an 'apprentice' at a single employer for the duration of the apprenticeship as outlined in the conditions of apprenticeships. Apprentices employed by companies under Section 13, were required to complete N-courses to cover the trade theory component at public or private Technical and Vocational Education and Training (TVET) College. Furthermore, do their practical training with SETAs or Quality Council for Trades and Occupations (QCTO) accredited skills development providers (either externally or internally with the employer). Candidates need to complete their trade test within the contracted period.

The apprenticeship and artisan development system training delivery relies on SDPs for theoretical and practical training, workplace for apprentice on the job training for the external integrated summative assessment (CHIETA., 2017). This is a journey that starts with formal learning at the TVET college and ends with practical WPL. Aspiring artisans attend a TVET colleges to learn the theory and practical skills required. TVET colleges offer qualifications such as the National Certificate (Vocational) and Nated

(Technical) National Certificate courses that are linked to artisanal trades. Theoretical training for most artisan trades consists of the official national curricula (NATED or 'N' courses) delivered by public and private accredited colleges, with the N2 certificate being the required level of theory for taking the trade test (Papier and Vollenhoven, 2017). In the classroom, learners are taught various concepts and theory underpinning the use of, for example, hand tools, power tools or machine tools used in trades (Papier and Vollenhoven, 2017). Colleges should be strengthened to become institutions of choice for the training of artisans and producing other mid-level skills (National Planning Commission, 2012).

The South African government identified the lack of artisans as an urgent priority and launched the "Decade of the Artisan" initiative in 2014. Artisans are expected to pass a summative assessment (trade test) after completing an apprenticeship under the mentorship of a qualified artisan (Fouche, 2017). These trades would include electricians, plumbers, fitters and turners, mechanical fitters, millwrights amongst others (Fouche, 2017).

The most common and simplistic understanding of an artisan is that it is an individual that is skilled at practicing a particular trade or handicraft. The term referred to skilled workers who could make things by hand, and this practice continued until the end of the Middle Ages with the introduction of apprenticeships (Mateus, Allen-Ile, and Iwu, 2014).

Close partnerships between colleges and employers likewise assist the colleges to locate opportunities for work-integrated learning and help them to place students when they complete their qualifications (DHET, 2013). In some instances, the colleges offer training in a form of apprenticeship which include formal instruction sessions where students are exposed to theory and practical hand skills under the supervision of a qualified artisan (Bridge, 2019). Thus, TVET colleges serve as a primary platform or a base for equipping students with knowledge and skills into the artisan profession.

2.4 Routes to Becoming an Artisan

The Artisan Development Committee under the Department of Labour in December 2007 gazetted the four avenues they had stipulated to be routes that could be taken in training to become an artisan. The four routes were:
- Apprenticeship Route
- Recognition to Prior Learning (RPL) Route
- Learnership Route
- Skills Programme Route

i.   Apprenticeship Route

The apprenticeship system, irrespective of stream, combines theory, practical and work-based learning for a predetermined period before a trade test. The apprentice route is the historical pathway that has always been taken in becoming an artisan (Fouche, 2017). An apprenticeship can span anything from 2 to 4 years and is signed by the employer and the prospective artisan. At the end of this contract the apprentice is certified as an artisan but only after they write a trade test and pass can they be registered as an artisan (Mukora; 2008).

ii.   Learnership Route

Learnerships are built from the apprenticeship model and combine theoretical and practical knowledge to culminate in a qualification that is recognised on the NQF (Sileyew, 2019). A learner registers for a learnership through the relevant SETA and signs year-by-year contracts that are linked to a learning programme recognised by the NQF and span, in total, from 2 to 4 years (Mukora, 2008). Unlike apprenticeships, learnerships also require a vast amount of time to be devoted to structured learning, and learnerships have multiple entrance and exit points (Mukora, 2008). After successfully completing the learnership the learner is certified as an artisan and is registered as one after passing the relevant trade test.

iii. Skills Programme Route

Another route was created through the established of SETAs under the Skills Development Act (DHET,2019). A learner may register with the relevant SETA for a learnership or skills programme for their trade. The learner will spend a predetermined amount of time at the workplace (Mukora, 2008). Like the apprenticeship route, this route has one entrance and exit point and the successful completion of the National Certificate Vocational (NCV) which leads to certification with a passed trade test leading to registration as an artisan.

iv. Recognition of prior learning route

A learner may register as a Recognition of Prior Learning (RPL) Learner with the Institute for the National Development of Learnerships, Employment Skills and Labour Assessment (INDLELA) and spend a pre-determined amount of time on an artisan trade recognised by the NQF (Mukora, 2008). The RPL contract will guide the learner in compiling a portfolio of evidence. The INDLELA will assess this portfolio and if it is successful, the learner will be granted certification as an artisan and on successfully passing the trade test the learner will be registered as an artisan (DHET,2015).

2.5 The National Artisan Moderation Body (NAMB)

The National Artisan Moderation Body (NAMB) is helping South Africa to move away from designations of a non-sector-based artisan training system for listed trades, to the benefit of all artisans in South Africa (CHIETA., 2017). The Department of Higher Education and Training (DHET) launched the National Artisan Moderation Body (NAMB) in order to coordinate artisan development in South Africa, and thereby strengthen the country's skills base.

The National Artisan Moderation Body (NAMB) has a key function to link all quality assurance artisan learning processes with FET colleges and to (CHIETA., 2017):

- develop and moderate artisan trade tests,
- develop and manage the national database of registered artisan trade assessors and moderators,
- record artisan achievements and
- recommend certification of artisans to the QCTO.

On successful completion of a trade test at an accredited trade test centre, SETA's and INDLELA will submit results and supporting documentation to NAMB for recommendation of certification to the QCTO under section 26D (4) of the SDA.

2.5.1 Trading test

"All Trade Test in South Africa is regulated in the terms of the provisions of the National Trade Test Regulations are applicable to all trade test centres whether they are operated by private, government or state-owned companies (DHET,2022:72)." The national trade test includes practical tasks that an apprentice must complete within a specified period of time as determined by the NAMB.

All trade testing processes are monitored and moderated by the NAMB as required by Section 26A (2) of the SDA. The development of a national system, to be called the Artisan Recognition of Prior Learning System, designed to recognise the existing skills of support workers and to assist these workers to obtain whatever additional skills they need to qualify as artisans.

Customised apprenticeship and artisan development testing aligned to the ARPL system that will offer persons who have assimilated knowledge and skills related to an artisan trade through workplace activities to also enter a well-supported process that will to a national trade test. Increasing and improving the capacity and quality of trade testing is currently managed through the National Artisan Development Quality Assurance Committee (NADQAC) that is made up of representative from the DHET, SETAs and QCTO who are involved in the recommendation of accreditation of TTCs (DHET,2022).

2.6 Causes for Skills Shortage in South Africa

A majority of young people who have received some form of artisan training do not find jobs after graduation because they have not had sufficient or appropriate work experience, or their course was not aligned to industry requirements (Mateus, Allen-Ile, and Iwu, 2014). Combating the skills crisis should not be the exclusive preserve of government. South African government and its partners (employers, business, training establishments colleges as well as universities) should work towards the development of learnership programs and curricula that adhere to the skills required in the labour market. Argue with the need to improve the performance of the economy, to expand employment and to equip people to achieve sustainable livelihoods. This means improving partnerships, developing effective and well understood vocational learning and occupational pathways, and improving the quality of the learning and work experiences along those pathways (DHET, 2013).

Richardson contends that skills shortage in South Africa comes from many origins, namely a lack of investment in skills development; education; and rapid structural change (Mateus, Allen-Ile, and Iwu, 2014). Hasan (2021) in terms of this issue of skilling a nation without having a big enough labour market to absorb those with the skills but sees a possible solution to be directing the vocational education sector away from fulfilling the short term needs of industry and rather having the sector focus more on providing strong curricula that opens up the learners to the ability to develop better understandings of critical concepts thus making their skills accessible to a larger pool of employment opportunities. According to Bassot (2022) reveals that there is a lack of accurate data on artisans and artisan training for example, how many artisans does South Africa need and in which trades, how many learners are currently being trained.

According to Wildschut and Mbatha (2016), the availability of data to plan and govern resource allocation forms the backbone of understanding the supply and possible future demand for skills. The skills planning in sectors relies heavily on research by educational institutions. By doing so, mismatches between the demand and supply of skills cannot be addressed or projected. The fourth industrial revolution may cause a major disjuncture between the demand and supply of skills if systems are not dynamic (Van Zyl,2018). SETAs develop and submit sector skills plans (SSP) to the Department of Higher Education and Training annually. The main purpose of the SSP is for SETAs to conduct sector research and determine the critical and scarce skills required in the sector (Fouche: 2017). These skills are determined through a thorough analysis of the sector, including the economic setting, labour profiles and performance of the sector.

2.7 Ways to implore skills development
2.7.1 The Use of Expanded Public Works Programmes

The significance of the public works programs lay in their ability to introduce jobless young people to a range of employment options and the necessary skills. Public works and other infrastructure programs offer possibilities to youth with limited or no skill set who are not employable in other areas that demand specific skills (Van zyl, 2018). The young workers had access to numerous chances that covered a wide range of abilities, including those of a site supervisor, bricklayer, site foreman, shuttering and formwork, plumber, painter, carpenter, and tiller.

2.8 SETAs and artisans

In 2009 the Department of Higher Education and Training (DHET) was established, and the Sector Education and Training Authorities (SETAs) and Further Education and Training Colleges (FETs) became part of the legislative competence of DHET as a starting point in changing apprenticeships and learnerships in South Africa working towards creating a more flexibly skilled worker (CHIETA., 2017). The SETAs are key institutions in the effort to bridge education and work. They are stakeholder bodies established in terms of the Skills Development Act (No. 97 of 1997) (DHET, 2013). The SETA is a body established under the SDA whose main purpose is to contribute to the improvement of skills in South Africa through achieving a more favourable balance between industry demand and supply and ensuring

that education and training (Smit, 2017). The role of SETAs in relation to artisan development is important in training of artisans. The 21 Sector Education and Training Authorities in South Africa provide learners with various routes to becoming an artisan. These range from national certificate programmes that are unit-standard based (learnerships) to competency-based modular training (CBMT) systems, where an acute focus on competencies in the workplace allows a learner to progress through various levels (Fouche, 2017). Various SETAs have their own trade tests that were developed to train employees specifically for the sector they function in (Fouche, 2017).

In addition, SETAs have a role to play in assisting the participation of employers in artisan training. This is mainly done by means of grants, where employers and training providers work together to deliver theoretical and practical training and provide work experience for apprentices (Wildschut and Mbatha, 2016). It is against this background that the NSF as a catalytic fund support the state to drive key skills strategies as well as to meet the training needs of the unemployed (DHET, 2020).

The Skills Development Act No.97 of 1998 [6] which was promulgated to build the skills of the South African workforce requires each sector to compile a Sector Skills Plan (SSP), which is informed by the Workplace Skills Plan (WSP), where each sector has to identify scarce and critical skills (Ngcobo and Govender, 2015). SETAs also play a brokering role whereby they assist employers to engage in artisan training. Mainly this is done via grants, with employers and training providers working together to deliver theoretical and practical training and provide work experience to apprentices (DHET, 2019). However, this relationship can also take the form of a project involving key stakeholders coming together to plan training programmes that will address a particular trade or set of trades (DHET, 2019).

2.9 Conclusion

In summary, the literature reviewed highlights the importance of artisan development programmes for the growth of the economy and job creation by implementing skills development initiatives to address shortage of skills. Literature included the various routes individuals can pursue to become an artisan such as the apprenticeship route, RPL, learnership and skills programmes route. The literature also mentions the challenges that exist with the implementation of artisan programmes.

<div align="center">

CHAPTER 3

RESEARCH METHODOLOGY

</div>

3.1 Introduction

This chapter discusses and justifies the research methodology used for the study. It comprises the research design, the sample procedure, and the techniques for data collection the research including the data analysis.

3.2 Research Design

Mathenjwa (2011) states that research design connects the data collected in the study, and the conclusions to be drawn by the researcher to the initial research question of the study. Smit (2017:64) "assert that the purpose of research design is to address the planning of scientific inquiry, that is, designing a strategy for finding out something."

The qualitative secondary research design was adopted for the purpose of this study. "Secondary research can be qualitative or quantitative in nature. It often uses data gathered from published peer-reviewed papers, meta-analyses, or government or private sector databases and datasets (Basset, 2022:36)." Largan and Morris (2019) asserts that secondary research is also known as desk research since it involves synthesizing existing data that can be sourced from the internet, peer-reviewed journals, textbooks including government archives. According to Fouche (2017), secondary research often relies on data provided by primary research hence, the researcher evaluates and identifies gaps in existing knowledge in order to serve the purpose of their research objectives.

Furthermore, qualitative research provides an in-depth understanding of people's experiences, perspectives and/or histories in the context of their personal circumstances or settings (Mathenjwa, 2011). "Qualitative secondary researcher design uses existing documents as data that can help you understand people and their lives and experiences (Largan and Morris, 2019:36)." This research design was more suitable given that the researcher utilised information that was previously conducted by other authors and organisations. The researcher will study already established patterns in previous research and apply this information to the specific research context.

3.3 Sampling method

Non-probability purposive sampling was used to select interview participants. sample is used to simplify the research by studying the small group instead of the entire population. This saves time and costs, as studying the entire population could be time consuming and expensive, whereas the data required could be extracted from a sample. The researcher had sampled 6 annual reports Department of Defence (DoD), Department of Correctional Services (DCS) and South African Police Services (SAPS) who are stakeholders in the safety and security sector. Work Skills Plan/ Annual Training Report (WSP/ATR) submission 2022/23. The researcher the researcher used 10 other documents which consists of journals, policy manuals, strategic documents amongst other articles.

3.4 Data collection

The term desk-top research is used interchangeably with secondary research or library-based research (Bassot, 2022). According to Sileyew (2019), collection of secondary data from internal sources, the internet, libraries, trade associations, government agencies, and published reports. Secondary research uses data from previous studies to gain new insights and interpretations through a new research question. Sileyew (2019) also highlights that secondary data can be collected without fieldwork. In this research study, the researcher used the SASSETA Work Skills Plan (WSP) and annual reports for the DoD, SAPS and DCS. Moreover, annual reports from the mentioned department including previous studies conducting in relations the need of trained artisans, causes of shortages of artisans and challenges encountered by these organisations.

3.5 Data analysis

Secondary data analysis is the process of analysing data collected from another researcher who primarily collected this data for another purpose (Basset, 2022). Sileyew (2019) state that content analysis in secondary data examines the content, meaning of texts in articles, books, reports, or social media posts as well as help identify themes, patterns, opinions, attitudes, or biases.

Researchers leverage secondary data to save time and resources that would have been spent on primary data collection (Largan and Moriss, 2019). Largan and Moriss (2019) suggestion creating a list of data sets that include information related to your research question and examine them to see if they meet your other requirements (age range included, year of collection, etc.).

Several documents were analysed/reviewed, but these were in majority the public records authored on behalf of the Department of Defence (DOD) which includes mission statements, annual reports, policy manuals, strategic plans and lessons learned. Sources of such documents are DOD website, Media and direct units (Policy and Planning) in the Defence Secretariat (SANDF). The documents analysed were instrumental in helping the researcher understand the problem under investigation as well as share information to the objectives in this study.

3.6 Ethical consideration

Largan and Morris (2019) mentions that ethical issues associated with regards to retaining, sharing, and re-using secondary data as well as creating and archiving datasets from non-primary data. On the other hand, if the data is freely available on the internet or in other published formats, such as books, permission for further use and analysis is implied when the ownership of the original data is acknowledged (Hasan,2021).

3.7 Limitation of the study

The following study had initially intended to conduct semi-structured interviews to obtain the objectives of this study. However, there was a challenge to access employers from DoD, DCS and SAPS to conduct these interviews. As a result, a secondary research study had to be conducted.

CHAPTER 4

FINDINGS AND DISCUSSION

4.1 Introduction

This chapter will present the findings of the research. It presents the profile of the organisations. A framework for analysis will be constructed based on the main objectives of the study. The analysis of findings will be discussed according to the objectives of this report. Furthermore, the findings are associated with the views of various authors.

4.2 An overview of the organisations

4.2.1 Department of Defence

The Department of Defence refers to government unit or governing institution that is accountable to all people of South Africa, capable both of defending the country's sovereignty and providing support to foreign policy initiative to ensure peace and security throughout the African continent. The primary objective of the SANDF is to defend and protect the territory and people of South Africa in accordance with the Constitution and the principles of international law.

The functions first appeared in the 1993 constitution and the provisions continue to be in force by virtue of schedule 6, section 24(1), of the 1996 constitution, which deals with transitional arrangements. These functions are set out in section 227(1) of the 1993 constitution:

- Service in the preservation of life, health and property,
- Service in the provision or maintenance of essential services,
- Service in upholding of law and order in the RSA in cooperation with the South African Police Service (SAPS), and
- Service in support of any department of state for the purpose of socio-economic upliftment.

4.2.2 Department of Correctional services

The Department of Corrections and Detention Services provides educational programmes to offenders on the basis of their specific needs and as a tool for rehabilitation in accordance with section 29 (1) of the Constitution of South Africa (Mkosi, 2013). The purpose of the corrections system is to contribute to maintaining and protecting a just, peaceful and safe society. As such, the South African Correctional system is not for punishment, but the protection of the public, promotion of social responsibility, and enhancing human development in order to reduce the rate of recidivism as the correctional population continues to escalate. Significant progress was made on the bakeries executed under the Department's Own Resources programme that uses departmental artisans and inmates as well as materials procured using the capital works budget to construct small projects for offender development.

The Department remains committed to cooperate and to empower a new generation of young people with skills and employment (DCS annual report 2022/2023, 2022). The training of offenders in various skills training and TVET College programmes were aligned with the skills needed in various municipal districts with the objective of strengthening the local economy (DCS annual report 2022/2023, 2022). The Department uses these skills internally to strengthen self-sufficiency and provide offenders with much needed work experience in preparation for their release (DCS annual report 2022/2023, 2022). The successful implementation of rehabilitation programmes not only assists in reducing reoffending but can also reduce crime and result in direct and indirect fiscal benefits to government.

4.2.3 South African Police Services

The establishment of the national police for the republic of South Africa was enabled by the provisions of the 1996 Constitution and the 1995 South Africa Police Act (Act 68 of 1995). Section 206 of the 1996 Constitution provides that the national police service must be structured to function in the national, provincial, and where appropriate, local spheres of government (Mabasa and Olutola, 2021). The police service shall be well resourced and professional, staffed by highly skilled officers who value their work, serve the community, safeguard lives and property without discrimination, protect the people against violence, and respect the rights to equality and justice (Mabasa and Olutola, 2021).

Section 215 of the Interim Constitution also created the powers and functions of the police service as follows (SAPS,2022):

(i)   prevention of crime
(ii)   investigation of any offence or alleged offence
(iii) maintenance of law and order
(iv)   preservation of the internal security of the Republic

Section 214 of the South African Interim Constitution (Act 200 of 1993) made provision for the establishment of police service, in terms of an Act of Parliament, "which shall be structured at both national and provincial levels and shall function under the directives of the national government as well as the various provincial governments."

In addition, Section 214 made provision for the "establishment and maintenance of uniform standards of policing at all levels regarding:

(i)   the exercise of police powers.
(ii)   the recruitment, appointment, promotion, and transfer of members of the service.
(iii) suspension, dismissal, discipline, and grievance procedures.
(iv)   the training, conduct and conditions of service of members of the service;
(v)   the general management, control, maintenance, and provisioning of the service.
(vi)   returns, registers, records, documents, forms and correspondence.

4.3 Types of Shortages of skills

Table 1: shortages of skills by trade

DoD	DCS	SAPS
Electrician	Welder	Electrician
Vehicle Painter		Painter
Electronic Equipment Mechanician		Bricklayer
Automotive Motor Mechanic		Automotive motor mechanic
Radar Mechanic		Wall and floor tiler
Aircraft Maintenance Mechanic		Plumber
Mechanical Engineering Technologist		Welder
Transportation Electrician		
Welder		
Shipwright		

Source: WSP/ATR 2022-2023

Table 1 show shortages of skills by trade. The Department of Defence has the most shortages of skilled artisans, followed by the South Africa Police Services and the Department of Correctional Services the least shortage.

4.4 Causes shortages of skills

4.4.1 Department of Defence

- ***Absolute scarcity due to expansion***

  Absolute scarcity refers to suitably skilled people that are not available, for example in a new or emerging occupation (e.g. biotechnology, information technology), a lack of sufficient numbers of workers with specific skills, or insufficient numbers to satisfy replacement demand (Bridge, 2019). Absolute scarcity results in low growth and productivity of companies in the sector and the sector itself.

Findings found that Radar Mechanic and Shipwright were in absolute scarcity.

- ***Absolute scarcity due to a new and emerging occupations***

  New occupations develop when employers need workers to do tasks that have never been done before (Lund, Madgavkar, Manyika, and Smit, 2020). Essentially, there are no individuals enrolled or engaged in the process of acquiring skills that need to be replaced. Employees in existing jobs get new tasks added to their jobs and sometimes create specializations.

Findings reveal the following as new and emerging occupations in this sub-sector:

(i).   Transportation Electrician
(ii).   Mechanical Engineering Technologist

Occupations are usually grouped based on tasks and responsibilities, education as well as skills. New tasks are accompanied by changes in the skill demand. Workers in new and emerging occupations, commonly need a combination of basic skills with knowledge or experience in a subject related to the occupation (Basset,2022). In addition, Sileyew (2019) highlighted that the identification of new occupations is largely dependent on the introduction of new tasks with a matching skill set.

- ***Relative scarcity due to the replacement demand***

"Relative scarcity refers to a situation where suitably skilled people exist, but do not meet other employment criteria, for example they live in different geographical areas, or do not satisfy Black Economic Empowerment criteria (Mbeki, 2014:38)." Scoones, Smalley, Hall and Tsikata (2019) state that relative scarcity concept suggests that society responds to shortages institutional and technological changes. This may involve substitution of the scarce resource such as labour; increased recycling of the resource and extraction of lower quality sources; or technological change to improve the efficiency (Scoones, Smalley, Hall and Tsikata, 2019).

This study found that transportation electrician, aircraft maintenance mechanic and weapon systems mechanic were in scarcity due to replacement demand.

- ***Technological advancements***

"In changing ways of work, there seems to be broad agreement that technological change presents a strong incentive for upskilling and/or reskilling existing staff and that this entails not a one-off intervention but a continual effort at developing workers' skills" (Ooostuizen and Hill, 2023:34). Employers are adjusting their recruitment strategies in order to ensure that. In order to be able to recruit people with the necessary skills for an increasingly digitised and computerised environment in which they are working (Ooostuizen and Hill, 2023). The researcher found the following trades with technological advancement:

i.   Aircraft maintenance mechanic
ii.   industrial engineering technician
iii.   electrician (with computer skills)
iv.   Automotive motor mechanic
v.   Avionics mechanician
vi.   Radar mechanic

The major consequence is of this "brain drain" is that the SANDF is unable fill some of these important technical posts with existing personnel or new recruits, and as a result, operational readiness of the SANDF has been compromised (Lamb, 2020).

The DOD is acutely aware of the age issue and loss of valuable technical expertise and has sought to address these problems through its Human Resource Strategy 2010, which seeks "to ensure the establishment of the most effective, efficient and economic Defence human resources composition, of the right quantity and quality in the right places at the right times." A skills development system has been introduced to provide new recruits (predominantly recent school levers) with the skills to advance themselves within the SANDF (Lamb, 2020).

4.4.2 South African Police Services

- *Replacement demand*

Replacement demand is created by individuals leaving an organisation on a temporary basis such as maternity leave or sickness or upon retirement and death. Sargent (2017:19) concurs that "replacement demand is due to calculate the number of people needed to fill occupational positions due to retirements, deaths, change of occupations, and other reasons."

Findings claim that the artisan skilled workforce has a gap due to the early retirement of experienced labour amongst other factors. Electrician, painter, bricklayer and automotive motor mechanics were in replacement demand.

4.5 Intervention learning programme that address the scarce skills.

4.5.1 Department of Defence

Table 2: Intervention learning programme by trade in Department of Defence

Occupation	Type of intervention
Electrician	• National Trade Certificate in Transportation Electrician
Vehicle painter	• National Trade Certificate in Diesel Mechanic
Automotive Motor Mechanic	• Diploma in Mechanical Engineering • Hydraulic and Pneumatics Programme • Business management programme • Advance diploma in technical training
Rigger	• Navigational maps design course
Welder	• National Certificate welding
Transportation electrician	• National diploma in Air conditioning and refrigerator • Strategic leadership

Source: WSP/ATR 2022-2023

Table 2 presents the intervention learning programme by trade.

Education and training programmes can be a cardinal means of transforming a military institution. Special education and training programmes were introduced in the SANDF to standardise procedures

following the integration of statutory and non-statutory forces; to facilitate the above-mentioned affirmative action and equal opportunity programme; and upgrade the skills of personnels (Lamb, 2020).

4.5.2 Department of Correctional Services

Table 3: Intervention learning programme by trade in Department of Correctional Services

Occupation	Type of intervention
Welder	Welding training

Source: WSP/ATR 2022-2023

Table 3 shows intervention learning programme by trade in Department of Correctional Services whereby according to the WSP/ATR data, training for welders was implemented.

Figure1: Training implemented by DCS 2022-2023

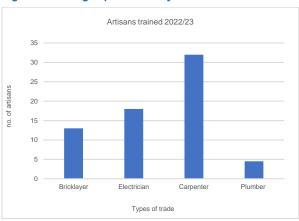Source: (DCS annual report 2022/2023, 2022).

Figure 1 describes training done by the DCS during the year 2022/2023. Carpenters, electricians, bricklayers, and plumbers were trained.

The Department will further increase offender participation in skills development programmes by training a total of 1 301 on welding, electrical and hairdressing learnerships and assistant chefs, vegetable production, construction related programmes, beauty and related programmes, End User Computing and cloth manufacturing in line with the signed Protocol Agreement between the Department and DHET (DCS annual report 2022/2023, 2022).

The Department also availed training centres for training of youth (community members) and parolees and probationers on welding and plumbing skills programmes in partnership with National Youth Development Agency (NYDA), with a six-month stipend. These accredited programmes enhance employability and assist participants to venture into entrepreneurship (DCS annual report 2022/2023, 2022).

The design of pharmacies is done in-house by professionally registered build environment professionals in consultation with the Department of Public Works and Infrastructure (DPWI) and with the South African Pharmacy Council. The actual construction works are done by in house artisans and with the use of offender labour (DCS annual report 2021/2022, 2021).

Minor repair, maintenance and upgrade projects were undertaken with the use of inmate labour under the auspices of the day-to-day allocation and through the Capital Works allocation, such as security installations, ablution facilities, office accommodation, renovations of cells, refurbishment of residential accommodation, engineering services, replacement of kitchen equipment, painting and cleaning, construction of guest houses and entrance gates (DCS annual report 2021/2022, 2021).

Table 4 shows intervention programmes implemented at SAPS where trade tests were done implemented for artisans. According to the Skills Development Act, 1998 (Act No 97 of 1998), as amended. An Artisan learner is a person undergoing a formal learning programme, which include structured work experience components in a listed trade and include a trade test.

"Trade test integrates summative assessment for an artisan qualification for a listed trade that is conducted at an accredited trade test centre by an assessor registered with NAMB (DHET, 2015:12)." Brown and Papier (2023) mention that prior to taking the trade test, learners are encouraged by their training providers to complete a preparation and fills any gaps identified in the training for each trade test task.

4.5.3 South African Police Services

Table 4 intervention programmes implemented at SAPS

Occupation	Type of intervention
Electrician	Trade test
Painter	Trade test
Bricklayer	Trade test
Automotive motor mechanics	Motor mechanic trade test
Wall and floor tiler	Trade test preparation and test
Plumber	Trade test

Source: WSP/ATR 20222023

4. 6 Challenges experienced

4.6.1 Socio-economic factors

The socio-economic status of learners is a contributing factor in performance and retention. Students often face challenges such as the high cost of transport to institutions, no food during recess, community issues, and peer pressure which resulted in misconduct, not meeting attendance policy requirements. (Morris, 2021) reflects that poor performing learners are from remote poverty-stricken areas which are under government welfare. In this case study learners from more affluent areas perform better.

4.6.2 Infrastructure and resource availability

Lack of sufficient resources and infrastructure has been cited as one of the causes of student failure and dropout (Mabasa and Olutola, 2022). Another study found out because there is a challenge of resources, which makes it difficult for the learners to perform well in their studies. These are resources such as furniture, textbooks, computers and equipment that are vital f or teaching and learning as well as performing practical work (Mabasa and Olutola, 2022).

The Department's technology infrastructure remains challenged and under developed, relative to the fast changing and ever evolving technology advances in the world market. Correctional facilities of the future will need to provide new and better ways to manage inmates and serve officials (DCS annual report, 2022).

4.6.3 Technological changes

This process of technological change and the accompanying pressures to adopt new technologies also pose challenges. The Department's technology infrastructure remains challenged and underdeveloped, relative to the fast changing and ever evolving technology advances in the world market (DCS annual report, 2022). Technology has affected some occupations, but new occupations have been created, effectively offsetting the loss. The latest trends indicate that the fastest growth in employment was in jobs that required high-level skills. The competition included skills like agricultural biotechnology, robotic welding, digital farming and virtual and augmented reality (Fouche, 2020). Respondents highlighted the far-reaching effects of technology within their organisations through digitisation and automation and the simplification of processes, altogether changing the ways in which employers are organised and how they work.

4.7 Conclusion

In this chapter, the discussion on the research findings started by providing an overview for the three-government department. Additionally, it discussed the shortages of skills by trade in each sampled departments including the causes. The chapter concluded with some intervention learning programme. The next chapter will conclude and make recommendations to the research project.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter concludes the study, highlights the objectives of this study and makes recommendations based on the findings. The conclusions are comprised of the findings. The recommendation section discusses the outcomes of the research report.

5.2 Conclusions relating to the achievement of the objectives of the study.

The findings and conclusions of the study are presented below per objective. The aim of this study is to investigate causes for the shortage of skilled artisans in the safety and security sector.

5.2.1 Artisan trades that are in shortage in the safety and security sector.

The study found that the Department of Defence has a shortage of electrical engineers, vehicle painters, auto mechanics, radar mechanics, aircraft maintenance technicians and mechanical engineering technicians. DCS wanted welders and electricians, painters, bricklayers, plumbers, and welders were in demand at SAPS.

5.2.2 Causes for the shortage of skilled artisans in the safety and security sector.

The artisan skilled workforce has a gap due to the early retirement of experienced labour. Likewise, results show that absolute scarcity due to new and emerging industries, relative scarcity due to replacement demand, technological advances including company transformation are the cause of shortages skills.

5.2.3 Interventions to the shortages of skilled artisans in the safety and security sector.

This study found that various trades (or artisans) are in the sector. The need for these trades various from one subsector to the other.

5.3 Recommendations

According to the NDP (National Development Plan), for South Africa to alleviate poverty, reduce inequality and ensure that all citizens have better working and living conditions by 2030, it is suggested there should be over 30 000 qualified artisans a year to meet labour demands. Currently, the country produces about 15 000 a year.

In both rural and urban areas, artisans play a crucial role in society. The artisanal industry is the second-largest employer in developing and developed communities. This industry allows individuals to not only obtain qualifications for employment but, pursue entrepreneurship. With consideration of the high unemployment rate in South Africa, the research recommends that we need to consider channelling more funds towards interventions that will create employment. SASSETA can use its discretionary mechanism to increase the production of artisan in the country. This mechanism must not only consider the trades that are in demand in the safety and security sector its must also consider the trade that are in highly demanded by the economy at large.

South Africa faces two main problems when it comes to the shortage of artisans. Firstly, older experienced artisans who are over the age of 55 are retiring, while those in their 30s and 40s are taking advantage of the global portability and demand for their skills and immigrating. In addition, the 36.5% decline in the total number of learners who enter artisanal learning programmes during the 2020/21 financial year is also a major concern. To address these challenges, SASSETA needs to invest more on the career development that is encouraging learner from the primary school level to consider artisan as preferred area of studying. This will increase the youth intake in this industry.

Secondly, newly qualified artisans lack the experience to substitute those who have retired or resigned. Moreover, the appalling formal education system produces matriculants who lack the maths and science literacy required to get to grips with the demands of many trade programmes. SASSETA as a skills authority in the safety and security industry, need to make funds available to those who excel in these two areas of study. This can be done by means of having a long run agreement with employers to secure job placements opportunities and exposure at a younger age. SASSETA need to increase the funds available to the area of trade development, increasing the time spent in practical training will through experiential learning will address this challenge.

5.5 Conclusion

This study has provided information through which to gain an understanding of the implementation of the legislative framework for skill development in the private security sub-sector of the safety and security sector in South Africa. Artisan development programmes remain one of the most important vehicles available to government to increase the youth's access to employment, alleviate poverty and connect the educational system to the labour market. There must continuously review and adapt policy and curricula to ensure that programmes remain relevant and keep up with technology. The partnership between SASSETA and the public sector to open workplaces to apprentices is at the core of ensuring that quality artisans are produced.

REFERENCES

Akoojee, S., 2013. Accelerating artisan training: A response to the South African skills challenge. *The architecture of innovative apprenticeship*, pp.307-319.

Bassot, B., 2022. *Doing qualitative desk-based research: a practical guide to writing an excellent dissertation*. Policy Press.

BRIDGE. (2019, September 02). *What is technical and vocational training and education and what is the role of TVET colleges?* Retrieved from BRIDGE: http://www.bridge.org.za/knowledge-hub/psam/tvet/ Access date: 13 September 2023

Brown, H. and Papier, J., 2023. Beyond the trade test: Using the COMET Model to build occupational competence. *Journal of Vocational, Adult and Continuing Education and Training*, *6*(1), pp.42-64.

Brunello, G. and Wruuck, P., 2021. Skill shortages and skill mismatch: A review of the literature. *Journal of Economic Surveys*, *35*(4), pp.1145-1167.

Cimatti, B., 2016. Definition, development, assessment of soft skills and their role for the quality of organizations and enterprises. *International Journal for quality research*, *10*(1), p.97.

CHIETA., 2017. National Artisan Moderation Body (NAMB). Available online: https://www.chieta.org.za/wp-content/uploads/easydocs/uploads/2022/09/6335ff3531aa7_NATIONAL%20ARTISAN%20MODERATION%20BODY.pdf [access date: 21 September 2023].

Chimangafisi, L., 2010. *'Post-1994 challenges facing South African NGOs: a case study of six Western Cape Non-Governmental Organizations that have a development focus'* (Master's thesis, University of Cape Town).

Department of Correctional Services., 2023. Annual Report 2022/2023. VOTE NO. 22

Department Higher Education & Training.,2013. *White Paper for Post School Education and Training.* Pretoria: Department of Higher Education and Training.

Department of Higher Education & Training, 2015. Skills Development, Trade Test Regulations. Government Gazette, 38758, 9-18. Available at: https://careerhelp.org.za/download_files/about-us/Trade%20_Test_Regulations.pdf

Department Higher Education & Training., 2019. *National Skills Development Plan 2030.* Pretoria: Department of Higher Education and Training.

Department Higher Education and Training (South Africa) (2018). Draft National Artisan Development Strategy and Implementation Plan 2017 - For Public Comment.pdf. Government Gazette, 41704 (41), 1–78

Department Higher Education & Training., 2020. Private Skills Development Providers: Artisan Development Programme. Available at: https://www.dhet.gov.za/SiteAssets/Tenders/2020%20Tenders/Artisan%20ToR%20and%20Guidelines-%20Artisan%20Development%209%20August%202020.pdf

Department Higher Education & Training., 2022. *Skills Development Act (97/1998) » National Apprenticeship and Artisan Development Strategy 2030.* National Gazettes, No. 47061 of 22 July, 2022

Deming, D. and Kahn, L.B., 2018. Skill requirements across firms and labor markets: Evidence from job postings for professionals. *Journal of Labor Economics*, *36*(S1), pp.S337-S369.

Government Gazette: Republic of South Africa. (2015). Draft National Artisan Development Trade Test Pass Rate and Quality Improvement Strategy

Government Gazette: Republic of South Africa. (2017) National Artisan Development Strategy and Implementation Plan (2017).

Government Gazette: Republic of South Africa. (2019). Skills Development Act, 1998 (Act no.97 of 1998): National development Plan 2030.

Hasan, A., 2021. Ethical considerations in the use of secondary data for built environment research. In *Secondary Research Methods in the Built Environment* (pp. 26-39). New York, NY: Routledge.

Hurrell, S.A., 2016. Rethinking the soft skills deficit blame game: Employers, skills withdrawal and the reporting of soft skills gaps. *Human relations*, *69*(3), pp.605-628.

Labour Market Intelligence, 2022. Supply and Demand of Artisans in South Africa. https://lmi-research.org.za/wp-content/uploads/2022/11/LMI-3-11-Supply-and-Demand-of-Artisans-in-South-Africa_2022.pdf

Largan, C. and Morris, T., 2019. *Qualitative secondary research: A step-by-step guide*. Sage.

Lamb, G., 2020, July. New Model Army": The transformation of the South African National Defence Force 1994-2004. In *Paper presented on the seminar. The role of South Africa in Africa. Stellenbosch, South Africa* (Vol. 30).

Ledwaba, P. and Nhlengetwa, K., 2016. When policy is not enough: prospects and challenges of artisanal and small-scale mining in South Africa. *Journal of Sustainable Development Law and Policy (The)*, *7*(1), pp.25-42.

Lund, S., Madgavkar, A., Manyika, J. and Smit, S., 2020. What's next for remote work: An analysis of 2,000 tasks, 800 jobs, and nine countries. *McKinsey Global Institute*, pp.1-13.

Mabasa, H.M. and Olutola, A.A., 2021. The structure of South African police: Towards a single police service. *Cogent Social Sciences*, *7*(1), p.1959974.

Mail & Guardian. (2019, February 01). *Opportunities for the Class of 2018 in the post-school education and training system*. Retrieved from Special Reports : https://mg.co.za/article/2019-02-01-00-opportunities-for-the-class-of-2018-in-the-post-school-education-and-training-system

Mateus, A.D., Allen-Ile, C. and Iwu, C.G., 2014. Skills shortage in South Africa: Interrogating the repertoire of discussions. *Mediterranean Journal of Social Sciences*, *5*(6), p.63.

Mathenjwa, I.L., 2011. *An evaluation of the implementation of the learnership programme within the Public Service Commission* (Doctoral dissertation, Stellenbosch: University of Stellenbosch).

Mbatha, N., Wildschut, A., Mncwango, B., Ngazimbi, X. and Twalo, T., 2015. Towards understanding the distinctive nature of artisan training: Implications for skills planning in South Africa.

Mbeki, S., 2014. *Causes, effects and impact of shortages of skilled artisans on contractor productivity* (Doctoral dissertation, Cape Peninsula University of Technology).

Mkosi, N.G., 2013. *Managing a full-time school within a correctional services environment* (Doctoral dissertation, University of Pretoria).

Msibi, A.N., 2015. *An exploration of the identities of qualified artisans employed as Technical Vocational Education and Training College lecturers* (Doctoral dissertation).

National Planning Commission, 2012. National Development Plan 2030: Our future – make it work. Pretoria: NPC

Ngcobo, P. and Govender, K., 2015. Addressing the Skills Shortage in South Africa: A Case Study of a Sector Education and Training Authority. *Internal Journal of Innovative Research and Creative Technology*, *1*(3), pp.270-275.

Oosthuizen, M. and Hill, R. (2023). Employment, Skills, and Covid-19: An Analysis of the 2022 Sector Education and Training Authorities Employer Interviews. Produced for the Department of Higher Education and Training as part of the Labour Market Intelligence research programme

Papier, J. and Vollenhoven, G., 2017. Revisiting the role of the'expert other'in learners' acquisition of workplace competence. *Journal of Education (University of KwaZulu-Natal)*, (69), pp.281-302.

Rasool, F. and Botha, C.J., 2011. The nature, extent and effect of skills shortages on skills migration in South Africa. *SA Journal of Human Resource Management*, 9(1), pp.1-12.

Sargent Jr, J.F., 2017. The US science and engineering workforce: Recent, current, and projected employment, wages, and unemployment.

Schoeman, M. 2017. three-stream model and envisaged articulation opportunities. DHET research colloquium. Available at: https://psetresearchrepository.dhet.gov.za/post/492 Access date: 28 September 2023

Schlechter, A., Faught, C. and Bussin, M., 2014. Total rewards: A study of artisan attraction and retention within a South African context. *SA Journal of Human Resource Management*, 12(1), p.15.

Scoones, I., Smalley, R., Hall, R. and Tsikata, D., 2019. Narratives of scarcity: Framing the global land rush. *Geoforum*, 101, pp.231-241.

Sileyew, K.J., 2019. Research design and methodology. *Cyberspace*, pp.1-12.

Smit, N.P., 2017. *Exploring artisanship through workplace learning at a South African mine* (Doctoral dissertation, Stellenbosch: Stellenbosch University).

Van Zyl, J., 2018. *The purpose and functionality of legislation regarding skills development within the formal sector viewed against the background of the historical causes of the skills deficit in South Africa* (Doctoral dissertation, Stellenbosch: Stellenbosch University).

Von Maltitz, D.L., 2018. *Apprentice to artisan trials and tribulations of apprentices in a dual system apprenticeship programme in South Africa* (Doctoral dissertation).

Wildschut, A. & Mbatha, N. 2016. Labour Market and Intelligence Survey: history and the economy matters for artisanal skills planning. Available at: https://repository.hsrc.ac.za/bitstream/handle/20.500.11910/10674/9590.pdf?sequence=1&isAllowed=y access date: 22 September 2023

Windapo, A.O., 2016. Skilled labour supply in the South African construction industry: The nexus between certification, quality of work output and shortages. *SA Journal of Human Resource Management*, 14(1), pp.1-8.