FACTORS THAT CONTRIBUTE TOWARDS GRADUATE EMPLOYABILITY IN THE TWO

PREVIOUSLY DISADVANTAGED EASTERN CAPE TERTIARY INSTITUTIONS

By

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ABSTRACT

The study investigated the factors that contribute to the job acquisition by graduates from two historically disadvantaged universities in the Eastern Cape region of South Africa. A quantitative research approach was adopted, using secondary data analysis from the 2015 National Student Financial Aid Scheme (NSFAS) graduates from the University of Fort Hare (UFH) and Walter Sisulu University (WSU).

The study's first objective was to determine the relationship between direct signals (University Affiliation, CESM Category, and NQF Level) and the dependent variable (immediate job acquisition after one year registered with South African Revenue Services). Data analysis was conducted using descriptive statistics analysis. The findings of the study reveal significant associations between certain independent variables and the direct and probabilistic signals. Specifically, the findings from University Affiliation showed that the University attended has no effect on employment outcomes, nor does the CESM Category (the graduate's field of study) matter when searching for jobs after graduation. The study showed a positive effect between NQF Level and employment outcomes with NQF Level 6 graduates having the highest employment rate.

The study's second objective was to determine the relationship between probabilistic signals (gender and age) and employment outcomes. The gender 'signal' has a positive effect in terms of finding employment after graduation for both males and females. The group of 21 years or younger showed the highest employment rate when it comes to age, indicating a positive relationship between age and employment outcomes.

Although the study was limited to only two universities, it has contributed to a clearer understanding of the complex roles that probabilistic and direct signals play in influencing employment outcomes in the Eastern Cape region.

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CHAPTER 1: INTRODUCTION

1.1. Introduction

This chapter provides readers with background information on the research topic, followed by a brief motivation for choosing this topic. The problem statement is highlighted and the research objective and aims outlined.

1.2. Background to the study

South Africa has one of the highest unemployment rates globally (Statistics South Africa, 2023). Youth unemployment among 15 to 24-year-olds rose from 41.9% in 2012 to 64.6% in 2023, while graduate unemployment had more than doubled from 4.4% to 10.6% by the end of 2022 (Statistics South Africa, 2023). Although graduate unemployment slightly decreased from 10.6% in 2022 to 8.6% in 2023, it remains a significant issue for young people (Statistics South Africa, 2023). These figures highlight the difficulty in securing jobs, particularly for young people and graduates, and indicate that job hunting is challenging and negatively impacts employment opportunities (Statistics South Africa, 2023). Table 1.1 illustrates changes in overall unemployment, youth and graduate unemployment from 2012 to 2023, based on data from Statistics South Africa.

Table 1.1: Unemployment Rate in South Africa between 2012–2023

Year	Overall Unemployment Rate	Youth Unemployment Rate (15-24)	Graduate Unemployment Rate
2012	21,8%	41,9%	4,4%
2013	22,0%	42,8%	5,5%
2014	22,6%	44,0%	6,0%
2015	22,9%	42,0%	5,7%
2016	24,0%	43,9%	6,9%
2017	24,0%	42,8%	6,7%
2018	24,2%	43,8%	7,0%
2019	25,5%	47,4%	7,6%
2020	24,3%	43,5%	7,5%
2021	28,8%	49,9%	9,3%
2022	29,8%	51,5%	10,6%
2023	32,9%	64,6%	8,6%

(Source**:** Statistics South Africa (2014; 2017; 2020; 2023); Maluleke (2019; 2020; 2022; 2023); Magudulela (2020); Galal (2023).

According to Graham (2015), the extremely high level of youth unemployment in South Africa poses a significant challenge, impacting both the economy and social fabric. Education plays a crucial role in employment opportunities, with graduates having better job prospects than non-graduates, as confirmed by the University of Cape Town (2021). However, employment rates vary significantly among alumni from different universities, with graduates from high-ranking institutions having higher employability (Stellenbosch University, 2022). Despite lower graduate unemployment rates compared to overall youth unemployment, the issue has worsened over the past decade, contributing to high poverty and inequality levels, which fuel social unrest (Statistics South Africa, 2023). Factors such as slow economic growth, limited investment, skills mismatch, and the COVID-19 pandemic contribute to youth unemployment (Handayani, Sutomo & Handoyo, 2023).

The current research relies on data obtained from Wildschut, Rogan and Mncwango (2020) who examined how educational stratification affects employability among low-income graduates, finding that those from well-resourced universities have better job prospects, while graduates from poorly resourced universities face additional challenges, including stigma and lack of networks, exacerbated by the COVID-19 pandemic (UNICEF, 2021; Hammett, 2023). The study by Wildschut et al. (2020) indicates that a graduate is considered employed if an individual has registered with the South African Revenue Services (SARS) and has submitted tax returns. People who were not registered with SARS were marked as unemployed (Wildschut et al., 2020). However, the study did not make provision for people who were employed but not registered with SARS. The significance of Wildschut et al. (2020) using registration with the South African Revenue Services (SARS) and the submission of tax returns as criteria for employment status lies in the method's implications for accurately capturing employment data. This approach introduces certain limitations, as it excludes individuals who are employed but either not registered with SARS or have not submitted tax returns. Consequently, the study did not report employment rates, particularly in informal or non-traditional employment sectors where workers may not be officially registered with SARS.

The present research widens its focus to explore employability among graduates from Historically Disadvantaged Institutions (HDIs). Employability, in this context, is defined as the ability of a graduate to secure employment within 12 months after completing their degree, which is a tangible measure of the immediate transition from education to the workforce (Moleke, 2003).

1.3 Research Problem

Despite efforts by the South African government to improve graduate employability through initiatives like the National Development Plan and Youth Employment Service (Letsoalo, 2020; Khumalo, 2024), graduate unemployment remains a significant issue (Oluwajodu, Greyling, Blaauw & Kleynhans, 2015; Khumalo, 2024). Universities like Fort Hare lack career fairs and employment programmes, unlike more prestigious institutions like Cape Town and Witwatersrand, which benefit from regular recruiter visits (Oluwajodu et al., 2015).

Table 1.2 highlights the 2023 rankings of South African universities, placing both the University of Fort Hare and Walter Sisulu University in the bottom half of the table, with the University of Fort Hare (UFH) at 15th and Walter Sisulu University (WSU) at 20th. Fauzi, Daud and Awalludin (2020) found that rankings guide prospective graduates in their higher education choices, a decision that is both long term and significant. Rankings also influence perceptions of employability, with higher-ranked institutions often favoured for government and NGO funding owing to their track records (Fauzi et al., 2020). Jooste, Cullen and Calitz (2020) echo this, noting the impact of rankings on student university selection. The UFH and WSU, known for producing a high number of African graduates, may face the challenge that recruiters set higher qualification grades for graduates from top-ranked universities (Fauzi et al., 2020). Although the study will not examine any statistical analysis of the rankings, this suggests that rankings do have signalling effects. According to Spence (1973), the concept of signaling effects describes how certain behaviours, traits, or acts convey signals to other people.

Table 1.2: Top South African University Ranking 2023

Rank	University	Town
1	University of Cape Town	Cape Town
2	University of the Witwatersrand	Johannesburg
3	University of Pretoria	Pretoria
4	Universiteit Stellenbosch	Stellenbosch
5	University of KwaZulu-Natal	Durban
6	University of Johannesburg	Johannesburg
7	North-West University	Potchefstroom
8	Rhodes University	Grahamstown

9	University of the Western Cape	Bellville
10	Cape Peninsula University of Technology	Cape Town
11	University of the Free State	Bloemfontein
12	Nelson Mandela University	Port Elizabeth
13	Durban University of Technology	Durban
14	Tshwane University of Technology	Pretoria
15	University of Fort Hare	Alice
16	Central University of Technology	Bloemfontein
17	Vaal University of Technology	Vanderbijlpark
18	University of Zululand	Kwadlangezwa
19	University of Limpopo	Mankweng
20	Walter Sisulu University	Mthatha
21	University of Mpumalanga	Nelspruit
22	University of Venda	Thohoyandou
23	Mangosuthu University of Technology	Durban
24	Sefako Makgatho Health Sciences University	Pretoria
25	Sol Plaatje University	Kimberley

(Source: Top Universities, 2023).

Previous research has found several important characteristics that affect graduate employability outcomes, such as degree of education, subject of study, work experience, and university reputation (Tomlinson, 2017; McQuaid & Lindsay, 2005). Additionally, existing literature has shown that factors such as soft skills, labour market conditions and internship experience have significant impact on graduate employability (Yorke, 2006; Jackson, 2016). Even though several research ahs been made on graduate employability, limited research has explored factors of graduate employability in the context of two previously disadvantaged tertiary institutions.

This study interrogates the factors contributing to graduate employability in two historically disadvantaged Eastern Cape higher education institutions: the University of Fort Hare and the University of Walter Sisulu. The high number of unemployed graduates in the Eastern Cape has motivated the researcher's interest in comparing these two formerly disadvantaged tertiary institutions, a situation that is made worse because this problem occurs in one of South Africa's poorest provinces, the Eastern Cape.

Table 1.3 below gives an overview of the two historically disadvantaged tertiary institutions.

Table 1.3: Overview of the two historically disadvantaged tertiary institutions, UFH and WSU

	University of Fort Hare	**Walter Sisulu University**
Foundation date	1916	2005 (Merger of Border Technikon, Eastern Cape Technikon, and University of Transkei)
Total Number of Campuses	**Three Campuses**: Alice (Main Campus), Bhisho, and Buffalo City	**Four Campuses**: Mthatha (Main Campus), East London, Butterworth, and Komani
Faculties	**Six Faculties** Agriculture Education Management and Commerce Health Sciences Nelson R Mandela School of Law Science Social Science and Humanities	**Nine Faculties** Business Science Commerce and Administration Education Educational Science Health Sciences Humanities Social Science and Law Management Sciences Natural Sciences Science Engineering and Technology
Size (student body)	12,534	30,000
Academic Programmes	138	170
Number of graduates Per Year (including undergraduate, Diplomas, Postgraduate, masters, and Ph.D.)		
2020	2,711	6,000

	University of Fort Hare	Walter Sisulu University
2021	2,061	6,415
2022	3,161	7,236

[Source: Top Universities (2019); University of Fort Hare (2023); Walter Sisulu University (2023)]

Mseleku (2022) maintains South Africa's graduate unemployment issue carries significant implications for the country's economic growth and social development. Without meaningful employment opportunities, graduates tend to not maximize their potential (Mulaudzi & Ajoodha, 2020) and may be forced into low-paid, insecure or precarious jobs that do not offer career advancement or personal growth possibilities. This, in turn, can result in a repetition of poverty and inequality cycles limiting the potential for economic growth and development within the country (Moerane, 2016).

1.4 Research Aim and Objectives

The research aim is to evaluate direct and probabilistic signals that affect graduate employability at HDUs in the Eastern Cape region of South Africa. This aim motivates the following objectives:

- To examine the effect of direct signals on graduate employability.
- To determine probabilistic signals influencing graduate employability.

1.5 Conclusion

This study sought to compare factors contributing to graduate employability immediately after graduation between two previously disadvantaged tertiary institutions in the Eastern Cape. The next chapter explores the literature underpinning this research.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This literature review deepens the existing knowledge on graduate employability and serves as the theoretical framework of the study seeking to enhance existing knowledge in this area. The research applies a deductive approach, which is a systematic research method starting from a specific theory then collecting and analysing data either to support or reject it (Bisschoff, 2023). The chapter starts with the literature on signalling theory which is the concept underpinning graduate employability. This is followed by the conceptual framework, and previous studies that have investigated graduate employability in South Africa are reviewed in light of the available literature. Finally, conclusions are drawn that are expected to provide insights for improving career prospects for graduates in Eastern Cape.

2.2 Signalling Theory

Signalling theory refers to a framework through which individuals communicate their attributes, skills or characteristics to potential employers or other members of society (Connelly, Certo, Ireland & Reutzel, 2011). According to this perspective, people use various means to inform others about their abilities such as education levels, prior job placements and individual qualities, not only to stand out, but also to increase the probability of being employed (Connelly et al., 2011). These qualities are evidenced through actions, speech and behaviour (Karasek & Bryant 2012). The most basic assumption in signalling theory is that people who possess more signalling ability or competence are more likely to gain credentials showing they can do something better than others (Phillip, 2018). Some examples of signalling by organisations are their annual reports and job advertisements, along with several other alternatives that firms use to send various messages concerning their commitment to sustainable development goals or towards stakeholder engagement (Karasek et al., 2012).

According to Connelly et al. (2011), information asymmetry between two groups is at the heart of signalling theory. Information asymmetries arise when individuals have access to different kinds of information (Connelly et al., 2011). There are information asymmetries among people who know things that others could use to make better decisions if they knew too (Connelly et al., 2011). Connelly et al. (2011) point out that decision-making, both at the individual and organizational levels, is significantly influenced by the type and accessibility of information available. There are two categories of information: freely available information – which is accessible to everyone – and restricted or privileged information, which can only be accessed

by certain individuals or groups. Signalling theory explains why behaviour between two parties differs where they have access to various types of information (Mavlanova, Benbunan-Fich & Koufaris, 2012).

Signalling theory describes how signals about organizational characteristics made public during recruitment processes might affect candidate attraction to a recruiting organization (Celani & Singh, 2011). According to Connelly et al. (2011), signalling also happens during hiring because some signals are regarded as credible while others cannot be trusted (Mavlanova et al., 2012). Asymmetrical information plays an important role in recruitment where job seekers may use education as a tool to show the quality of their level of education to employers, but companies do not have enough knowledge about the quality of applicants' employment they intend to hire (Connelly et al., 2011).

2.2.1 Elements Signalling Theory

Guest, Sanders, Rodrigues and Oliveira (2021) identified three elements on which signalling theory is based: signaller, signal and receiver (Guest et al., 2021). Four key components can be identified within this theory, according to Taj (2016): the signaller, the signal, the receiver and the feedback mechanism. Connelly et al. (2011) elaborate on these elements, using a timeline for clarity.

While all the elements of signalling theory will be discussed in the next section, this research will primarily focus on the signaller and the signal since there is no data about the receiver, feedback and signalling environment owing to the absence of employer interviews.

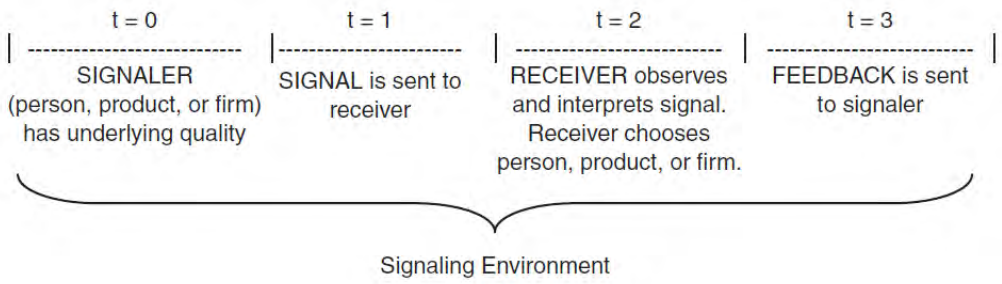

Figure 2.1: Elements of Signalling Theory illustrated in the form of a timeline.

Source: Connelly et al. (2011)

(1) Signaller

The first element to appear on the signalling timeline is a signaller who wants to convey certain information or possibilities about itself to another party, the "receiver". Signallers, such as management and executives, possess inside information about businesses, organizations, and individuals that others do not have (Taj, 2016). A signaller selects or chooses a signal before transmitting it to the receiver, allowing the receiver to potentially understand what is being communicated by the other. The aim is to reduce uncertainty by revealing hidden aspects.

Signallers aggregate valuable information for recipients, enabling them to make informed decisions (Taj, 2016). Some of those insiders (the companies) provide detailed data regarding graduates such as their gender or race, while others provide academic records showing the nature of the degree held by the graduate (Taj, 2016). Such privileged knowledge equips insiders with comprehensive knowledge regarding the underlying qualifications of a graduate, making the insiders better equipped in their decision-making process about hiring a specific applicant (Taj, 2016).

(2) Signal

According to Taj (2016), signals are indications of specific information conveyed between two parties in order to give hints and achieve desired results. Connelly et al. (2011) define signals as pieces of information held within an organization by employers, and which can be either positive or negative, depending on the decisions made by insiders. Their primary goal is usually to deliberately send positive signals to outsiders, rather than negative ones, in order to reduce information asymmetry. This helps businesses achieve their desired outcomes by influencing the expectations of external parties (Taj, 2016).

The effectiveness of a signal depends on its relevance to the job market and its credibility (Fossati, Wilson & Bonoli, 2020). For instance, an irrelevant such as graduate's productivity signal when it comes to the labour market fails in this regard because prospective employers are unable to observe employees' output prior to hiring the graduate. Similarly, a non-credible signal is ineffectual in persuading potential employers about the characteristics of the signaller. Furthermore, during the recruitment process, companies use various types of information such as graduates' effectiveness in communication and critical thinking, which are primarily noted during the interview phase. to hire strong candidates (Fossati et al., 2020). When searching for

the right person to fill a position, employers apply two types of signals: direct signals and probabilistic signals, which are discussed below.

Direct signals

Direct signals are those that relate more directly to the qualities an employer is looking for in a particular position (Fossati et al., 2020). Such direct signals usually include performance-based, standardized or verified data from independent bodies, like academic credentials (for instance, the type of degree obtained), test scores, and work certificates (Fossati et al., 2020). The direct signals examined in this study include the University, Classification of Subject Matter (CESM), Category, and National Qualification Framework (NQF) Levels. For example, a job seeker who has attained the highest NQF level may signal that he/she has an excellent academic background.

Probabilistic signals

Examples of probabilistic signals are indicators such as age, gender and ethnicity. Although these signals do not have a direct relationship with an applicant's competences, they help complete assessment (Fossati et al., 2020). Employers use probabilistic signals when little information is known about applicants, decisions must be made quickly, or when they want to see if the applicant possesses the right attitude to the job by looking at skills which an individual can learn fast. In this research, gender and race are examples of probabilistic signals.

(3) The receiver

The third element in the signalling timeline is the receiver, that is, individuals who may have very little knowledge about the company to which they are applying but seek all the necessary information about it (Connelly et al., 2011). Receivers play a major role, as without signal receivers, the signalling process is incomplete and cannot take place effectively (Taj, 2016).

It is important for the receiver to evaluate the signal correctly to determine whether the signaller's strategies were effective (Connelly et al., 2011). The probability of employment increases if the receiver perceives the signaller as credible in terms of relevance to the labour market (Taj, 2016). However, if the receiver deems the signal either not credible or irrelevant, the chances of employment are lower (Taj, 2016).

(4) Feedback

Feedback forms an integral part of the signalling process. The signallers provide feedback on their evaluations to the receivers (Connelly et al., 2011). This feedback can be positive or negative and it will impact future signalling strategies for the receiver. Positive feedback can encourage receivers to continue using effective signals, while negative feedback may force them to change their signalling strategies.

Feedback assists in improving the signals made by graduates since it increases their likelihood of being employed. For instance, if someone gets negative feedback upon the type of degree they have earned, it could prompt them to take extra courses or get another degree to meet desired outcomes. Also, if they receive positive feedback about the kind of degree they have acquired, they can try to get more qualifications. In other words, the receiver (prospective employer) wants to know something about the signaller (graduate) so that they can identify which signals are credible among all the signals that have been conveyed through this mode. The signals which elicit more attention from receivers and how the receivers interpret these signals is useful to the signallers who would also like information about the receivers in order to provide them with only the most trustworthy signals and know how interpret them (Connelly et al., 2011).

Signalling Environment

The signalling environment consists of the economic circumstances of the organisations, the reputation of the tertiary institution and the availability of job opportunities (Chiroleu, 2017). The effectiveness of the signal is influenced by the region's economic conditions that affect demand for labour. This means that, in a weak economy with high unemployment rates, the receiver experiences more competition from other job seekers, hence making it harder for candidates to stand out. Accordingly, employers tend to view graduates from reputable higher institutions as being more capable than their counterparts from less reputable institutions, and the signal receiver's evaluation is influenced by the reputation of the tertiary institution (Chiroleu, 2017).

The availability of job opportunities also affects how effective a signal is. With fewer job openings available in an area, there will be more people competing for each job opening, making it difficult to find employment. By contrast, if a certain region has many jobs at its disposal, then even weak signals can still secure employees (Chiroleu, 2017).

In summary, signalling theory aims to explain how the characteristics and behaviours of sender's influence decisions made by receivers in situations of information asymmetry. Senders must ensure that their signals are reliable and credible to provide accurate information to potential employers. A signaller should carefully assess their signals before sharing any qualities or attributes, as those also require reliable and credible signals. This approach encourages graduates to continuously improve their signals, as feedback plays a crucial role in the signalling process. The effectiveness of a signal depends on the signalling environment, which also shapes the signaller's perception of it. In this context, a strong understanding of the signalling process enables graduates to develop effective signalling strategies.

2.3 Previous studies on graduate employment in South Africa

Studies concerning graduate employability and signalling theory in South Africa have been conducted. Corrinne (2023) carried out a major study on graduate employability and signalling theory in South Africa which aimed at providing an overview of the signalling theory in the context of South Africa and examined how employers and graduates communicate, and how signals are used to close the information gap. The study was intended to discover whether there is a good match between the characteristics of graduates and the employment priorities of employers (Corrinne, 2023). The findings showed that candidates' potential organisational worth is assessed by employers through their signals. These signs encompass different elements, such as educational background, or other life experiences that show desirable qualities like cognitive ability and perseverance (Corrinne, 2023).

According to Akkermans, Tomlinson and Anderson (2023), acceptance theory is an essential component of job searchers' employability and can be analysed in two dimensions. Subtle evaluations of future productivity and alignment with the organization's ideals are part of this. The evaluation process entails examination of different ranges of information, starting from concrete qualifications to other, less visible cues like personal traits and work ethic (Akkermans et al., 2023). Strategic communication reveals the preferred work environment and expectations, thereby creating a feedback signalling system. Conversely, graduates not only indicate their intentions through some channels, such as employer brand initiatives and public profiles, but also interpret the signs they get from prospective employers. This kind of reciprocal signalling exchange becomes critical in graduates' decision-making about whether

they want to be part of a particular company, based on their career plans, which are closely connected with their chances at getting jobs (Akkermans et al., 2023).

The study conducted by Tomlinson and Anderson (2021) on graduate employability and signalling theory provides another example of signalling practice. They noted that success at work often goes beyond academic qualifications alone. Consequently, employers must rely on more than just signals to make value judgments about individuals who have graduated but about whom they might still have insufficient or unreliable data (Tomlinson et al., 2021). The research highlights the various signals employers use when addressing problems related to asymmetric information during the screening of job seekers and includes the reputation of the university, as well as indicators of hard work and drive (Tomlinson et al., 2021).

Jackson (2023) explored how graduate employability is related to signalling theory. This research gives a subtle meaning to the functions of signals in recruitment and showed that there were non-academic cues like team sports and office placements which were significant for job placement decisions. It is better for employers, who are aware of the narrowness of merely academic qualifications, to look at indicators like practical skills and real-world flexibility than academic achievement alone (Jackson, 2023). The latter move indicates that the environment has changed into one where graduates actively shape their employability as they go out and engage with activities that would be meaningful in organizations or corporations. Research findings highlight the changing nature of signalling within graduate employability, emphasising a more holistic approach that combines both academic and non-academic signalling during the hiring process.

2.4. Conceptual Framework

The conceptual framework of this study draws on signalling theory, which asserts that through their education, graduates become signallers of their skills and ability. According to Spence (1973), signalling theory is helpful in comprehending how higher education can act as evidence for prospective employers about an individual's qualifications. An educational degree can be used as a tool by potential employers as a measure of productivity and ability in a graduate's life, as argued by well-known economist Michael Spence (1973); however, such indicators indicate positive information asymmetry between jobseekers and employers (Connelly et al., 2011). In the South African context, historically black institutions (HBIs) are universities and

colleges that primarily served black graduates during the apartheid era. These institutions were systematically underfunded and deprived of resources compared to historically white institutions (HWIs), leading to disparities in infrastructure, academic programmes, and overall perceptions of quality. The diagram below provides a visual representation of the conceptual framework.

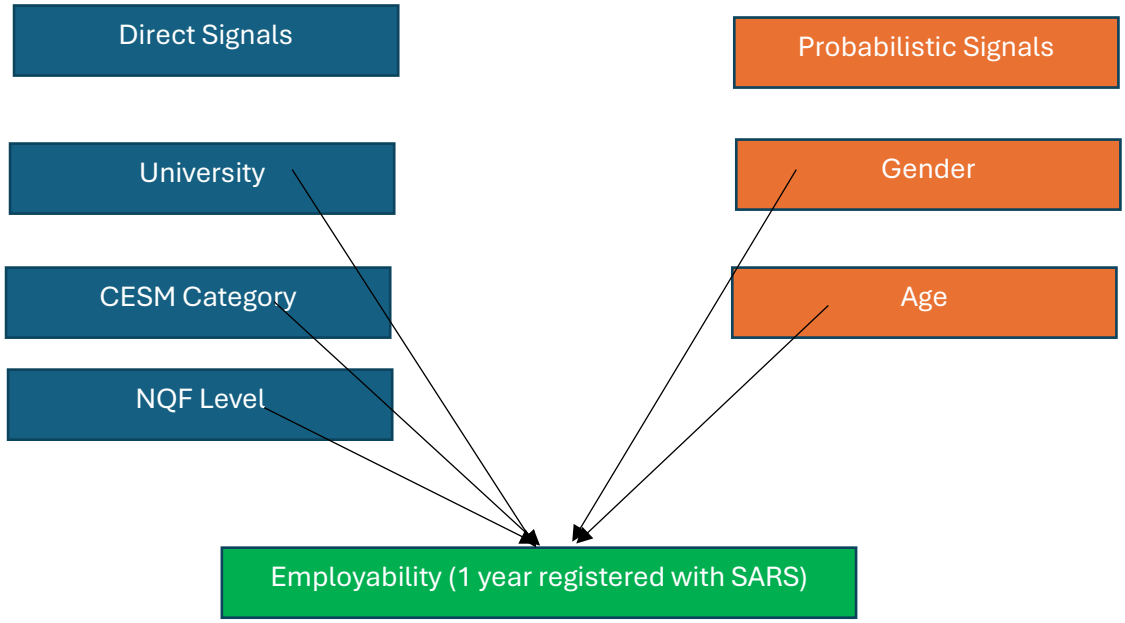

Figure 2.2: Conceptual framework of the study

Graduates' employability is greatly affected through direct signals. Direct signals consist of the university type, CESM category, and NQF level because they give clear, measurable, and in some cases, standardised indications of a graduate's qualifications. The kind of university one attends can significantly influence employers' perceptions. Most employers regard graduates from HAIs (Historically Advantaged Institutions) as having received quality education which, in turn, affects their job prospects positively. This perception is backed by various researchers who highlight variations in resources between HDIs (Historically Disadvantaged Institutions) and HAIs, where HAIs tend to have better infrastructure, more qualified tutors and more extensive networks (Kraak 2021; Tomlinson 2021). The CESM categories can refine this signal further by indicating what field of study the student has taken, and this can be critical in certain sectors during job matching. For example, an engineer with a CESM category might be more sought after by technical industries than one categorised under humanities (Teichler 2018; Jackson 2023).

Another important direct signal are the NQF levels which clearly indicate the amount of education and training that a graduate has undergone. High NQF levels imply higher qualifications; for instance, bachelor's degrees, honours or master's degrees are often needed for well-paying jobs, especially in areas of specialization. Research has shown that more educational attainment usually leads to better employment outcomes as well as high earnings (Mncayi & Dunga 2016; Jackson 2023), but even the achievement of higher NQFs does not eliminate all the obstacles related to the lower quality institutions such graduates attended. A mix of different direct signals interact with each other to enhance employability.

Age is another major probabilistic signal. Younger graduates are often seen as more adaptable and willing to take up entry-level positions but may not have the experience older job seekers bring. On the other hand, some employers might perceive older graduates as being over-qualified for certain tasks while job-seekers may fear age-related prejudices against them (O'Connell & Byrne 2012; Choi & Kim 2021). The interplay between these probabilistic signals can compound the challenges faced by graduates from HDIs, making it more difficult for them to secure employment compared to their peers from HAIs. This emphasises how complex employability is and the need for targeted interventions so that this inequality can be minimized (Jackson 2023; Akkermans et al., 2023).

The dependent variable in this study is whether graduates secure employment within 12 months after graduation. This is a measurable and commonly used indicator for employability to show how immediate transition is from school into work. Previous research has shown that initial employment after college carries immense significance in determining the career path of an individual graduate (Tomlinson, 2021; Jackson, 2023). First jobs are not only essential for financial stability but provide vital working experience that can enhance future employability upon which other career prospects are built. Consequently, it is important to understand what determines job acquisition in order to develop strategies towards improving graduate employment outcomes, especially for those from HDIs.

The diagram of the conceptual framework (Figure 2.2) highlights these relationships. Independent signals (type of university, CESM category and NQF level) and probabilistic signals (gender and age) have direct bearing on job acquisition as a dependent variable. The arrows indicate the direction in which they influence each other and how much difference these

signals make in guaranteeing employment. This framework therefore clarifies how different variables contribute systematically to employability while emphasizing the need for an holistic approach to address employment disparities (Spence, 1973; Connelly et al., 2011). Both direct and probabilistic signs should be taken into account when analysing employability in a comprehensive manner. In summary, this study's conceptual framework offers a broad perspective of what influences the employability of graduates from HDIs. The framework is built around combining direct and probabilistic signals to create an intricate picture of key forces that shape the employment market today.

2.5 Conclusion

This chapter focused primarily on the theoretical foundation and conceptual framework of the research, with a key emphasis on signalling theory as relevant to graduate employability. The above framework explores the concept of both direct signals and probabilistic signals, so providing a detailed account of how different aspects impact employment opportunities for graduates from HDIs. The literature makes it clear that various factors such as age, gender, NQF level, CESM category and university type have been identified as very important in determining employment outcomes. This inclusive approach illustrates how complex these factors are so that they can be understood better before a discussion of their impacts. In the following chapter the research methodology employed in exploring these associations is developed with the aim of providing scientific proof on approaches to improve employability of those from HDIs.

CHAPTER 3: METHODOLOGY

3.1. Introduction

This chapter provides an overview of the data collection and analysis process used in this study and outlines the reasons behind the chosen sampling strategy, research paradigm and research design used in this study.

3.2. Research Aims and Objectives

The research aimed to evaluate the direct and probabilistic signals that impact graduate employability at historically disadvantaged universities in the Eastern Cape region of South Africa. To achieve this aim, the following objectives are addressed:

- To investigate the effect of direct signals on graduate employability
- To examine the influence of probabilistic signals on graduate employability

3.3. Research Hypotheses

The research hypotheses of this study are:

Direct signals:

Ho: The University attended has no effect on graduate employability.

H1: The University attended has a positive effect on graduate employability.

Ho: CESM has no effect on graduate employability.

H2: CESM has a positive effect on graduate employability.

Ho: NQF level has no effect on graduate employability.

H3: NQF level has a positive effect on graduate employability.

Probabilistic signals:

Ho: Gender has no effect on graduate employability.

H4: Gender has a positive effect on graduate employability.

Ho: Age has no effect on graduate employability.

H5: Age has a positive effect on graduate employability.

3.4. Research Design

A research design is an outline or strategy developed specifically to address the research question and manage variance (Dulock, 1993). Van Wyk (2012) states that research design is the overarching strategy for linking the theoretical research issues to the relevant actual study; that is, the research design specifies the data required, the procedures to be applied to gather

and analyse the data, and the manner in which all of this addresses the research question or hypothesis (Van Wyk, 2012). This study used a cross-section, descriptive, quantitative design because it allowed for objective measurement and statistical analysis of large-scale patterns, it was the most suitable method for investigating the relationship between direct and probabilistic signals and graduate employability outcomes.

3.5. Data Preparation and Variable Operationalisation

According to Hair, Page and Brunsveld (2019) data preparation entails finding, fixing, or eliminating records that are not accurate as well as converting the unprocessed data into an analysis-ready format. A number of data preparation procedures were performed on the dataset before analysis to guarantee accuracy, consistency, and relevance. Any missing data was removed and all records of individuals who were employed were excluded, and individuals who gained employment two years or more after graduation were also excluded from the dataset.

Each of the direct and probabilistic variables in this study were operationalised as binary variables, nominal variables and ordinary variables. According to Pallant (2020) binary variables are variables that only have two categories; they are frequently denoted by the codes 0 and 1, which stand for outcomes that are mutually exclusive. Bryman (2016) explains that ordinal variables involve categories with a natural ordering, although the intervals between values are not always equal or known. Babbie (2020) states that nominal variables categorize data into discrete groups without any sort of natural hierarchy or order. The categories are names or labels, which cannot be ranked or quantified.

Each direct and probabilistic variables utilized in the study was operationalised as follows:

- Employment status: was classified as a binary variable according to National Student Financial Aid Scheme (NSFAS)-funded university graduates from both UFH and WSU with data from 2005–2015 where 1 = Employed and 0 = Unemployed.
- University affiliation: was classified as a binary variable, where 1= University of Forth Hare 2= Walter Sisulu University
- CESM categories: Classification of Educational Subject Matter was operationalised as a nominal variable, in order to group the categories from CESM 1-20 categories.
- National Qualifications Framework (NQF) levels represent the degree of qualification of the graduate. The NQF levels were operationalised as ordinary variables and the represented levels in the study are NQF level 6,7 and 8.

- Gender: was classified as a binary variable where 1= Female and 0= Male
- Age: was categorised ordinary variable as it was grouped, where the analysis had 21 years or younger, 22 years, 23 years, 24 years and 25 years or older.

3.5. Research Method

The research methodology adopted for this study followed a quantitative research approach. Quantitative analysis collects and analyses data using mathematical numerical methods (Sukamolson, 2007; Apuke, 2017). The method is particularly well-suited for this study owing to its capacity to gather numerical data that can be subjected to statistical analysis (Özdemir, 2018).

The quantitative research approach also enables the conduct of statistical tests such as the descriptive statistics and regression analysis to determine the statistical significance of observed differences. These statistical analyses provide evidence and support for drawing conclusions about the factors influencing graduate employability.

3.6. Research Paradigm

The research paradigm provides a foundational framework that integrates theories and methods to develop a research strategy (Wahyuni, 2012; Ulz, 2023). This study adopts a positivist paradigm, which posits that a single objective reality can be known and accurately described (Rehman & Alharthi, 2016). Positivism seeks to understand societal phenomena through cause-and-effect relationships, similar to natural sciences, allowing for predictions once these relationships are established (Rehman et al., 2016). This approach underpins the study's methodology, emphasising objective measurement and analysis.

3.7. Data Collection and Sampling Strategy

This study makes use of secondary data analysis. Secondary data analysis is the process of reanalysing data obtained for another purpose in order to address the present research topic (Nicoll & Beyea, 1999; Martins, da Cunha & Serra, 2018). The researcher adopted the sampling strategy used by Wildschut et al. (2020). The data from Wildschut et al. (2020) created a unique dataset by matching data across three distinct administrative datasets. The Wildschut et al. (2020) dataset included recipients of National Student Financial Aid Scheme (NSFAS)-funded university graduates from both UFH and WSU with data from 2005–2015

with a population of (n = 611,963), data from Higher Education Management Information System (HEMIS) and employment information as of 2017 from the South African Revenue Services (SARS). For the purpose of this study, a subset of data from NSFAS-funded graduates with information on Gender, Race, University, CESM Category and NQF Levels is utilised. The analysis focused on the sub-sample of NSFAS graduates that graduated in 2015 (n= 7432) as this determines whether they were able to secure employment after graduation.

3.8. Data analysis and Quality Assurance

The data analysis explored the impact of educational and demographic variables on graduate employment. The IBM Statistical Package for Social Sciences (SPSS) version 28 was used to analyse the quantitative data. For analysis purposes, any missing data was removed and all records of individuals who were employed were excluded. Subsequently, we obtained the final dataset. Individuals who gained employment two years or more after graduation were also excluded from the dataset. The data was initially analysed using descriptive statistics, providing percentages to better understand the five key variables. Of these, three were direct signals (University, CESM, and NQF level), while two were probabilistic signals (Gender and Age). Another variable available in the data, race, was not used for further analysis because the research would have been biased, as more than 99% of the graduates were African.

Cross-Tabulation Analysis

Cross-tabulations were analysed to explore specific relationships between variables. Symmetric measures were then used to gauge the strength of these relationships. Additionally, risk estimates, through odds ratios, were calculated to evaluate the likelihood of employment for different groups of graduates. This analysis was designed to highlight the key factors influencing job acquisition among graduates from historically disadvantaged institutions, aligning with the study's conceptual model.

Inferential Statistical Analysis

The study also utilised inferential statistics. A Chi-square test was conducted to assess the association or difference between categorical variables (Franke, Ho & Christie, 2012). Chi-square is a broad, omnibus statistic used for this purpose. For data that was not 2x2, a Phi statistic was run. For 2x2 data, Cramer’s V statistic was employed. Finally, adjusted

standardised residuals were calculated, providing insights into the suitability of a class of log-linear or logit models (Beh, 2012).

3.9. Ethical Considerations

No ethical clearance was required because the study made use of secondary data sources from NSFAS graduates and did not entail any human interaction.

3.10. Conclusion

This chapter offered an overview of the research design, detailing the quantitative approach adopted to examine the factors influencing graduate employability. It presented the positivist research paradigm, which underpins the objective analysis of data collected from secondary sources. The sampling strategy, focused on graduates from the University of Fort Hare and Walter Sisulu University, was designed to provide insights into the employment outcomes of graduates from historically disadvantaged institutions. The chapter also elaborated on the data collection methods, the analytical techniques employed, and the statistical tools used to ensure rigorous examination of the research hypotheses. By establishing a solid methodological foundation, this chapter sets the stage for the subsequent analysis of results, which will reveal the impact of direct and probabilistic signals on graduate employability. The next chapter presents the findings, providing empirical evidence to address the research questions.

CHAPTER 4: FINDINGS

4.1 Introduction

The previous chapter provided a comprehensive overview of the research methodology employed in this study. This chapter explores the impact on employment outcomes of both direct and probabilistic signals ranging from the university, CESM, NQF to demographic factors like gender and age. This analysis is pivotal for uncovering the ways in which educational achievements and demographic characteristics intersect in the job market, and in offering valuable insights for improving the employment prospects of graduates from historically disadvantaged institutions.

4.2 Sample Characteristics and Frequency

4.2.1. The data set

The dataset comprises a sample size of n=7432, derived from the 2015 NSFAS data after the removal of missing variables. The direct signals analysed include: (1) University: the specific institutions from which graduates graduated; (2) CESM Categories: the Classification of Educational Subject Matter, categorizing the field of study; (3) NQF Level: the National Qualifications Framework level of the qualifications obtained by the students. The probabilistic variables are: (4) Gender: Categorical variable representing the gender of the graduates; (5) Age (grouped): the age ranges of the graduates at the time of data collection; (6) Race: the racial demographics of the graduates, though race was not used for further analysis owing to over-representation of African graduates. (7) The Employment Status indicates whether the graduate is employed or unemployed at the time of data collection.

4.2.2. Direct signals

i. University Affiliation

Table 4.1: Comparative graduate affiliation

	Graduate Frequency	Percentage	Cumulative Percentage
University of Fort Hare	2161	29,1	29,1
Walter Sisulu	5271	70,9	100,0
Total number of graduates	7432	100,0	

[Source: Author's own calculations from NSFAS 2015 dataset]

The Walter Sisulu University has a higher number of graduates than the University of Fort Hare, accounting for 70,9 % of graduates while UFH has 29,1% graduates. Given that WSU is

considerably bigger than UFH, it is to be expected that the number of WSU graduates would be greater than the number of graduates from UFH.

ii. CESM Categories

Table 4.2: CESM Categories of graduates

CESM Category	Graduate Frequency	Percentage	Cumulative %
1. Agriculture, Agricultural Operations and Related Sciences	199	2,7	2,7
2. Architecture and the Built Environments	89	1,2	3,9
3. Visual and Performing Arts	1756	23,6	27,5
4. Business, Economics and Management Studies	212	2,9	30,4
5. Communication, Journalism and Related Studies	630	8,5	38,8
6. Computer and Information Sciences	1195	16,1	54,9
7. Education	211	2,8	57,8
8. Engineering	1	0,0	57,8
9. Health Professions and Related Clinical Sciences	172	2,3	60,1
10. Family Ecology and Consumer Sciences	344	4,6	64,7
11. Languages, Linguistic and Literature	307	4,1	68,8
12. Law	128	1,7	70,6
13. Life Sciences	225	3,0	73,6
15. Mathematics and Statistics	14	0,2	73,8
16. Military Sciences	321	4,3	78,1
17. Philosophy, Religion and Theology	136	1,8	79,9
18. Psychology	481	6,5	86,4
19. Public Management and Services	767	10,3	96,7
20. Social Sciences	244	3,3	100
Total number of graduates	7432	100	

[Source: Own calculations from NSFAS 2015 dataset]

The CESM frequency count among the graduates varies widely, indicating diverse characteristics or conditions captured by this variable. The dominant categories in the CESM categories are Visual and Performing Arts (1756), accounting for 26,6% of all graduates, while

Computer and Information Sciences (1195) represents 16,1% of all graduates, and Public Management and Services (767) accounts for 10,3% of all graduates. These three categories together account for 50% of all graduates. The smallest number of graduates is found in CESM Category 8, Engineering (1) accounting for 0,0% of all graduates. Since the data is too small to draw any significant conclusions, UFH and WSU are combined.

iii. NQF Levels

Table 4.3 shows the educational level of graduates is concentrated around NQF Levels 6 and 7. According to SAQA (2012) and Mueni and Wangare (2023), NQF Level 6 is equivalent to National Diploma and Advanced Certificates; NQF Level 7 to a Bachelor's degree, Advanced Diploma, Post-Graduate Certificate, and B-Tech; NQF Level 8 to an Honours degree, Post-Graduate Diploma or a Professional Qualification; NQF Level 9 equates to a Master's degree, and NQF Level 10 to a Doctorate qualification. The majority of graduates (86,5%) are at NQF Levels 6 and 7, demonstrating an emphasis on diplomas and bachelor's degrees. NQF Levels 5, 9 and 10 were insignificant, as they were minimally represented, and the sample size would have been too small to draw any meaningful inferences, so they were excluded in the final data.

Table 4.3: Educational levels of graduates

	Graduate Frequency	Percentage	Cumulative %
NQF Level 6 (National Diploma and Advanced Certificates)	3297	44,4	44,4
NQF Level 7 (Bachelor's degree, Advanced Diplomas, Post-Graduate Certificates and B-Tech)	3129	42,1	86,5
NQF Level 8 (Honours degree, Post-Graduate Diploma and Professional Qualifications)	1006	13,5	100,0
Total number of graduates	7432	100,0	

[Source: Author's own calculations from NSFAS 2015 dataset]

4.2.3. Probabilistic signals

iv. Gender

Table 4.4 shows the gender distribution of graduates with 40.4% male (3002) and 59.6% female (4430).

Table 4.4: Gender Distribution

	Graduate Frequency	Percentage	Cumulative Percent
Male	3002	40,4	40,4
Female	4430	59,6	100,0
Total number of graduates	7432	100,0	

[Source: Author's own calculations from NSFAS 2015 dataset]

v. Age

The dominant age group of graduates is 21 years or younger (45,1%), followed by 22-year-olds (19,2%), with the 24-year age group the least represented (9%) of all graduates.

Table 4.5: Age Distribution

	Graduate Frequency	Percentage	Cumulative Percent
21 years or younger	3350	45,1	45,1
22 years	1425	19,2	64,2
23 years	1024	13,8	78,0
24 years	671	9,0	87,1
25 years or older	962	12,9	100,0
Total number of graduates	7432	100,0	

[Source: Author's own calculations from NSFAS 2015 dataset]

vi. Race

Table 4.2 shows the racial composition of the sample is predominantly African, accounting for 98,5% of graduates. The race variable was available in the data but was not used for further analysis because the research data would be biased as more than 98% of the graduates were going to be African. The other racial groups are minimally represented, and it would have been difficult to draw any significant conclusions.

Table 4.6: Race Distribution

	Graduates Frequency	Percentage	Cumulative %
African	7321	98,5	98,5
Coloured	9	,1	98,6
Indian	2	,0	98,7
White	5	,1	98,7
Other	95	1,3	100,0
Total	7432	100,0	

[Source: Author's own calculations from NSFAS 2015 dataset]

The majority of graduates (86,9%) are not employed; only 970 graduates out of 7432 were employed. According to Wildschut et al. (2020), graduates were considered employed if they had registered with South African Revenue Services (SARS) and had submitted tax returns. Graduates who were not registered with SARS were considered as unemployed.

Table 4.7: Employment Status

	Frequency	Percentage	Cumulative Percent
Not employed	6462	86,9	86,9
Employed	970	13,1	100,0
Total	7432	100,0	

[Source: Author's own calculations from NSFAS 2015 dataset]

4.3 Direct Signals

4.3.1. Independent variables used in the study

Direct signals are those used to understand relationships or impacts in a dataset without needing to infer or interpret underlying, less obvious patterns (Fossati et al., 2020). The direct signals that were analysed are University, CESM categories, and NQF level.

4.3.2. **Association of university with employment**

This section explores the relationship between university affiliation and employment status, employing a cross-tabulation approach along with Chi-square tests and risk estimates. This analysis is crucial for understanding whether attending a specific university influences a graduate's employment outcome, particularly focusing on the University of Fort Hare (UFH) and Walter Sisulu University (WSU), both historically disadvantaged institutions (HDIs).

The cross-tabulation summary in Table 4.8 breaks down the employment status of the graduates from UFH and WSU. The UFH had a total of 2,161 graduates with 1,866 unemployed graduates and 295 employed graduates, while WSU with a total of 5,271 graduates had 4,596 unemployed graduates and 675 employed graduates. The employment rate for UFH is 13,7% and 12,8% for WSU. The adjusted residuals for unemployed and employed graduates for UFH and WSU are -1.0, -1.0, respectively. These values fall within a range of ±1,9, implying that there are some small deviations which are insignificant.

Table 4.8: Cross-tabulation Summary

		Employment Status		
		Not employed	Employed	Total
University of Fort Hare	Count	1866	295	2161
	Expected Count	1879	282	2161
	% Within University	86,3%	13,7%	100%
	Adjusted Residual	-1,0	1,0	
Walter Sisulu	Count	4596	675	5271
	Expected Count	4583	688	5271
	% Within University	87,2%	12,8%	100%
	Adjusted Residual	1,0	-1,0	
Total	Count	6462	970	7432
	Expected Count	6462	970	7432,
	% Within University	86,9%	13,1%	100,0%

[Source: Author's own calculations from NSFAS 2015 dataset]

The Chi-square tests determine whether there is a significant association between university affiliation and employment status among graduates. The Pearson Chi-square test, with a $\chi 2$ value of 0,965 and a p-value of 0,326, indicates no significant relationship between the university attended (UFH or WSU) and employment status. This is supported by the likelihood ratio test ($\chi 2 = 0,965$, $p = 0,326$). All tests consistently show p-values greater than 0,05. As such, it means we have failed to reject the null hypothesis; that is, Ho: university attended, has no effect on employment outcomes, so confirming previous results reached through cross-tabulation. Therefore, the study deemed further statistical analysis unnecessary because the sample size of those employed was too small (295 employed for UFH and 675 employed for WSU), making it difficult to draw any meaningful conclusions.

Table 4.9: Chi-Square Tests Summary

	Value	Df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	,965[a]	1	,326		
Likelihood Ratio	,958	1	,328		
Number of graduates	7432				

[Source: Author's own calculations from NSFAS 2015 dataset]

4.3.3. CESM Categories

The investigation into how CESM (Classification of Educational Subject Matter) categories relate to employment status was carried out using a cross-tabulation method, Chi-square test and risk estimates to establish whether the field of study affects the employment outcome for graduates. This analysis is particularly important because it shows what course areas are likely to lead to job placements, thus enabling policy makers to determine if educational outputs are aligned with labour market demands.

Table 4.10 provides the employment status of UFH and WSU graduates across different CESM categories. The cross-tabulation table shows that the total number of unemployed graduates in both UFH and WSU is 6462, accounting for 86,9% of all the graduates, with the total number

of employed graduates (970) accounting for 13,1% of the graduates. Additionally, the table shows that dominant CESM categories, which are the drivers of significance with adjusted residual > ±1,9, are Visual and Performing Arts (1460 unemployed graduates and 296 employed graduates), Computer and Information Sciences (1079 unemployed graduates and 116 employed graduates) and Family Ecology and Consumer Sciences (313 unemployed graduates and 31 employed graduates).

Table 4.10: Cross-Tabulation Summary

CESM Categories		Employment status		
		Not employed	Employed	Total
1. Agriculture, Agricultural Operations and Related Sciences	Count	170	29	199
	Expected Count	173,0	26,0	199,0
	% Within CESM 2015	85,4%	14,6%	100,0%
	Adjusted Residual	-0,6	0,6	
2.Architecture and the Build Environments	Count	74	15	89
	Expected Count	77,4	11,6	89,0
	% Within CESM 2015	83,1%	16,9%	100,0%
	Adjusted Residual	-1,1	1,1	
3.Visual and Performing Arts	Count	1460	296	1756
	Expected Count	1526,8	229,2	1756,0
	% Within CESM 2015	83,1%	16,9%	100,0%
	Adjusted Residual	-5,4	5,4	
4.Business, Economics and Management Studies	Count	185	27	212
	Expected Count	184,3	27,7	212,0
	% Within CESM 2015	87,3%	12,7%	100,0%
	Adjusted Residual	0,1	-0,1	
	Count	548	82	630

5.Communication, Journalism and Related Studies	Expected Count	547,8	82,2	630,0
	% Within CESM 2015	87,0%	13,0%	100,0%
	Adjusted Residual	0,0	0,0	
6.Computer and Information Sciences	Count	1079	116	1195
	Expected Count	1039,0	156,0	1195,0
	% Within CESM 2015	90,3%	9,7%	100,0%
	Adjusted Residual	3,7	-3,7	
7.Education	Count	182	29	211
	Expected Count	183,5	27,5	211,0
	% Within CESM 2015	86,3%	13,7%	100,0%
	Adjusted Residual	-0,3	0,3	
8.Engineering	Count	1	0	1
	Expected Count	0,9	0,1	1,0
	% Within CESM 2015	100,0%	0,0%	100,0%
	Adjusted Residual	0,4	-0,4	
9.Health Professions and Related Clinical Sciences	Count	152	20	172
	Expected Count	149,6	22,4	172,0
	% Within CESM 2015	88,4%	11,6%	100,0%
	Adjusted Residual	0,6	-0,6	
10.Family Ecology and Consumer Sciences	Count	313	31	344
	Expected Count	299,1	44,9	344,0
	% Within CESM 2015	91%	9%	100%
	Adjusted Residual	2,3	-2,3	
11.Languages, Linguistic and Literature	Count	262	45	307
	Expected Count	266,9	40,1	307,0
	% Within CESM 2015	85,3%	14,7%	100,0%

	Adjusted Residual	-0,9	0,9	
12.Law	Count	110	18	128
	Expected Count	111,3	16,7	128,0
	% Within CESM 2015	85,9%	14,1%	100,0%
	Adjusted Residual	-0,3	0,3	
13.Life Sciences	Count	210	15	225
	Expected Count	195,6	29,4	225,0
	% Within CESM 2015	93,3%	6,7%	100,0%
	Adjusted Residual	2,9	-2,9	
14.Mathematics and Statistics	Count	12	2	14
	Expected Count	12,2	1,8	14,0
	% Within CESM 2015	85,7%	14,3%	100,0%
	Adjusted Residual	-0,1	0,1	
16. Military Sciences	Count	293	28	321
	Expected Count	279,1	41,9	321,0
	% Within CESM 2015	91,3%	8,7%	100,0%
	Adjusted Residual	2,4	-2,4	
17. Philosophy, Religion and Theology	Count	119	17	136
	Expected Count	118,2	17,8	136,0
	% Within CESM 2015	87,5%	12,5%	100,0%
	Adjusted Residual	0,2	-0,2	
18. Psychology	Count	424	57	481
	Expected Count	418,2	62,8	481,0
	% Within CESM 2015	88,1%	11,9%	100,0%
	Adjusted Residual	0,8	-0,8	
	Count	655	112	767
	Expected Count	666,9	100,1	767,0

19. Public Management and Services	% Within CESM 2015	85,4%	14,6%	100,0%
	Adjusted Residual	-1,3	1,3	
20. Social Sciences	Count	213	31	244
	Expected Count	212,2	31,8	244,0
	% Within CESM 2015	87,3%	12,7%	100,0%
	Adjusted Residual	0,2	-0,2	
Total	Count	6462	970	7432
	Expected Count	6462,0	970,0	7432,0
	% Within CESM 2015	86,9%	13,1%	100,0%

[Source: Author's own calculations from NSFAS 2015 dataset]

The statistical analysis in Table 4.11 shows a significant relationship between CESM categories and employment status, confirmed by the Pearson Chi-square test ($\chi 2$) independence which yields a value of 57,749 with 18 degrees of freedom (df) and an asymptotic significance (2-sided) p-value less than 0, 001. The null hypothesis is rejected **(Ho:** CESM has no effect on graduate employability) because the p-value is less than the significance level (alpha = 0,05). This finding indicates that the CESM has a positive effect on graduate employability, and it indicates that there is indeed a statistically significant relationship between the CESM categories and graduates' respective employment. The symmetric measures, including the Phi coefficient and Cramer's V, assesses the strength of the association between CESM categories and employment status. The Phi coefficient of 0,088, with a significance level less than 0,001, indicates a statistically significant but weak association, suggesting that other factors also influence employment outcomes. Cramer's V value of 0,088 confirms this weak but significant link.

Table 4.11: Chi-Square and Symmetric Measures Tests summary

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	57,749[a]	18	<,001

Likelihood Ratio		59,757	18	<,001
Nominal by Nominal	Phi	,088		<,001
	Cramer's V	,088		<,001
N of graduates		7432		

[Source: Author's own calculations from NSFAS 2015 dataset]

4.3.4. NQF Level

This section examines the relationship between the National Qualifications Framework (NQF) levels and employment status using cross-tabulation, Chi-square tests, symmetric measures, and risk estimates to determine whether the NQF level as a direct indicator of educational attainment determines graduate employability.

Table 4.12 shows the employment status of graduates across NQF levels, revealing significant deviations between observed and expected counts. The NQF Level 6 graduates have the highest overall employment rate (6,6%), with 493 graduates employed out of 3,297 graduates, exceeding expected values. The NQF Level 7 has an overall employment rate of (4,7%) with 347 employed out of 3129 graduates, while NQF Level 8 has the lowest overall employment rate of (1,8%) 130 graduates employed out of 1006 graduates, indicating that higher qualifications do not necessarily guarantee immediate employment. Therefore, NQF Level 6 and 7 are the drivers of significance as the adjusted residual is > ±1,9.

Table 4.12: Cross-Tabulation Summary

NQF Levels		Employment status			Overall Employment rate		
		Not employed	Employed	Total	Not employed	Employed	Total
NQF level 6	Count	2804	493	3297	37,7%	6,6%	44,3%
	Expected Count	2865,8	430,2	3296			
	% Within NQF level	85%	15,0%	100%			
	Adjusted Residual	-4,3	4,3				
NQF level 7	Count	2782	347	3129	37,4%	4,7%	42,1%
	Expected Count	2720,6	408,4	3129			
	% Within NQF level	88,9%	11,1%	100%			

	Adjusted Residual	4,3	-4,3				
NQF level 8	Count	876	130	1006	11,8%	1,8%	13,6%
	Expected Count	874,7	131,3	1006			
	% Within NQF level	87,1%	12,9%	100%			
	Adjusted Residual	,1	-,1				
Total	Count	6462	970	7432	86,9%	13,1%	100%
	Expected Count	6461,0	970,0	7432			
	% Within NQF level	86,9%	13,1%	100%			

[Source: Author's own calculations from NSFAS 2015 dataset]

The Chi-square tests in Table 4.13 demonstrate a significant relationship between NQF levels and employment status, with a Pearson's Chi-square value of 21,175 ($p < 0,001$) and a likelihood ratio Chi-square value of 21,261 ($p < 0,001$). Since the p-value is below the usual threshold of 0,05, we reject the null hypothesis which posits that the NQF level has no effect on graduate employment status. A statistically significant association exists between NQF levels and employment status, implying that educational attainment affects graduate job-seeking outcomes. The symmetric measure figures also reveal a statistically significant but weak association between NQF levels and employment status, with a Phi coefficient and Cramer's V both at 0,053 ($p < 0,001$), implying that educational attainment affects graduate employment outcomes.

Table 4.13: Chi-Square and Symmetric Measures Tests Summary

		Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square		21,175[a]	2	<,001
Likelihood Ratio		21,261	2	<,001
Nominal by Nominal	Phi	,053		<,001
	Cramer's V	,053		<.001
N of graduates		7431		

[Source: Author's own calculations from NSFAS 2015 dataset]

4.4 Probabilistic Signals

4.4.1. Dependent variables used in the study

Probabilistic signals are important in hiring decisions, especially where employers have to make rapid choices owing to scarce information about a candidate. Fossati et al. (2020) claim that some employers use probabilistic signals when they want to know if an applicant possesses the right behaviour for job or if he/she is able to acquire new skills quickly.

4.4.2. Gender

To investigate the relationship between gender and employment status this section employs a cross-tabulation approach, Chi-square tests, symmetric measures, and risk estimates. These statistical tools provide evidence of whether gender determines employment outcomes among graduates.

Table 4.14 shows 6462 (86,9%) graduates who were unemployed with only 970 employed, accounting for 13,1% of the graduates. The table also shows that there are more females than males, with 4430 females accounting for 59,6%, while 3002 males account for 40,4% of the graduates. The overall graduate employment rate shows 2252 males unemployed, accounting for 34,4% of the graduates, and 450 males employed, accounting for 6,1% of graduates. The overall employment rate among females shows that 3910 (52,6%) females were unemployed, while 520 females (7% of the graduates) were employed, showing that, in terms of the overall employment rate, more females were employed than males. The percentages within the gender groups show that 2252 (85%) of males were unemployed, while 3910 (88,5%) females was unemployed. Furthermore, 15% of males and 11,7% females were employed within the gender group. The adjusted residuals for both genders are significant at ±4,1, indicating that gender significantly impacts employment probability.

Table 4.14: Cross-Tabulation Table

Total graduates' overall employment rate (n=7432)					
Males			**Females**		
Total	**Employed**	**Unemployed**	**Total**	**Employed**	**Unemployed**
3002	450	2252	4430	520	3910
40,4%	6,1%	34,3%	59,6%	7%	52,6%

Adjusted residual	4,1	-4,1	**Adjusted residual**	-4,1	4,1
Employment % within gender					
Males			**Females**		
Unemployed	**Employed**	**Total**	**Unemployed**	**Employed**	**Total**
2252	450	3002	3910	520	4430
85%	15%	100%	88,5%	11,7%	100%

[Source: Author's own calculations from NSFAS 2015 dataset]

The tests in Table 4.15 reveal significant statistical relationships between gender and employment status. Whether or not gender significantly effects employment outcomes after graduation is made clear in this analysis. The Pearson Chi-Square ($p < 0{,}001$, $\chi2 = 16{,}674$, df = 1) confirms a strong association between gender and employment outcomes with the likelihood ratio test ($\chi2 = 16{,}488$, $p < 0{,}001$) supporting this finding.

The Phi value of -0,047 suggests a weak association between gender and employment status for the Chi-Square test results (Hartmann, & Bergh, 2019). This indicates that gender does have an influence as far as employment outcomes are concerned. Additionally, Cramer's V was found to be ,047, p< ,001, confirming confirms that there is statistical significance between gender and employment status. Also, this value is weak as is evident from the fact that it is less than 0,047 (Shittu, 2019; Senthil, 2021) and therefore implies that we accept the alternative hypothesis **H4:** Gender has a positive effect on graduate employability.

Table 4.15: Chi-Square and Symmetric Measures Tests Summary

		Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square		16,674[a]	1	<,001
Likelihood Ratio		16,488	1	<,001
Nominal by Nominal	Phi	-,047		<,001
	Cramer's V	,047		<,001
N of graduates		7431		

[Source: Author's own calculations from NSFAS 2015 dataset]

The risk estimate table (Table 4.16) provides an understanding of the gender dynamics in terms of employment by examining odds ratios for different scenarios. This statistic helps to explain how likely one is to be employed considering their gender, thereby giving insight into gender-based disparities within the job market. The odds ratio for gender (Male/Female) is 0,754, with a 95% confidence interval ranging from 0,659 to 0,864. This ratio implies that males have fewer chances than females of being employed, after adjusting for other factors in the model. An odds ratio less than 1 means that the event under consideration is more probable for those in the denominator group (females) than those in the numerator group (males). The odds ratio of 0,754 for gender (Male/Female) indicates that, after adjusting for other factors in the model, males have a lower chance than females of being employed.

Table 4.16: Risk Estimate Table

	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for gender (Male / Female)	,754	,659	,864
For cohort Employed 0_1 = Not employed	,963	,946	,981
For cohort Employed 0_1 = Employed	1,277	1,136	1,436
N of graduates	7432		

[Source: Author's own calculations from NSFAS 2015 dataset]

4.4.3. Age

This section explains how age groups relate to different types of the employment they undertake after graduation. It was necessary to group the age since it was not possible to work with other age groups as they were few for this study. The analysis employed cross-tabulation table, Chi-square tests, symmetric measures and risk estimate table of whether age has an impact on graduate employability.

Table 4.17 shows five age groups to which graduates belong, and their employment status – either employed or not employed. The purpose of binning age groups was to make meaningful comparisons possible and deal with potential sample-size problems associated with smaller age

brackets. The overall unemployment rate for all the age groups is 86,9% and the overall employment rate is 13,1%.

The age group, 21 Years or Younger, has the highest number of graduates out of all the other age groups: 3,350 individuals, with 3,058 unemployed graduates and 292 who are employed. This age group, 21 years or younger, the highest overall employment rate of 4% and highest overall unemployment rate of 41,1%. The 21-years or younger group has the highest unemployment rate of 91,3% within the age group. The adjusted residuals for 'not employed' were found to be 10,1 and -10,1 for employed. Since the adjusted residuals are > ±1,9 it shows the age 21 years or younger is a driver of significance.

Age Group 22 Years: This group contains 1,425 graduates, with (n=1239) those who are not employed and (n=186) those who are employed. The adjusted residual for this age group is < ±1,9 which shows that it is not a driver of significance. For the 23-year-old group, out of 1,024 individuals, 874 were unemployed, with only 150 accounting for 2% of the overall employment rate of graduates who were employed. The adjusted residuals for not employed were -1,6, and for employed, were +1,6, indicating that the age group was not a driver of significance. In the 24-year-old group of the 671 individuals, 575 were unemployed and 96 (1,3%) were employed. The adjusted residuals of -1,0 for not employed and +1,0 for employed also suggested this age group is also not a driver of significance. For those aged 25 years and older, out of 962 individuals, 716 were unemployed and 246 (3,3%) were employed. The 25-years or older group had highest employment rate of 25% and the lowest unemployment rate within the age group. The adjusted residuals of > ±1,9 show the age group of 25 years or older is a driver of significance.

Table 4.17: Cross-tabulation Table

Age after graduation		Employment status			Overall employment rate		
		Not employed	Employed	Total	Not employed	Employed	Total
21 years or younger	Count	3058	292	3350	41,1%	4%	45,1%
	Expected Count	2912,8	437,2	3350			
	% Within age group	91,3%	8,7%	100%			
	Adjusted Residual	10,1	-10,1				

22 years	Count	1239	186	1425	16,7%	2,5%	19,2%
	Expected Count	1239,0	186,0	1425			
	% Within age group	86,9%	13,1%	100%			
	Adjusted Residual	,0	,0				
23 years	Count	874	150	1024	11,8%	2%	13,8%
	Expected Count	890,4	133,6	1024			
	% Within age group	85,4%	14,6%	100%			
	Adjusted Residual	-1,6	1,6				
24 years	Count	575	96	671	7,7%	1,3%	9%
	Expected Count	583,4	87,6	671			
	% Within age group	85,7%	14,3%	100%			
	Adjusted Residual	-1,0	1,0				
25 years or older	Count	716	246	962	9,6%	3,3%	12,9%
	Expected Count	836,4	125,6	962			
	% Within age group	74,4%	25,6%	100%			
	Adjusted Residual	-12,4	12,4				
Total	Count	6462	970	7432	86,9%	13,1%	100%
	Expected Count	6462,0	970,0	7432			
	% Within age group	86,9%	13,1%	100%			

[Source: Author's own calculations from NSFAS 2015 dataset]

Table 4.18 shows the results of the analysis used to discover the statistical significance of the relationship between age groups and employment status among graduates. Age has a strong association with employment status as indicated by the large value of Pearson Chi-square 191,594. The significant result of the Pearson Chi-square means we reject **Ho:** implying that age has no effect on graduate employability and accept **H5:** age has a positive effect on graduate employability. Similar to Pearson's Chi-square test, the Likelihood Ratio value of 173,214 is also significant at p<0 ,001 which further confirms that there is a significant relationship between age groupings and employment status.

The Symmetric Measures summary gives more insights into the strength and consistency of the relationship between age groups and employment status. Both values of the Phi coefficient as well as Cramer's V factor in at 0,161, showing how strongly age is associated with employment status. The approximate significance level (p<,001) confirms that this association is statistically significant.

Table 4.18: Chi-square and Symmetric Measures Tests Summary

		Value	df	Asymptotic Significance (2-sided)
Pearson Chi-square		191,594[a]	4	<,001
Likelihood Ratio		173,214	4	<,001
Nominal by Nominal	Phi	,161	<,001	
	Cramer's V	,161	<,001	
N of graduates		7432		

[Source: Author's own calculations from NSFAS 2015 dataset]

4.5 Conclusion

The main objective of this chapter was to present the analysis of five important variables, three of which were direct signals (University, CESM categories and NQF levels) and two probabilistic ones (Gender and Age) using descriptive statistics. The first objective was to determine whether these direct signals are associated with graduate employment outcomes. The analysis used cross-tabulation, Chi-square tests and symmetric measures, and showed that there is no statistically significant difference between the University of Fort Hare (UFH) and Walter Sisulu University (WSU) in their employment outcomes. Nevertheless, some CESM categories for Visual and Performing Arts, Computer and Information Sciences, and Family Ecology and Consumer Sciences showed a notable deviation, indicating a strong relationship with employment status. Similarly, NQF Levels 6 and 7 exhibited significant deviations, where Chi-square test results indicated a small but statistically significant association with employment. The gender analysis found that both males and females have significant associations with employment, with males having a higher employment rate within the gender group and females having the highest overall employment rate and more chances of being employed. Significant correlation of age was also observed particularly, for the '21 years or younger' and '25 years or older' groups, showing that outcomes for employees were age dependent.

CHAPTER 5: DISCUSSION

5.1. Introduction

The preceding chapter provided an overview of the various analyses. The aim of this chapter is to provide a context for and interpretation of the impact of direct and probabilistic signals in as far as graduate employability at UFH and WSU is concerned. This chapter therefore explores the complex nature of graduate employability using the variables of university type, CESM category, NQF level, gender and age, which depict both direct and probabilistic signals. The following objectives were addressed in the study:

- To examine the effect of direct signals on graduate employability
- To determine probabilistic signals influencing graduate employability.

5.2. Research Hypotheses

The research hypotheses of this study were:

Direct signals:

Ho: Was rejected, the University attended has no effect on graduate employability.

H1: The University attended has a positive effect on graduate employability.

Ho: CESM has no effect on graduate employability.

H2: Was accepted, CESM has a positive effect on graduate employability.

Ho: NQF level has no effect on graduate employability.

H3: Was accepted, NQF level has a positive effect on graduate employability.

Probabilistic signals:

Ho: Gender has no effect on graduate employability.

H4: Was accepted, Gender has a positive effect on graduate employability.

Ho: Age has no effect on graduate employability.

H5: Was accepted, Age has a positive effect on graduate employability.

5.3.Discussion of Findings

5.2.1. Direct Signals

5.2.1.1. University Affiliation

The University affiliation signal showed no significant difference between graduates of University of Fort Hare (UFH) and Walter Sisulu University (WSU) in terms of employment outcomes. This finding is noteworthy as it suggests that employer perception does not

substantially favour one university's graduates over another's, at least within the contexts of these two historically disadvantaged universities.

The observed similarity in employment rates for UFH and WSU graduates could be indicative of wider patterns prevailing within South African higher education. Historically disadvantaged institutions (HDIs) in South Africa are working hard to improve their offerings and reputations. These have included improved funding levels, physical infrastructure and academic programs, among others aimed at elevating these institutions (Council on Higher Education, 2018). As a result, the boundaries between different universities in terms of perceived quality of education seem to be narrowing, leading to similar employment outcomes.

Lack of statistically significant variation across employment outcomes may imply that what matters most to employers is an individual's abilities rather than the institution they attended. This coincides with a growing trend towards skills-based hiring which seeks measurable skills and experience rather than qualifications or the source of the qualification. Practical assessments, portfolio interviews or competency-based interviews are being used more and more by employers as a way to assess potential employees, increasingly making employers look past the school's name on a resume or even a graduate certificate (McKinsey & Company, 2020).

5.2.1.2. CESM Categories

The research showed some weak but significant associations between different CESM (Classification of Educational Subject Matter) categories and employability. In relation to job prospects, these findings underline the significance of certain fields of specialization. For example, Visual and Performing Arts, Computer and Information Sciences, Family Ecology and Consumer Sciences, Life Sciences and Military Science had better employment outcomes than other fields.

It has been well-documented that graduates from technical and STEM (science, technology, engineering and mathematics) fields have high employability. Technological advancements and the digital transformation of industries are contributing to rapid growth in these fields, resulting in a demand for professionals with the appropriate skills (National Science Foundation, 2020). As such, they are highly sought after by employers and show better employment outcomes.

However, people who graduate in the visual arts industry do not have any direct links between specific job roles or sectors (CESM category 3), which may make it difficult for them to find jobs. It is true that recruiting in these areas usually requires additional networking, self-marketing and development of student portfolios leading to the fact that their employment rates tend to be lower than other courses. Moreover, traditional employment indicators might miss some of those who take more niche or entrepreneurial paths (Brookings Institution, 2019).

5.2.1.3. NQF Level

There was a weak but significant link between NQF level and employment status noted in this study. The NQF Level 6 has a relatively higher rate of employment than either Levels 7 and 8, which might seem illogical if we were considering better outcomes with higher qualifications. Factors explaining this anomaly include:

1. Market Demand and Skills Relevance: A high proportion of graduates at NQF Level 6 may indicate that skills acquired at this educational tier conform more closely to needs prevailing in the outside labour market. Technical and vocational education, typically offered at NQF Level 6, may be useful in a variety of industries as it provides practical, hands-on skills which can be immediately applied.
2. Job Readiness: The practical and applied nature of training at the NQF Level 6 may make its graduates more job-ready upon completion. This is opposed to higher NQF levels that are often based on theory only and for which a candidate may require further experience or training before being fully functional for employment purposes.
3. Field of Study: The impacts of NQF level on employment status are highly field dependent. For example, a diploma in a high-demand technical field might lead to better employment outcomes than a bachelor's degree in a less marketable field. This analysis is supported by the earlier analysis of CESM categories that showed significant variations in employment rates across different fields of study (Muller & Wolff, 2020).
4. Economic Conditions: Broader economic conditions and labour market dynamics also play a crucial role. In nations with high unemployment rates, specialized practical skills may be more important than a general higher education.
5. Experience vs Education: At time, employers may prefer relevant experience and particular skills over higher academic qualifications for entry-level jobs. This preference can influence the observed employment outcomes across various NQF levels.

5.2.2. Probabilistic Signals

5.2.2.1. Gender

This research showed there was a statistically significant but relatively small correlation between gender and employment status. Males were slightly less likely to be employed than their female counterparts, who represented the majority. A man is traditionally perceived as the breadwinner with better chances for being employed a woman. This can be explained by the traditional male dominance reported in homemaker situations where men are assumed to play this role while women take care of the home and the children. However, findings from the sample considered in this research contradict such beliefs, suggesting that this vision may be incorrect.

The change in this trend might be due to recent changes in the labour market or in social norms. For example, concerns about diversity and gender balance in employment have increased, and many companies have embraced affirmative action and promoted women in the workplace with the aim of ensuring gender equality. This could partly explain why more women were able to secure jobs than men were.

Also, the level of education among women has been improving over time. According to the World Economic Forum (2021), women have now surpassed men in educational achievements worldwide. The higher level of education results in better job opportunities which may account for the slightly greater number of females than males in employment. Furthermore, the nature of work is changing with sectors typically employing women, such as healthcare and teaching, recording increased growth supporting the growing tendency of female employment.

Finally, there are several social-cultural shifts taking place within the labour markets which may influence workplace interactions. The demand for flexible working conditions, like remote work or part-time hours, often suits women better as they need to maintain a balance between their work and family lives. These changes make it easier for many women either to remain in or return to work, thereby boosting their employability rates (Catalyst, 2020).

5.2.2.2. Age

A moderate and significant correlation was found between age and employment status, with those in 21 years or younger group showing higher overall employment rates and the 25 years

or older group showing the highest employment rate within this category. This finding is consistent with the idea that work experience and professional networks, which tend to increase with age, play a crucial role in enhancing employability.

Older graduates often have more extensive work experience, which is highly valued by employers. Experience not only provides practical skills and knowledge but also demonstrates a candidate's ability to navigate and adapt to the workplace environment. Additionally, older graduates may have more developed professional networks, which can be instrumental in finding job opportunities through referrals and recommendations (Granovetter, 2018).

The higher employment rates among older graduates might also reflect the cumulative advantages of continuous skill development and career progression. Individuals who have been in the workforce longer have had more opportunities to acquire new skills, adapt to industry changes, and climb the career ladder, all of which enhance their employability (Schultz & Adams, 2019).

5.4. Interaction between Direct and Probabilistic Signals

The interaction between direct signals and probabilistic signals in employment signals that the job market is complex. Direct signals like educational qualifications are clear indicators of a person's capability while probabilistic ones, such as gender and age, make it more complicated by showing broader trends about society. Although there is a weak correlation between NQF levels and employment, the chances of securing jobs can be influenced by other factors like age or gender, even though higher educational achievements improve the chances of securing jobs. In this case, older graduates with better credentials may find it easier to find employed because of their experience as well as networks, while younger ones may struggle, despite having similar qualifications (World Economic Forum, 2021).

Similarly, the interaction between gender and CESM categories reveals how societal norms and industry demands shape employment outcomes. While women are likely to have brighter future careers in some disciplines owing to affirmative action policies or the nature of those fields, men still dominate some technical fields despite their equal qualifications (Catalyst, 2020).

5.5.Practical Implications

This nuanced understanding of how direct and indirect messages affect employability has practical implications for education and employment actors.

5.1. Universities and colleges must draw on such insights to customize their curricula and other support to prepare graduates for jobs. Incorporating more practical experience and industry collaborations into courses, for example, can enhance the readiness of graduates for employment (Smith & Taylor, 2020).

5.2. Linking education with career: improved career advice according to factors like race or age brackets could enhance prospects in the job market; for example, mentoring programs that bring together young alumni with professionals in various industries who may offer them counsel, as well as networking opportunities can improve preparation for the workplace (Harper & Quaye, 2019).

5.3. Employers: Understanding direct signals against probabilistic ones can help employers to improve their recruitment approaches. In order to foster a workforce that is diverse and also capable of meeting set objectives, McKinsey suggests holistic hiring which looks at qualifications as well as broader demographic trends (McKinsey & Company, 2020).

5.4. Making policies: Based on these findings that address different demographic groups' specific challenges, policymakers will be able to design appropriate interventions. Policies that encourage lifelong learning and continuous skills enhancement are important in promoting employability at all ages (World Bank, 2019).

5.5. The Role of Direct Signals in Shaping Employability

Direct signals, such as educational certificates, university attended, specific courses taken under CESM categories, serve as key indicators or predictors of someone's competency and readiness for the job market. Such criteria are often used by employers as they sift through potential employees. Findings on NQF levels in this study underscore the importance of higher education in improving employment chances. Although there is a small effect size, it confirms that higher levels of formal education are associated with better employment outcomes (Muller et al., 2020).

- **The Influence of University Affiliation**

This lack of significant differences in job outcomes between the UFH and WSU graduates illustrates an important aspect of South Africa's current educational and labour landscape. This finding suggests that the improvements in educational quality and institutional support at HDIs

are levelling the playing field, making the perceived prestige of the institution less critical than it once was (Council on Higher Education, 2018).

For graduates this means that the value of their degree is increasingly determined by the skills and experience they accumulate during their studies, rather than the brand of the university alone. For institutions, it underscores the importance of continuous improvement in academic standards, student support services, and industry engagement to maintain and enhance their graduates' employability (Smith et al., 2020).

- **The CESM Categories and Employability**

The significant relationship between certain CESM categories and employment status reflects the varying demand for different fields of study in the labour market. Technical and STEM-related fields, such as Computer and Information Sciences, demonstrate higher employability rates, aligning with global trends that favour technological proficiency and innovation (National Science Foundation, 2020).

This trend is not surprising given the rapid digital transformation across industries. Skills in computer science, data analysis, and information technology are critical as organizations strive to remain competitive and adapt to technological advancements. Graduates in these fields are likely to find abundant opportunities, higher salaries, and career advancement prospects, making these disciplines highly attractive (Brookings Institution, 2019).

5.6. Gender Dynamics in Employment

The study's findings on gender and employability reveal a modest but important trend. Despite the slight advantage evident for female graduates over males at present, future-oriented education policies should be further developed towards gender equality objectives, thereby helping to achieve parity.

However, the slight advantage observed does not negate challenges faced by women in the job market, which include wage inequalities, under-representation in positions of authority, and potential forms of bias during recruitment and promotion exercises. These problems need continuous addressing so that females can be treated as equals with men across all lines of life (Musetho, Isac & Dobrin, 2021).

5.7. The Impact of Age on Employability

The strong correlation between age and employment status, with the group of graduates 25 years or older showing higher employment rates than the other age groups, underscores the cumulative advantages that come with age. Experience, maturity and networks matter and enhance employability. Older individuals often have a wealth of practical knowledge and industry insights that make them valuable assets to employers (Granovetter, 2018).

On the other hand, younger graduates may have no experience, but greater, more recent academic knowledge obtained from schools. However, their opportunities for jobs may be limited since they do not possess any experience as their elder counterparts do (Schultz et al., 2019).

5.8. Comprehensive Approach to Enhancing Employability

The findings of this study advocate for a comprehensive approach to enhancing graduate employability. Educational institutions, employers and policymakers must collaborate in order to create enabling environments for both direct and probabilistic signals of quality (Catalyst,2020).

In order to furnish a high standard of education, educational institutions should concentrate on maintaining strong ties with the industry and offering experiential education that equips graduates with practical skills. Support services for career guidance need to be adjusted so that they are more outcome-oriented for current graduates as well as alumni. All these include internships, teaching technical skills and job placement programs which are tailored towards meeting the needs of diverse populations (Harper et al., 2019).

5.9. Concluding Remarks

The impact of direct and probabilistic signals on employability is complex and multifaceted. However important educational qualifications and institutional affiliations may be, capturing that information without taking into consideration factors such as gender or one's age is far from being enough. To enable sound decision-making regarding these issues, it is necessary to understand how these variables interact, thereby empowering stakeholders to develop effective strategies for supporting successful graduate employment.

This study contributes to wider discussions around employability by showing why holistic approaches matter. It emphasizes continuous improvement in education quality, creating

environments where all graduates can flourish through inclusive recruitment practices and easing policies. Finally, ongoing research alongside partnerships between higher learning institutions, recruiters, and employers, as well governments will greatly assist in nurturing an adaptable, skilled, diverse workforce as labour markets continue to develop.

CHAPTER 6: CONCLUSION

6.1. Introduction

This research provided an analysis of the dynamics influencing graduate employability from the University of Fort Hare (UFH) and Walter Sisulu University (WSU), with a focus on the interplay between direct and probabilistic signals. The study explored the impact of various factors, such as university affiliation, CESM category, NQF level, gender, and age on employment outcomes. This chapter provides a brief summary of the findings, the limitations of the study, the contribution of the study, and provides recommendations for future research.

6.2. Summary of the findings

Descriptive statistics were used to analyse five major variables, including three direct signals (University, CESM categories and NQF level) and two probabilistic signals (gender and age). The first objective was to determine whether the direct signals were associated with graduate employment outcomes. The findings from University Affiliation **s**howed that the university attended has no effect on employment outcomes. A possible reason for this finding could be their proximity within similar socio-economic-educational environment conditions. Both institutions face challenges like limited resources, poor industry connections, historical disadvantages, and so on, which limit their ability to provide extensive career support services. This suggests that employer perceptions do not significantly favour graduates from one institution over the other, at least within the context of these two universities.

The findings from CESM categories indicate that there is a positive effect between the CESM categories and graduates' respective employment, meaning that the field of study does matter when it comes to finding jobs after graduation. Drivers of significance can be seen in employment opportunities for graduates who major in Visual and Performing Arts, Computer and Information Sciences, Family Ecology and Consumer Sciences, Life Sciences and Military Science.

The findings from NQF Level showed a positive effect between NQF level and employment outcomes. The NQF level 6 had the highest employment outcomes, with NQF Level 8 graduates being employed least, indicating that higher qualifications do not necessarily guarantee immediate employment.

The second objective was to determine whether the probabilistic signals are associated with graduate employment outcomes. The study found a statistically significant relationship

between gender and employment status. Males were slightly less likely to be employed than females, challenging conventional stereotypes about gender and job market success.

The findings from age indicated a significant correlation between age and employment status. It was interesting to see those graduates of 21 years or younger showed higher employment rates, although those in the group of 25 years or older were also drivers of significance.

6.3. Limitations

Despite its contributions, this study is not without limitations. Firstly, the analysis was confined to graduates from only two universities, which does not fully represent the broader dynamics across all higher education institutions in South Africa. Additionally, the study relied on secondary data, which could introduce bias or inaccuracies in the reporting of employment status. The cross-sectional design of the research also means that it captures a snapshot in time, limiting our ability to draw conclusions about the long-term employment trajectories of graduates. Finally, the study did not account for external economic factors or regional employment opportunities that could significantly influence employability.

6.4.Contribution of the study

This research makes several important contributions to the academic literature on graduate employability. It highlights the nuanced roles that both direct and probabilistic signals play in influencing employment outcomes, providing empirical evidence that challenges some conventional assumptions about the job market.

Furthermore, this study adds to the existing body of research on graduate employability concentrating on two formerly underrepresented institutions in the Eastern Cape. Although a large body of research has been done on employability factors and signalling theory (Tomlinson et al., 2021; Akkermans et al., 2023; Corrinne, 2023; Jacson 2023), few studies explore these dynamics in the context of Eastern Cape, especially in previously disadvantaged historically institutions, offering insights that could inform policy and practice aimed at enhancing graduate employability. Moreover, by quantitatively assessing the impact of various factors on employment status, this study adds to the body of knowledge regarding the effectiveness of different educational signals in the labour market.

6.5. Recommendations for future research

Given the limitations and findings of the study, several recommendations can be made to enhance the employability of graduates, especially those from historically disadvantaged institutions.

The impact of university rankings and their potential signaling effects on employment outcomes should be further investigated. Such studies may offer more profound understanding of the ways in which recruiting decisions and employer perceptions may be impacted by institutional prestige.

Even though a conceptual framework was created and used to direct the analysis of secondary data, with an emphasis on factors like age, gender, NQF level, and CESM category, further study is still required to apply this framework to primary data collecting. Primary research could provide a more nuanced understanding of the variables and possibly uncover underlying aspects that were not included in the current database.

Enhance Career Services: Institutions should invest in robust career services that offer personalized career counselling, job search assistance, and skills workshops tailored to the diverse needs of their student populations. Emphasizing the development of soft skills, such as communication and teamwork, alongside academic qualifications could better prepare graduates for the complexities of the job market.

Strengthen Industry-Academia Linkages**:** Universities should actively seek partnerships with industries to align their curricula with current job market demands. This includes facilitating internships, co-op programs, and industry-led workshops to provide graduates with practical experience and networking opportunities that enhance their employability.

Promote Entrepreneurial Education: Given the high unemployment rates, embedding entrepreneurial skills and thinking within the curriculum could empower graduates to create job opportunities for themselves and others. Entrepreneurial education should focus on innovation, risk-taking, and business management, equipping graduates with the tools to launch successful ventures.

Address Equity and Inclusion: Policies should be put in place to address the disparities in employment outcomes among different demographic groups. This includes providing targeted

support for groups that are disadvantaged in the job market, such as women in certain disciplines, to ensure equitable employment opportunities for all graduates.

Evaluate Policy Interventions**:** There is a critical need for empirical evaluations of policies and programs aimed at improving graduate employability. This includes assessing the effectiveness of career services, entrepreneurial initiatives, and industry partnerships in enhancing job prospects for graduates.

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